



Kinetic Technologies

SOLUTIONS HANDBOOK 2023



Innovation in motion™

Introduction to Kinetic Technologies

This handbook highlights the exciting products in both Power and Smart Connectivity product lines to assist you in selecting the best product for your design.

Kinetic Technologies designs and develops proprietary innovative, high-performance analog and mixed-signal integrated circuits, specializing in power, protection, video/audio interfacing and signal integrity, motor control, servicing consumer, communications, industrial, automotive and enterprise markets. Our core products sit “Behind Every Port™”, providing solutions to manage, protect, regulate, and monitor power coming through the port, satisfying the growing demand for USB Type-C, DisplayPort™, HDMI™, Ethernet, and other power connectors in system designs. We also offer solutions to convert the high-speed data through the port as well as to improve its signal integrity.

Through our proprietary circuit design techniques and silicon process technologies, we have created application solutions which solve problems by eliminating external components, reducing package size, reducing noise, protecting electronic loads, increasing power efficiency, and improving data quality without compromising performance. In fact, Kinetic Technologies products meet and exceed some of the industry’s toughest specifications and standards, such as VESA DP, Qi/WPC, IEE802.3, IEC61000-4-2, IEC61000-4.5, UL2367, IEC62368-1 and AEC-Q100.

Kinetic Technologies was founded on the fundamental principle of innovation and that driving force is stronger than ever today. It is deep-rooted in Kinetic the understanding that consumer, communications, industrial, automotive and enterprise System OEMs must continually reinvent themselves by bringing better, faster, smaller, smarter products with new features and functionality to market with each new generation.

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Power ICs

High Performance, Innovative and Space Saving

Kinetic Technologies offers a comprehensive product offering of innovative power products focussing on providing design engineers with the power saving and space saving features they demand. Serving the consumer, communications, computer, industrial and automotive markets, Kinetic products are at both the heart and the periphery of modern designs, in both portable and non-portable applications. Whether it is converting or providing system power with its DC-DC converters, or wireless battery chargers, protecting, routing, and monitoring power and data signals at USB-C ports, or powering and optimally driving white or RGB LEDs, Kinetic has a solution.

Product Lines



Protection & Interface

- EMI/ESD Suppression
- Overvoltage/Overcurrent Protection
- Surge Protection
- USB Type-C Protection
- USB Data Line Protection
- Load Switches
- GPIO Expanders
- Reset ICs

Benefits

- Handle V_{BUS} surges up to 200V
- Protect V_{BUS} in <100ns
- USB data line surge protection up to $\pm 80V$
- Protect data line shorts to V_{BUS} in 15ns
- GPIO expanders with lower I_Q
- Smaller PCB area and lower component count



Display Power

- LCD Backlight and Bias Power
- LED Driver ICs
- Camera LED Flash Drivers

Benefits

- High efficiency and small footprint
- Increased flexibility with I²C programming



RGB/IR LED Drivers

- RGB LED Drivers
- IR LED Drivers

Benefits

- RGB Drivers have lowest component count, smallest PCB area



Power Over Ethernet

- PoE PD Controllers
- PoE PD Regulators

Benefits

- Compliant with IEEE 802.3 Type 1 and Type 2 PD



DC-DC Converters

- Buck Converters
- Boost Converters
- Isolated Flyback Converters

Benefits

- Buck, Boost, Isolated Flyback, and multiple converter PMICs
- Maximum efficiency, smallest size
- Programmability Improves system performance



Wireless Power

- Wireless Power Receivers

Benefits

- Qi/WPC compliant 5W and 15W power receiver solutions
- Single chip wireless power IC minimizes parts count
- Integrates special protections
- Optimized for 97% peak efficiency

Markets Served

Mobile ● Consumer ● Computer ● Automotive & Industrial

USB and USB-C Overvoltage and Surge Protection ICs

Robust Protection with the Smallest Footprint

Kinetic Technologies' integrated overvoltage and surge products help to isolate, manage, and protect not only themselves, but any other unstable downstream components vulnerable to input overvoltage and current surges caused by input power supply faults.

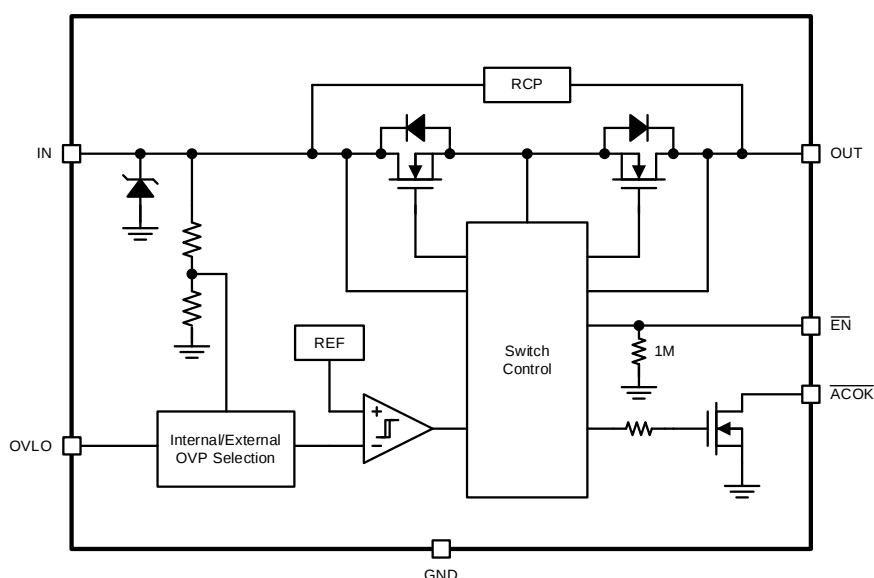
TARGET APPLICATIONS

- ▶ Smartphones/tablet
- ▶ PCs/notebooks
- ▶ IoT devices
- ▶ Digital cameras
- ▶ Game devices
- ▶ Personal Electronics

KEY FEATURES

- ▶ Ultra-low 9mΩ ON resistance
- ▶ In-rush current limit control
- ▶ Input voltages to 29V
- ▶ Overvoltage protection (OVP)
- ▶ Overcurrent protection (OCP)
 - Short-Circuit Protection (SCP)
- ▶ Overtemperature protection (OTP)
- ▶ Reverse blocking protection (RBP)
- ▶ Reverse current protection (RCP)
 - 20mV "Ideal Diode" with 15μs Fast Recovery
- ▶ Surge protection up to ± 200V (IEC61000-4-5)
- ▶ ESD protection up to ±8kV contact, ±15kV air-gap (IEC61000-4-2, Level 4)

KTS1697A: 7A RMS VBUS Current-Sink Protection Load Switch *

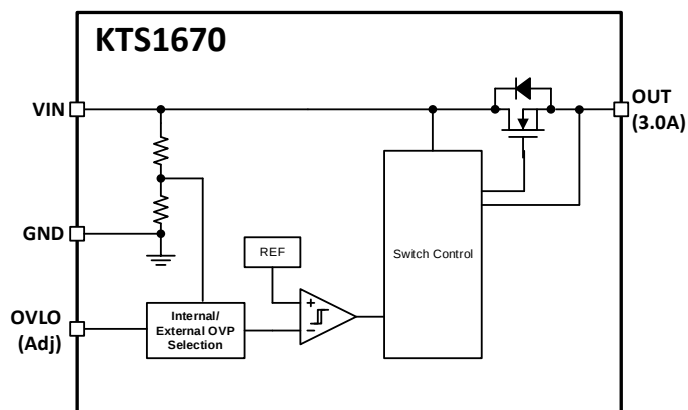


*Specific device shown may not include all the features shown to the left.



USB and USB-C Overvoltage Protection

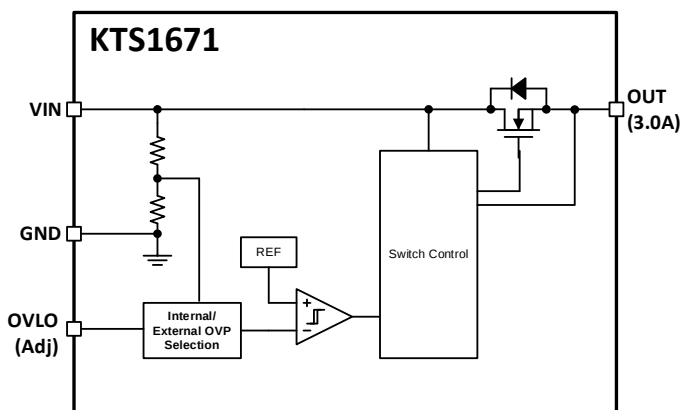
Single-channel Load Switches with OVP



3A, Fixed or 20V Adjustable OVP Switch

V_{IN} : 2.7V – 30V; I_{OUT} = 3.0A

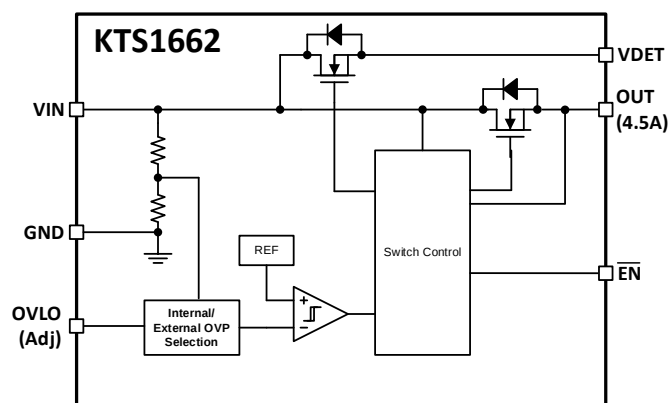
OVP Adj: 4V – 22V; Fixed OVP: 6.05V



3A, Fixed or 20V Adjustable OVP Switch

V_{IN} : 2.7V – 28V; I_{OUT} = 3.0A

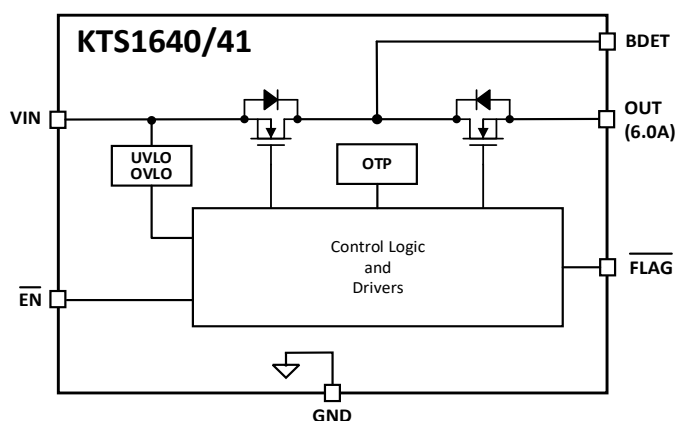
OVP Adj: 4V – 20V; Fixed OVP: 6.15V



4.5A, Fixed or 28V Adjustable OVP Switch

V_{IN} : 2.5V – 40V; I_{OUT} = 4.5A

Adj OVP: 4V – 28V; Fixed OVP: 5.95V, 10.2V and 13.5V

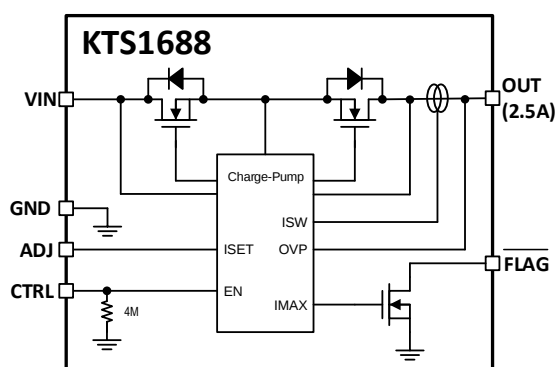


6.0A, Fixed OVP with -28V Reverse Input Voltage Protection and RBP

V_{IN} : 6.0V – 40V; I_{OUT} = 6.0A

Fixed OVP: 27V (KTS1640), 20.3V (KTS1641)

Current Limited Load Switch with Reverse Blocking Protection



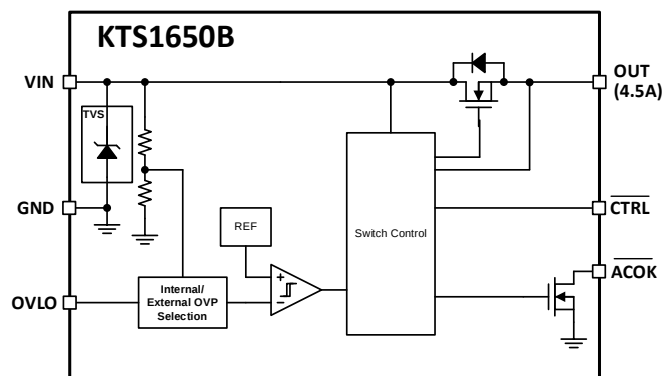
2.5A, Adjustable, Fixed OVP Switch with RBP

V_{IN} : 2.5V – 5.5V; I_{OUT} = 2.5A

Fixed OVP: 5.8V

USB and USB-C Overvoltage Protection

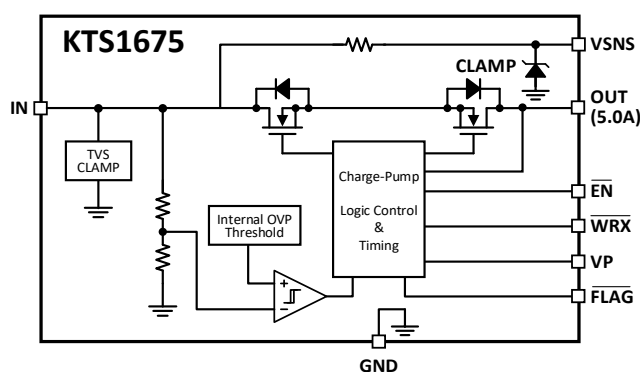
Single-channel Load Switches with OVP and Surge Protection



4.5A, $\pm 200\text{V}$ Surge, 24V Fixed or Adjustable OVP Switch

V_{IN} : 2.3V – 28V; I_{OUT} = 4.5A

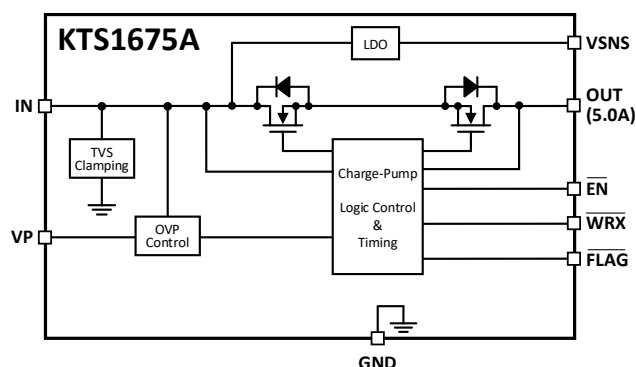
Adj OVP: 4V – 24V; Fixed OVP: 6.4V



5.0A, $\pm 100\text{V}$ Surge, VP Selectable OVP Switch with RBP

V_{IN} : 3V – 28V; I_{OUT} = 5.0A

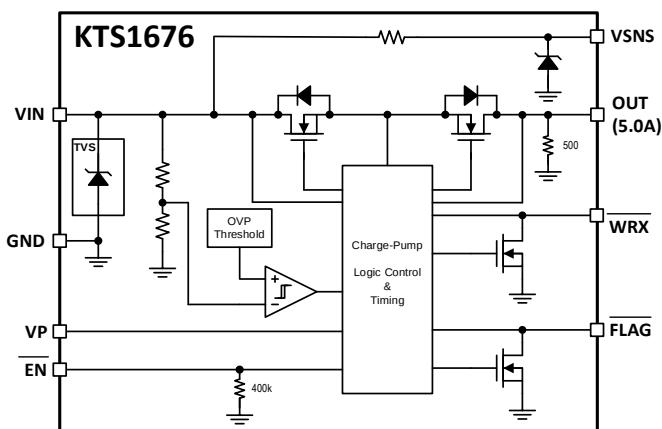
VP Selectable OVP: 13.0V/17V



5.0A, $\pm 100\text{V}$ Surge, VP Selectable OVP Switch with RBP

V_{IN} : 3V – 28V; I_{OUT} = 5.0A

VP Selectable OVP: 13.0V/23.4V

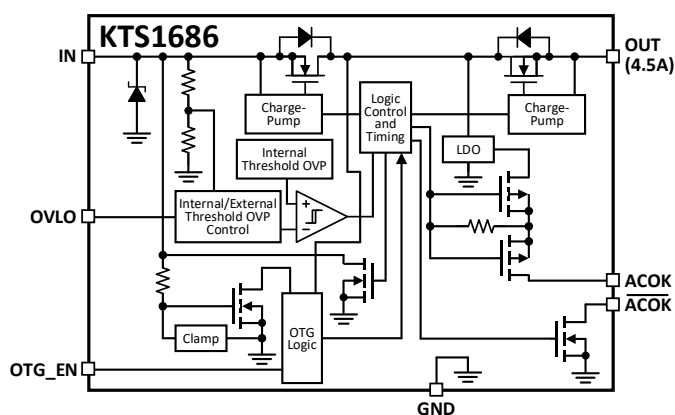


5.0A, $\pm 100\text{V}$ Surge, Selectable OVP Switch with RBP

V_{IN} : 3.0V – 28V; I_{OUT} = 5.0A

VP Selectable OVP: 13.0V/17V

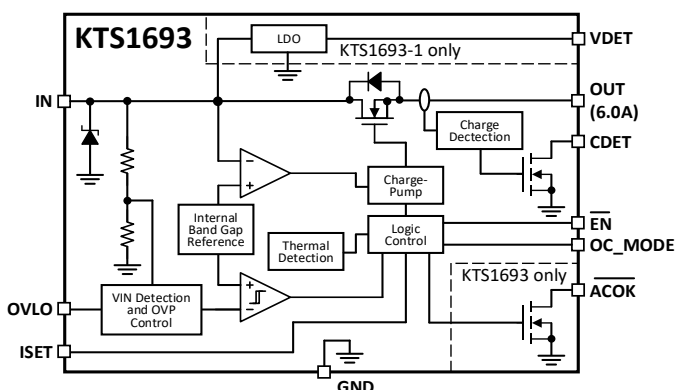
VP Selectable VSNS: 16V/20V



4.5A, $\pm 100\text{V}$ Surge, Fixed or Adjustable OVP Switch with RBP

V_{IN} : 3.0V – 28V; R_{ON} = 65m Ω

Adj OVP: 5V – 22V; Fixed OVP: 5.885V



6A, $\pm 110\text{V}$ Surge, 28V Fixed or Adjustable OVP with OCP, CL, CDET, ACOK

V_{IN} : 2.7V – 28V; R_{ON} = 9m Ω , Adj CL: 1A – 6A

Adj OVP: 4V – 22V; Fixed OVP: 5.95V

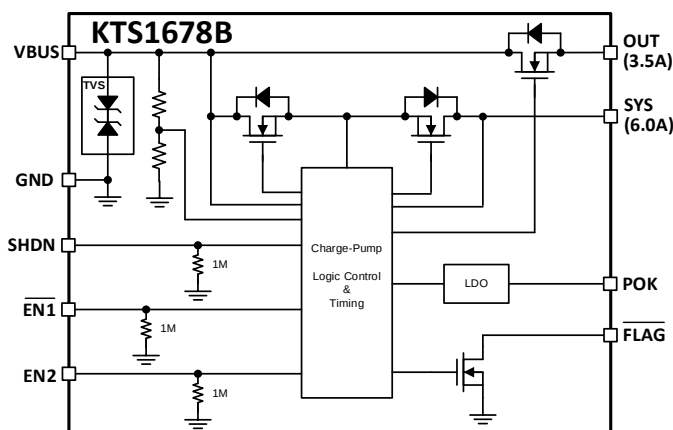
Safety approvals:

UL 2367, file no. E515099-20210819.

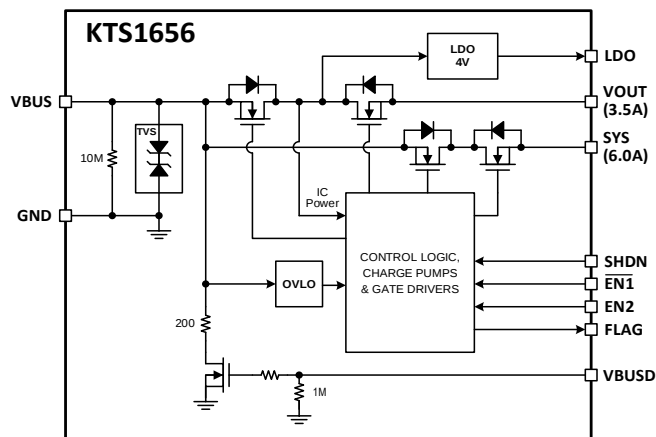
IEC 62368-1, file no. DK-118085-UL

USB and USB-C Overvoltage Protection

Single Input, Dual Output Load Switches with OVP and Surge Protection

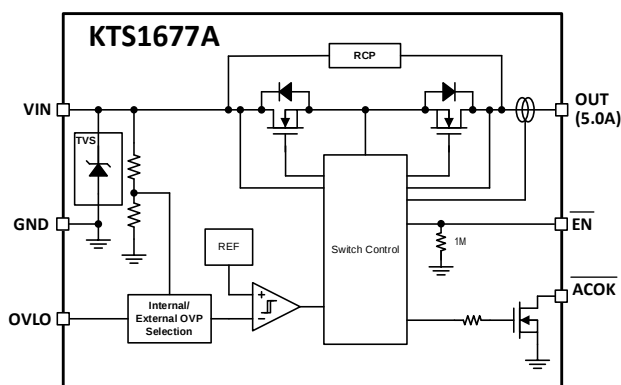


Dual 3.5A/6.0A, $\pm 100V$ Surge, 28V OVP Switch with RBP
 V_{IN} : 2.7V – 13.5V; I_{OUT} = 6.0A / 3.5A
 Fixed OVP: VBUS to OUT = 13.9V; VBUS to SYS = 5.25V

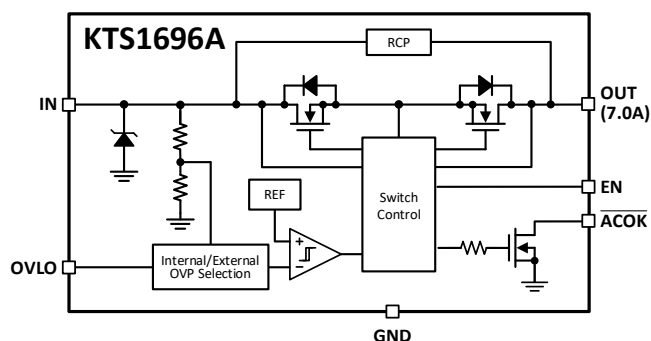


Dual 3.5A/6.0A, $\pm 200V$ Surge, 28V OVP Switch with RBP
 V_{IN} : 2.7V – 13.2V; I_{OUT} = 6.0A / 3.5A
 Fixed OVP: VBUS to OUT = 13.9V; VBUS to SYS = 5.25V

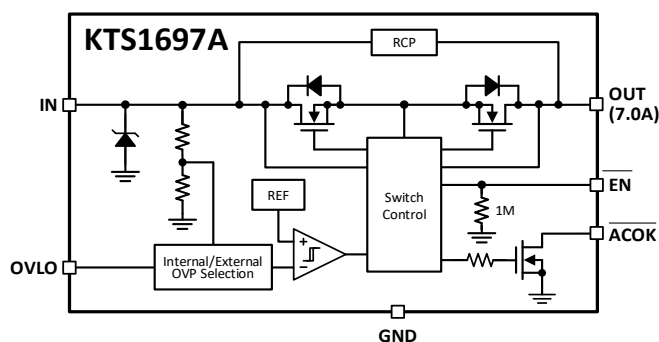
USB-PD Protected Switch – Current Sink



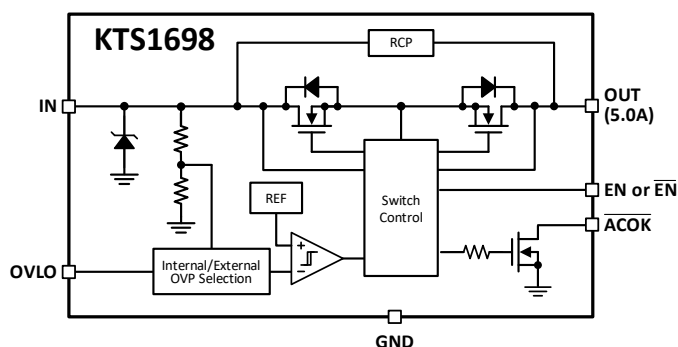
5A, $\pm 90V$ Surge, 30V OVP Switch with RBP and SCP
 V_{IN} : 3V – 30V; I_{OUT} = 5.0A, R_{ON} = 30m Ω ,
 OVP Adj: 4V – 23V; Fixed: 23V



7A, $\pm 90V$ Surge, 29V OVP Switch with RBP, RCP and SCP
 V_{IN} : 3.0V – 29V; I_{OUT} = 7.0A, R_{ON} = 11m Ω , Active **High** Enable
 OVP Adj: 4V – 23V; Fixed: 23.0V,
 20mV “Ideal Diode”



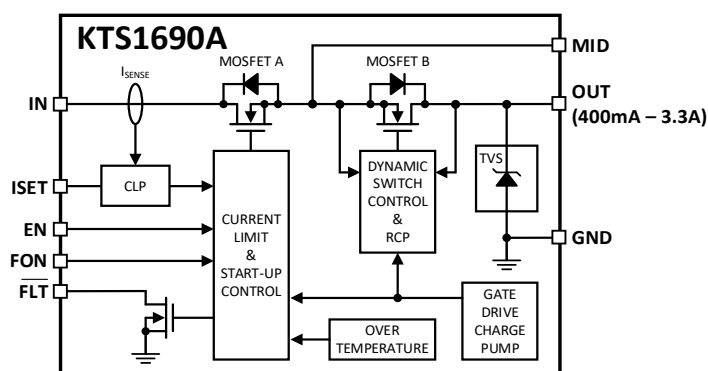
7A, $\pm 90V$ Surge, 29V OVP Switch with RBP, RCP and SCP
 V_{IN} : 3.0V – 29V; I_{OUT} = 7.0A, R_{ON} = 11m Ω , Active **Low** Enable
 OVP Adj: 4V – 23V; Fixed: 23.0V,
 20mV “Ideal Diode” with 15 μ s Fast Recovery



5A, $\pm 90V$ Surge, 29V OVP Switch with RBP, RCP and SCP
 V_{IN} : 3.0V – 29V; I_{OUT} = 5.0A, R_{ON} = 25m Ω , Active **Low** Enable
 OVP Adj: 4V – 23V; Fixed: 23.0V,
 20mV “Ideal Diode” with 15 μ s Fast Recovery

USB and USB-C Overvoltage Protection

USB-PD Protected Switch – Current Source

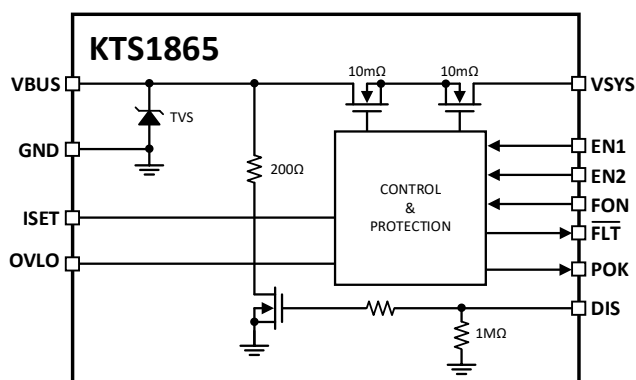


3.3A, $\pm 80V$ Surge, 5V Adjustable Current Limit Load Switch with RBP, RCP and SCP on V_{OUT}

V_{IN} : 2.5V – 5.5V; V_{OUT} (Abs Max) = 29V, I_{OUT} = 400mA – 3.7A

60mV “Ideal Diode” with 15 μ s Fast Recovery

USB-PD Protected Switch – Current Source or Current Sink



20V/5A/100W, $\pm 90V$ Surge, USB Power Delivery DRP Protection Switch

V_{IN} : 3V – 23V; V_{BUS} (Abs Max) = 29V, I_{OUT} = 0.5A – 5.5A, R_{ON} = 20m Ω ,

Up to 100W Sink, 100W I_{SOURCE} for Docking Stations and “Charger-per-Port” Notebooks,

POK Safe LDO, Active Discharge of VBUS

Bi-directional 20mV “Ideal Diode” with 15 μ s Fast Recovery

USB and USB-C Overvoltage Protection

Overvoltage and Surge Protection Selector Guide

Single-channel Load Switches with OVP													
Device	VIN (V)	VIN MAX (V)	SURGE (V)	RON (mΩ)	IMAX (A)	RBP	RCP	OCP	CL	OTG	OVP Adj	Package	Package Size (L x W)
KTS1640*	6.0 - 40	-32 & 42		41	6.0	√						TDFN-12	4.0 x 4.0mm
KTS1641*	6.0 - 40	-32 & 42		41	6.0	√						TDFN-12	4.0 x 4.0mm
KTS1662	2.5 - 40	42		26	4.5					√	√	WLCSP-12	1.28 x 1.94mm
KTS1670	2.7 - 30	30		60	3.0					√	√	WLCSP-6 UDFN-8	1.0 x 1.2mm 2.0 x 2.0mm
KTS1671	2.7 - 28	30		60	3.0					√	√	WLCSP-6	1.0 x 1.2mm
Current Limited Load Switch with Reverse Blocking Protection													
Device	VIN (V)	VIN MAX (V)	SURGE (V)	RON (mΩ)	IMAX (A)	RBP	RCP	OCP	CL	OTG	OVP Adj	Package	Package Size (L x W)
KTS1688	2.5 - 5.5	28		68	2.5	√			√	√		WLCSP-9	1.22 x 1.22mm
Single-Channel Load Switches with OVP and Surge Protection													
Device	VIN (V)	VIN MAX (V)	SURGE (V)	RON (mΩ)	IMAX (A)	RBP	RCP	OCP	CL	OTG	OVP Adj	Package	Package Size (L x W)
KTS1650B	2.3 - 28	29	±200	36	4.5					√	√	WLCSP-12	1.49 x 2.16mm
KTS1682	2.3 - 28	29	±100	38	4.0					√	√	WLCSP-12	1.29 x 1.99mm
KTS1668	2.3 - 30	30	±100	38	4.0					√	√	WLCSP-12	1.29 x 1.99mm
KTS1675	3.0 - 28	28	±100	20	5.0	√				√		WLCSP-20	2.22 x 1.82mm
KTS1675A	3.0 - 28	28	±100	25	5.0	√				√		WLCSP-20	2.22 x 1.82mm
KTS1676	3.0 - 28	28	±100	20	5.0	√				√		WLCSP-20	1.82 x 2.22mm
KTS1680A	2.3 - 28	29	±100	28	4.5					√	√	WLCSP-12	1.21 x 1.7mm
KTS1681A	2.3 - 28	29	±100	28	4.0					√	√	WLCSP-12	1.21 x 1.7mm
KTS1685	2.7 - 30	30	±100	140	1.5					√	√	WLCSP-9	1.33 x 1.33mm
KTS1686	3.0 - 28	29	±100	65	4.5	√				√	√	WLCSP-15	1.6 x 2.1mm
KTS1693**	2.7 - 28	30	±110	9	6.0			√		√	√	WLCSP-20	2.13 x 1.905mm
Single Input, Dual Output Load Switches with OVP and Surge Protection													
Device	VIN (V)	VIN MAX (V)	SURGE (V)	RON (mΩ)	IMAX (A)	RBP	RCP	OCP	CL	OTG	OVP Adj	Package	Package Size (L x W)
KTS1678B	2.7 - 13.5	-2 to 28	±100	23/30	3.5/6	√				√		WLCSP-28	1.67 x 2.96mm
KTS1656	2.7 - 13.2	-6 to 28	±200	20/35	3.5/6	√				√		WLCSP-42	2.7 x 3.0mm
USB-PD Protected Switch													
Device	VIN (V)	VIN MAX (V)	SURGE (V)	RON (mΩ)	IMAX (A)	RBP	RCP	OCP	CL	OTG	OVP Adj	Package	Package Size (L x W)
Current Source													
KTS1690A** ***	2.5 - 5.5	29	±80	35	3.3	√	√	√	√	√		WLCSP-16	1.98 x 1.98mm
Current Sink													
KTS1677A	3.0 - 23	30	±90	30	5.0	√		√			√	WLCSP-15	2.57 x 1.57mm
KTS1696A	3.0 - 23	29	±90	11	7.0	√	√	√			√	WLCSP-25	2.7 x 2.7mm
KTS1697A	3.0 - 23	29	±90	11	7.0	√	√	√			√	WLCSP-25	2.7 x 2.7mm
KTS1698	3.0 - 23	29	±90	25	5.0	√	√	√			√	WLCSP-15	2.62 x 1.64mm
Current Source or Current Sink													
KTS1865***	3.0 - 23	30	±100	20	5.0	√	√	√	√	√	√	WLCSP-20	2.64 x 2.14mm

Definitions

OVP - Overvoltage protection	OCP - Overcurrent protection
RBP - Reverse blocking protection	RCP - Reverse current protection
CL - Current limit	OTG - USB On-the-Go

* AECQ100 Automotive qualified parts available. Please contact your local sales representative.

** Safety approvals: UL 2367, file no. E515099-20210819. IEC 62368-1, file no. DK-118085-UL

***Please contact your Kinetic Technologies sales representative for availability

USB Data Line Protection ICs

Protects USB Type-C Data Lines, against ESD, Surge, and Overvoltage

Kinetic Technologies offers some of the fastest and most robust protection devices for USB Type-C Data Line Protection. Protection against ESD, surge and overvoltage, eliminating the need for external TVS diodes, reducing size, and greatly enhancing reliability without compromising performance.

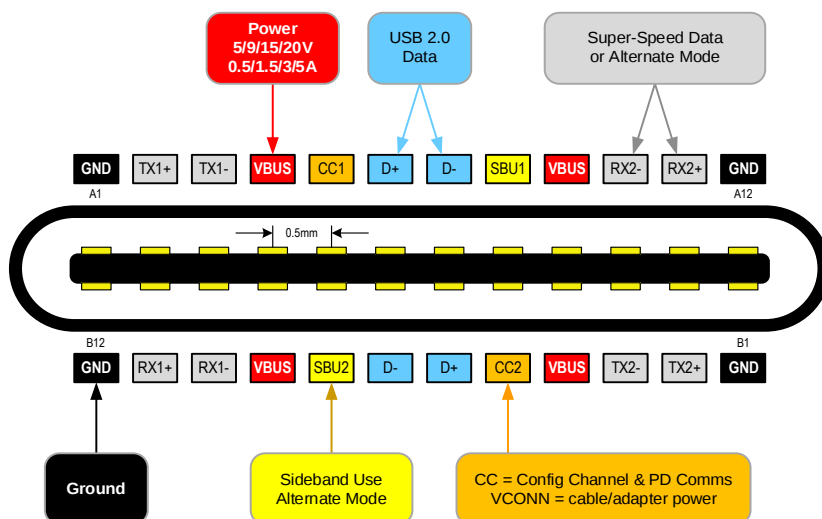
TARGET APPLICATIONS

- ▶ Smartphones/tablets/notebooks
- ▶ IoT devices
- ▶ AI/BT Speakers
- ▶ Game devices
- ▶ Wearables
- ▶ Personal Electronics

KEY FEATURES

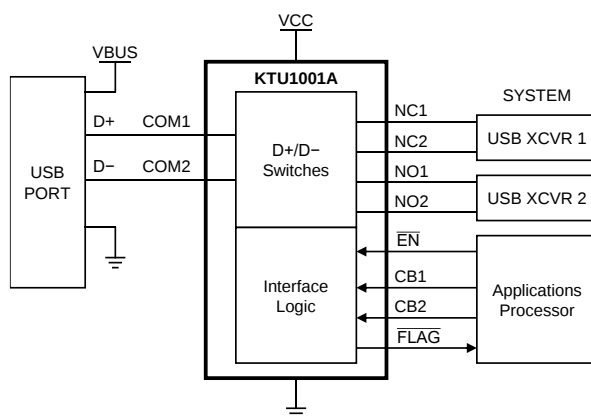
- ▶ ESD
 - IEC61000-4-2
 - $\pm 8\text{kV}$ Contact, $\pm 15\text{kV}$ air gap
- ▶ Surge
 - IEC61000-4-5
 - $\pm 100\text{V} \rightarrow \pm 200\text{V}$ for VBUS
 - $\pm 50\text{V}$ to $\pm 80\text{V}$ for CC1/2
 - $\pm 25\text{V}$ to $\pm 35\text{V}$ for SBU1/2, D+/D-
- ▶ OVP
 - $+28\text{V}$ for VBUS
 - $+24\text{V}$ for CC1/2, SBU1/2, D+/-
- ▶ Short-to-Bus Protection
 - 15ns response for CC1/2 & SBU1/2

USB Type-C Protection



USB Data Line Protection

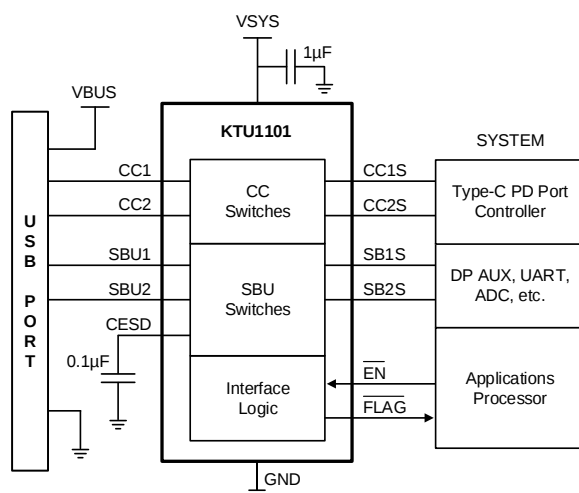
USB D+/D- Hi-Speed or SBU1/2 Switch with Fault Protection



USB D+/D- Hi-Speed or SBU1/2 Switch with Fault Protection

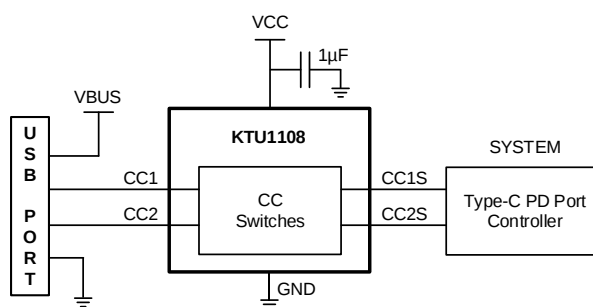
$V_{IN} = 2.7V$ to $5.5V$,
OVP up to $+20V$ DC, Surge to $+25V$
 $1.17 \times 1.57mm$ WLCSP34-12

USB Type-C Port Protector



USB Type-C Port Protector for CC and SBU Pins

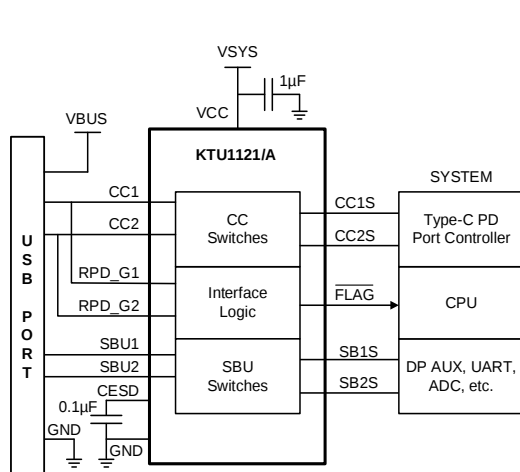
$V_{IN} = 2.5V$ to $5.5V$,
24V Short-to-VBUS Protection in 15ns,
Surge to $\pm 80V$ on CC1/2 and $\pm 35V$ on SBU1/2
 $1.7 \times 2.1mm$ WLCSP45-20



USB Type-C Protector for CC Pins

$V_{IN} = 2.5V$ to $5.5V$,
24V Short-to-VBUS Protection in 15ns,
Surge to $\pm 80V$ on CC1/2
 $1.29 \times 1.69mm$ WLCSP34-12

USB Data Line Protection



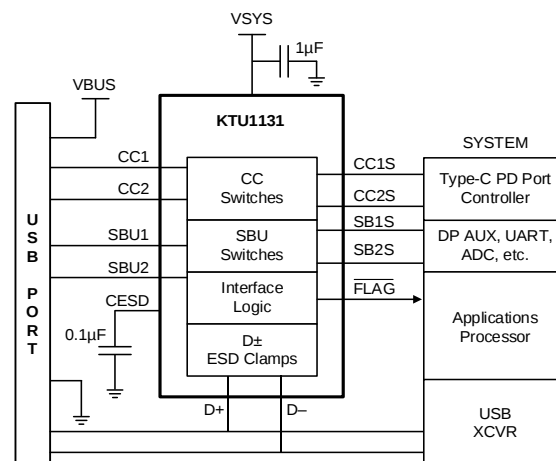
USB Type-C Port Protector (Thunderbolt™ compatible option) for CC and SBU Pins

$V_{IN} = 2.5V$ to $5.5V$,

24V Short-to-VBUS Protection,

Surge to $\pm 40V$ on CC1/2 and $\pm 30V$ on SBU1/2

1.7 x 1.7mm WLCSP44-16 or 3 x 3mm TQFN33-20



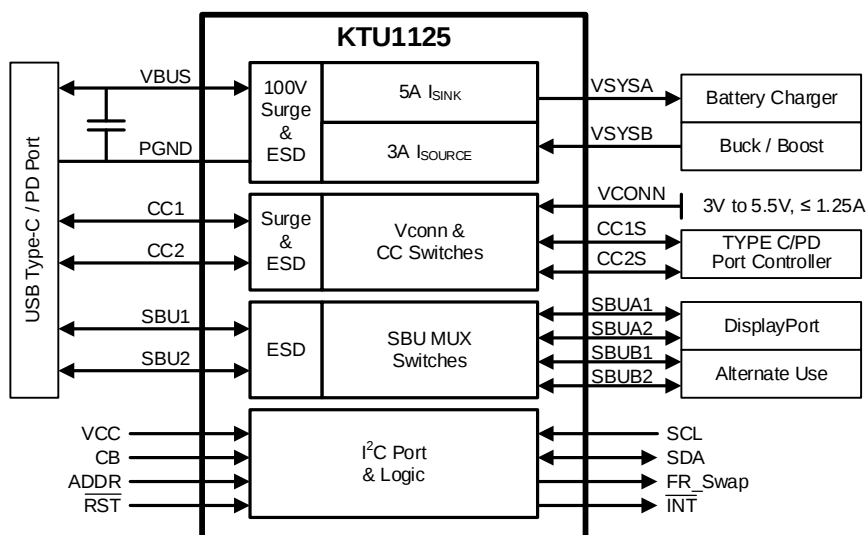
USB Type-C Port Protector for CC, SBU, and D+/D- Pins

$V_{IN} = 2.5V$ to $5.5V$,

22V Short-to-VBUS Protection in 15ns

IEC61000-4-2 ESD Protection on CC1/2, SBU1/2 & D+/-

3.0 x 3.0mm UQFN-20



USB Type-C Port Protector (Thunderbolt™ compatible) for CC and SBU Pins

$V_{BUS} = 3V$ to $23V$, $V_{CC} = 3V$ to $5.5V$, $V_{SYS A} = 3V$ to $23V$, $V_{SYS B} = 2.5V$ to $5.5V$

24V Short-to-VBUS Protection in 15ns,

Surge to $\pm 25V$ on CC1/2

2.76 x 4.49mm WLCSP58-39

USB Data Line Protection Selector Guide

Device	VIN (V)	Protects			Protection			Switches		Package	Package Size (L x W)
		D+/D-	CC1/2	SBU1/2	OVP	Surge	ESD	r _{DS}	Cap		
KTU1001A	2.7 - 5.5	√*		√*	+24V in 100ns	+25V		6Ω	4.0pF	WLCSP-12	1.17 x 1.57mm
KTU1101	2.5 - 5.5		√	√	+24V in < 15ns	CC1/2 = ±80V SBU1/2 = ±35V	Air: ±15kV Contact: ±8kV	CC = 0.3Ω SBU = 4Ω	CC = 370pF SBU = 27pF	WLCSP-20	1.7 x 2.1mm
KTU1108	2.5 - 5.5		√		+24V in < 15ns	CC1/2 = ±80V	Air: ±15kV Contact: ±8kV	0.24Ω	370pF	WLCSP-12	1.29 x 1.69mm
KTU1120	2.5 - 5.5		√	√ OVP=3.83V	+24V in < 15ns	CC1/2 = ±40V SBU1/2 = ±30V	Air: ±15kV Contact: ±8kV	CC = 0.27Ω SBU = 3Ω	CC = 40pF SBU = 11pF	WLCSP-16 TQFN33-20	1.7 x 1.7mm 3.0 x 3.0mm
KTU1121	2.5 - 5.5		√	√ OVP=4.8V	+24V in < 15ns	CC1/2 = ±40V SBU1/2 = ±30V	Air: ±15kV Contact: ±8kV	CC = 0.27Ω SBU = 3Ω	CC = 40pF SBU = 11pF	WLCSP-16 TQFN33-20	1.7 x 1.7mm 3.0 x 3.0mm
KTU1121A**	2.5 - 5.5		√	√ OVP=4.8V	+24V in < 70ns	CC1/2 = ±40V SBU1/2 = ±30V	Air: ±15kV Contact: ±8kV	CC = 0.27Ω SBU = 3Ω	CC = 40pF SBU = 11pF	WLCSP-16 TQFN33-20	1.7 x 1.7mm 3.0 x 3.0mm
KTU1125***	3.0 - 5.5		√	√	CC1/2 = 5.8V in 15ns SBU1/2 = 3.83V in 15ns	CC1/2 = ±25V	Air: ±15kV Contact: ±8kV	CC = 1Ω SBU = 6Ω	CC = 370pF SBU = 5pF	WLCSP-39	2.76 x 4.49mm
KTU1128***	2.5 - 5.5		√	√ OVP=4.8V	+32V in < 70ns	CC1/2 = ±40V SBU1/2 = ±30V	Air: ±15kV Contact: ±8kV	CC = 0.27Ω SBU = 3Ω	CC = 40pF SBU = 11pF	WLCSP-16 TQFN33-20	1.7 x 1.7mm 3.0 x 3.0mm
KTU1131**	2.5 - 5.5	√	√	√	+22V in < 15ns		Air: ±10kV Contact: ±5kV	CC = 0.27Ω SBU = 3Ω	CC = 15pF SBU = 6pF	UQFN33-20	3.0 x 3.0mm

*KTU1001A can protect D+/D- or SBU1/2

** Thunderbolt™ Compatible

*** Please contact your Kinetic Technologies sales representative for availability. This device is Thunderbolt™ Compatible

Interface and Isolation ICs

Interface to Supply Voltages or Digital Signals to Simplify, Shrink and Save Power

Slew-rate controlled load switches and multi-channel I/O expanders simplify and reduce component count, system size and power consumption.

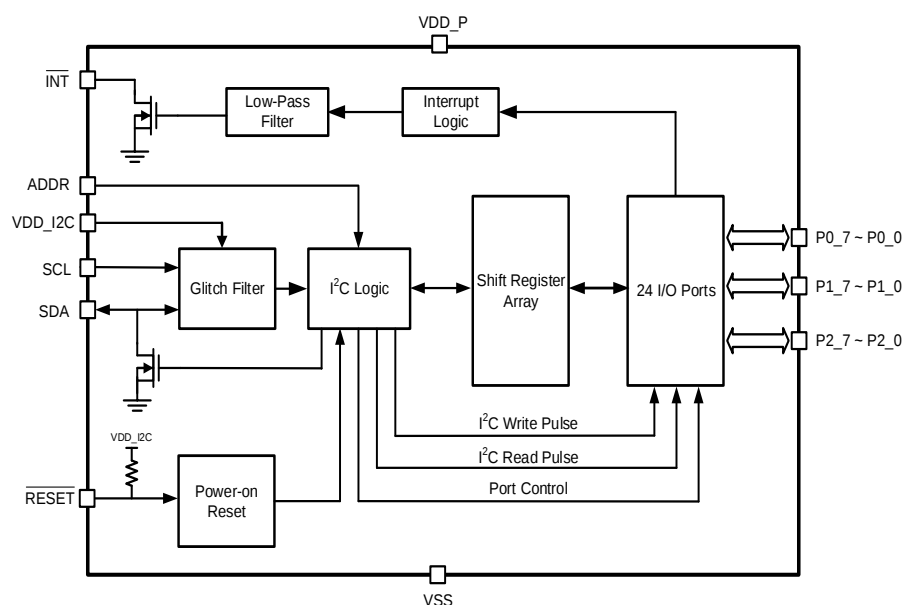
TARGET APPLICATIONS

- ▶ Smartphone, Tablets
- ▶ Notebooks, Desktops
- ▶ Wearables
- ▶ Servers
- ▶ Industrial Automation
- ▶ Gaming
- ▶ SSD

KEY FEATURES

- ▶ Load Switches
 - Low forward voltage drop
 - Small size
 - Slew-rate controlled turn-on
 - Reverse blocking
 - Logic compatible input
- ▶ I/O Expanders
 - I²C I/O ports expander
 - 1MHz Fast-mode Plus I²C bus
 - Four adjustable I²C slave addresses
 - Input/Output port configurable
 - Input with polarity/latch/pull-up/pull-down/interrupt functions
 - Low standby current of 4μA typical
 - 25mA output drive per channel

KTS1620: Low Voltage 24-bit I²C-bus I/O Expander*

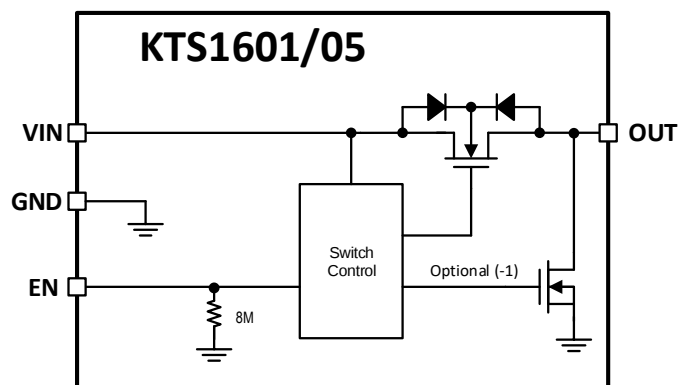


*Specific device shown may not include all the features shown to the left.

Interface and Isolation ICs

Load Switch ICs

Slew-rate controlled load switches, with extremely low on-resistance to control power to loads in a controlled manner for improved reliability and power saving.



2A/5A Slew Rate Controlled Load Switch with RBP

V_{IN} : 1.5V – 5.5V

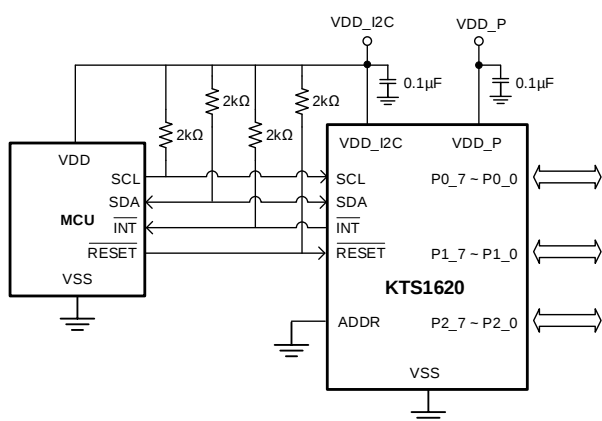
4-ball WSCSP 1.0 x 1.0mm / 6-ball WSCSP 1.0 x 1.5mm

Load Switch Selector Guide

Device	VIN (V)	RON (mΩ)	IMAX (A)	RBP	Package	Package Size (L x W)
Single-channel, Slew-Rate Controlled Load Switches with Reverse Blocking						
KTS1601	1.5 - 5.5	24.0 @3.3V _{IN}	2.0	✓	WLCSP-4	1.0 x 1.0mm
KTS1605	1.5 - 5.5	13.4 @3.3V _{IN}	5.0	✓	WLCSP-6	1.0 x 1.5mm

General Purpose I/O Expander ICs

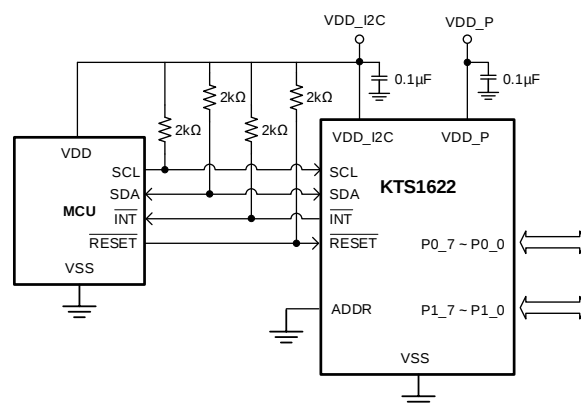
General purpose low-voltage, I/O Expanders are designed for micro-controllers requiring additional I/Os ensuring that additional interconnections are kept to a minimum.



Low Voltage 24-bit I²C I/O Expander

1.65V to 5.5V

36-ball FO-WLP 2.6 x 2.6mm



Low Voltage 16-bit I²C I/O Expander

1.65V to 5.5V

25-ball FO-WLP 2.0 x 2.0mm & TQFN44-24L

General Purpose I/O Expanders Selector Guide

Device	VIN (V)	Max. Driver Current per Channel (mA)	# of I/Os	Interrupt Out	Addresses	Package	Package Size (L x W)
KTS1620	1.65 - 5.5	25	24	✓	4	FO-WLP66-36 TQFN55-32L	2.6 x 2.6mm
KTS1622	1.65 - 5.5	25	16	✓	4	FO-WLP55-25 TQFN44-24L	2.0 x 2.0mm 4.0 x 4.0mm



Smart Push Button Reset ICs

Prevents Embedded Batteries Discharging during Storage or Shipment

Kinetic Technologies' KTS161x family enables manufacturers of electronic products to avoid embedded batteries being discharged during storage or shipment, providing a good user experience to their customers.

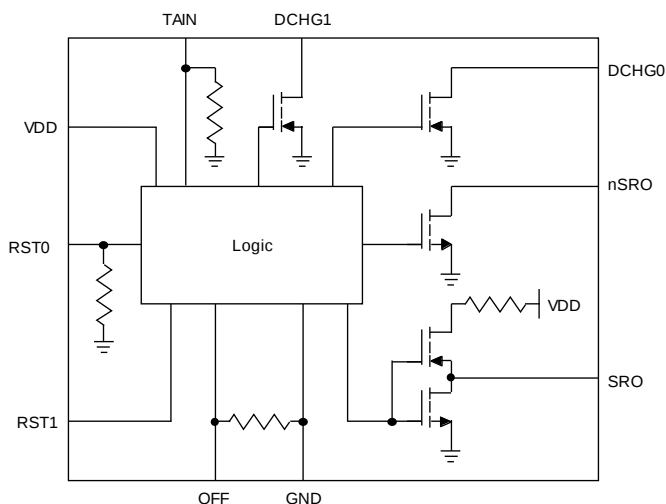
TARGET APPLICATIONS

- ▶ Smartphones/tablets
- ▶ IoT devices
- ▶ Game devices
- ▶ Wearables
- ▶ Personal Electronics
- ▶ Electronics with non-removable batteries

KEY FEATURES

- ▶ Prevents embedded batteries from discharging during storage and shipment
 - 1µA @ ship and standby mode
 - Supports two discharge paths during reset
- ▶ Input voltage range 2.2V to 5.5V
 - VDD/DCHG0/DCHG1 pins withstand 12V DC
- ▶ Reset trigger delay time typically 10s
- ▶ Small UQFN2.0x1.5-10L package

KTS1612: Dual-Input Push Button Reset IC with Two Discharge Paths and Ship-mode*

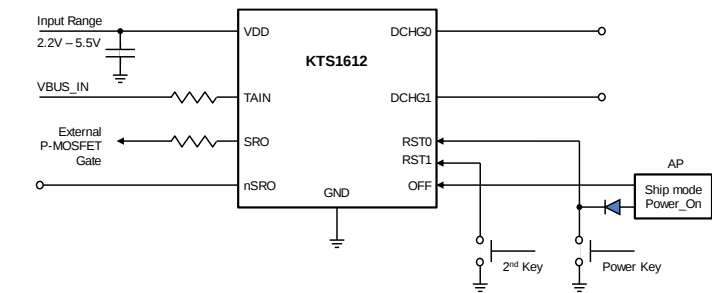


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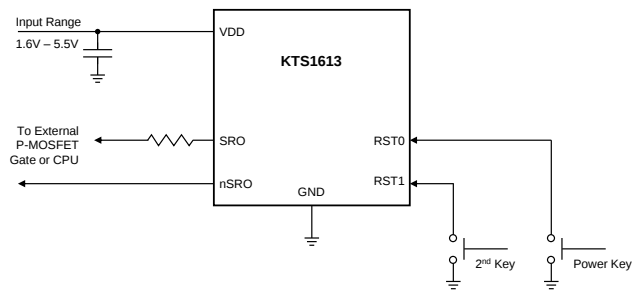


Smart Push Button Reset ICs

Dual-Input Smart Push Button Reset ICs



Dual-Input Push Button Reset IC with Two Discharge Paths
 $V_{IN} = 2.2V \text{ to } 5.5V$,
VDD/DCHG0/DCHG1 withstands 12V, Two Discharge Paths
2.0 x 1.5mm UQFN2.0x1.5-10L



Dual-Input Push Button Reset IC
 $V_{IN} = 1.63V \text{ to } 5.5V$,
VDD/DCHG0/DCHG1 withstands 12V
2.0 x 1.5mm UQFN2.0x1.5-10L

Smart Push Button Reset Selector Guide

Part Number	VIN (V)	Quiescent Current (μA)	Ship Mode Current (μA)	Reset Request Time (s)	Discharge Paths	Discharge Time (ms)	Discharge Current (mA)	Package	Package Size
KTS1612	2.2 - 5.5	<1	<1	10	2	400	52	UQFN2.0x1.5-10	2.0 x 1.5mm
KTS1613	1.6 - 5.5	<1	<1	10	—	400	—	UQFN2.0x1.5-10	2.0 x 1.5mm

LCD Backlight and Bias Power ICs

High Efficiency with the Smallest Footprint

Kinetic Technologies offers one of the largest LED backlight driver portfolios in the industry, featuring high efficiency operation with high accuracy at low dimming duty cycles. To enhance reliability, products are designed with several protection mechanisms including, LED short circuit, LED open and over-current.

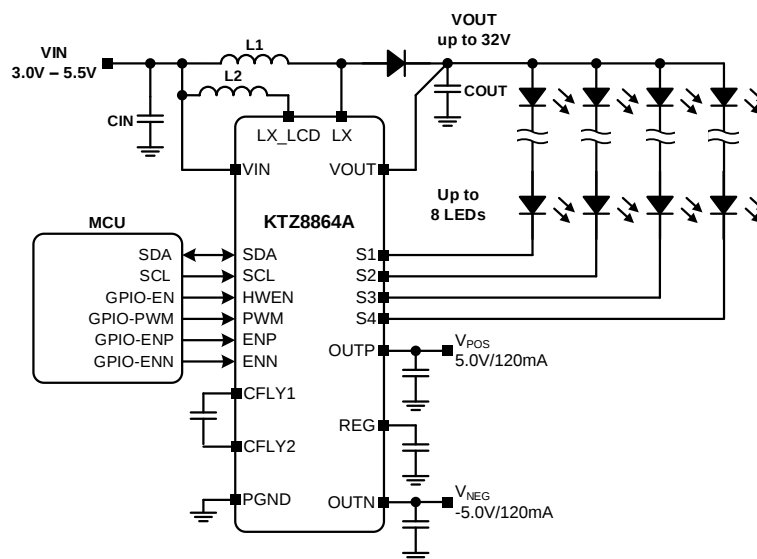
TARGET APPLICATIONS

- ▶ Smartphones/tablet
- ▶ PCs/notebooks
- ▶ IoT devices
- ▶ Digital cameras
- ▶ Game devices
- ▶ Personal Electronics

KEY FEATURES

- ▶ LED open/short protection
- ▶ PWM and I²C brightness control
- ▶ Overvoltage protection up to 40V
- ▶ Small solution size
- ▶ Up to 6-channels with integrated boost converter
- ▶ LED currents up to 30mA/channel
- ▶ 11-bit exponential or linear ramping
- ▶ Panel flash function
- ▶ Content Adaptive Brightness Control (CABC)

KTZ8864A: Complete LCD LED Backlight and Bias Power*

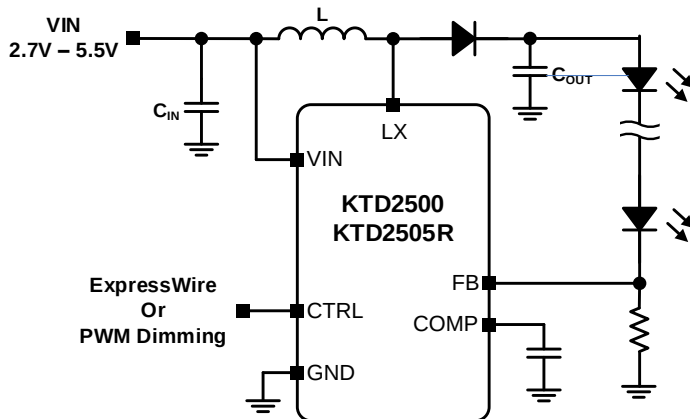


*Specific device shown may not include all features shown to the left.

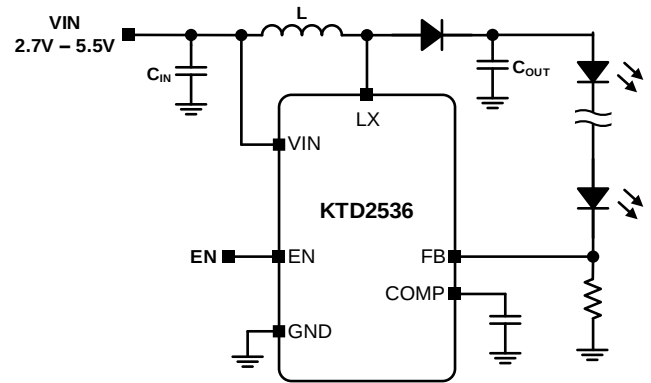


LCD Backlight and Bias Power

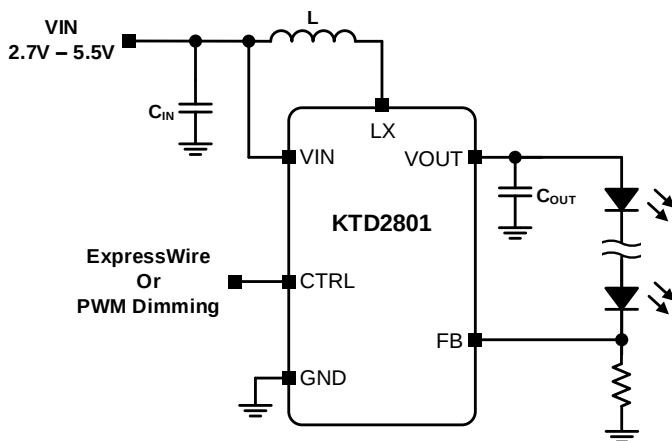
Single-Channel LED Backlight Driver ICs



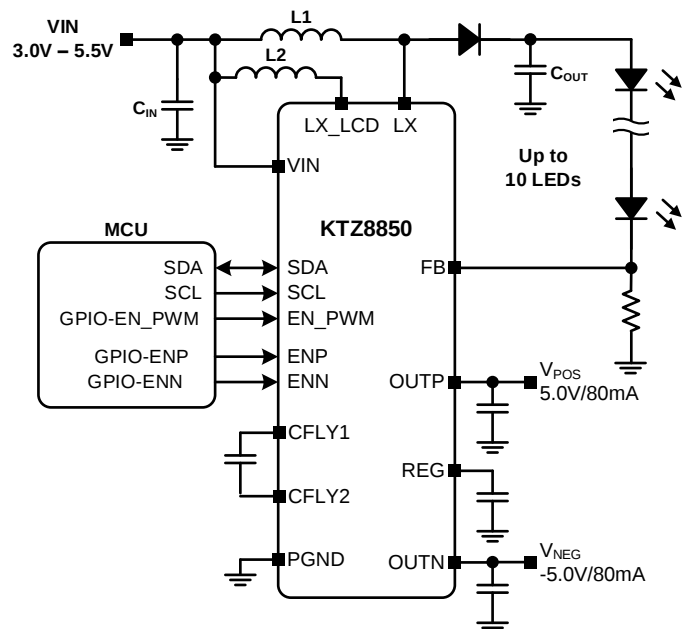
0.75A/40V Integrated Switch with PWM or ExpressWire™
 32-Step Dimming, Up to 10 LEDs
 600kHz (KTD2500), 1.2MHz (KTD2505R)
 Integrated 40V/0.75A Switch



0.8A/40V Integrated Switch with PWM Dimming
 900kHz, 40V/0.8A, Up to 10 LEDs



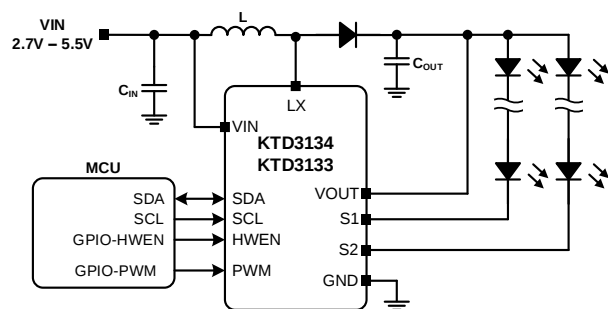
0.52A/40V Integrated Switch/Diode with PWM or ExpressWire
 1.0MHz, 256-Step Dimming, Up to 10 LEDs
 Integrated 40V/0.52A Switch



Complete LCD Backlight and Bias Power
 Dimming: 256-step I²C control
 Bias: $\pm 4.0V$ to $\pm 6.3V$ (12.5mV/step)

LCD Backlight and Bias Power

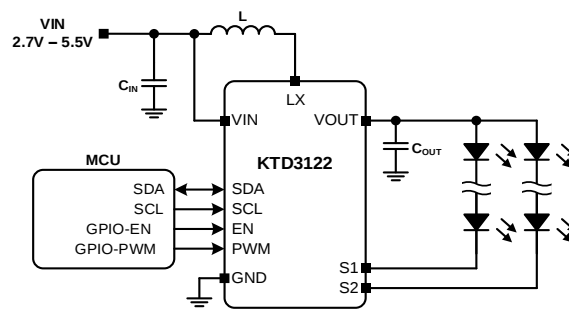
Multi-Channel LED Backlight Driver ICs



2-Channel, 2.6A/32V Integrated Switch (KTD3133) with Panel Flash (KTD3134)

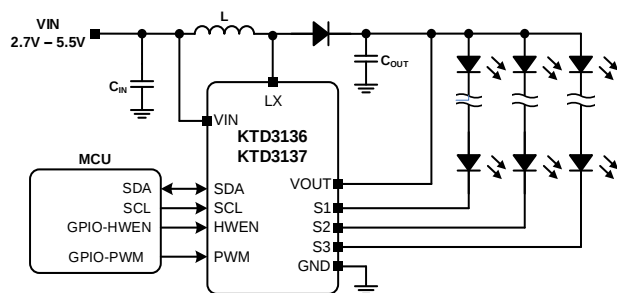
Dimming: 11-bit exponential or linear mapping
 $\pm 0.6\%$ Current Matching, $\pm 1.5\%$ Accuracy
 Integrated 32V/2.6A Switch

29.8mA in Backlight Mode, 59.6mA in Flash Mode
 Programmable Flash Current and Time-Out
 Content Adaptive Brightness Control (CABC)



2-Channel, 1.0A/30V Integrated Switch with Internal Diode

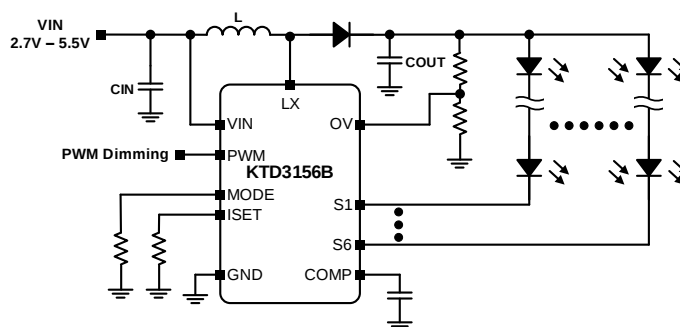
Dimming: 256-step I²C control
 $\pm 0.6\%$ Current Matching, $\pm 1.5\%$ Accuracy
 Integrated 30V/1.0A Switch, 20mA/Channel
 Content Adaptive Brightness Control (CABC)



3-Channel, 2.6A/32V Integrated Switch (KTD3136) with Panel Flash (KTD3137)

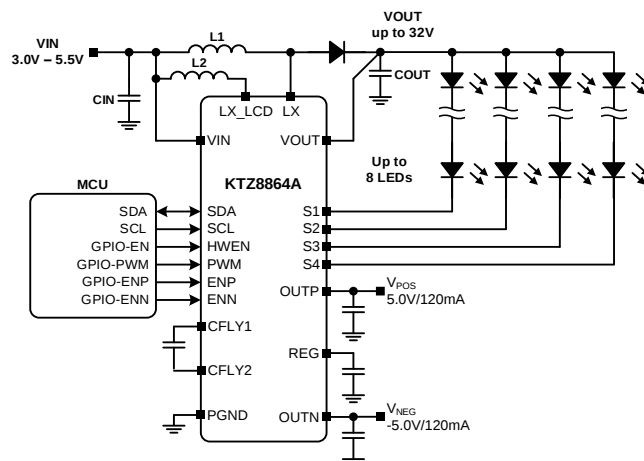
Dimming: 11-bit exponential or linear mapping
 $\pm 0.6\%$ Current Matching, $\pm 1.5\%$ Accuracy
 Integrated 32V/2.6A Switch

29.8mA in Backlight Mode, 59.6mA in Flash Mode
 Programmable Flash Current and Time-Out
 Content Adaptive Brightness Control (CABC)



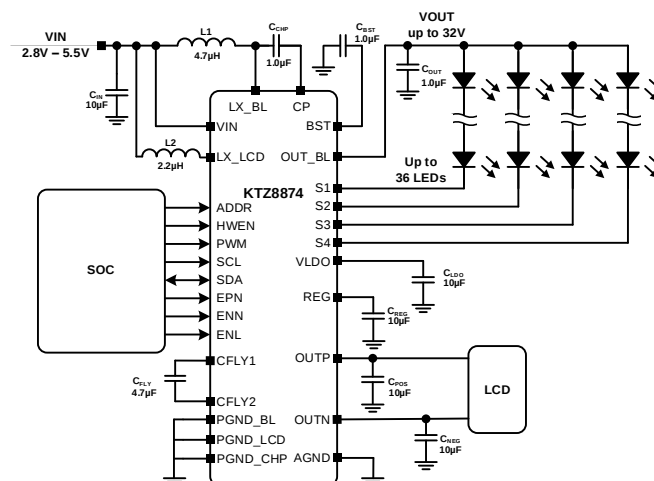
6-Channel, 2.5A/40V Integrated Switch with PWM Dimming

Up to 60 LEDs (10S6P)
 $\pm 0.5\%$ Current Matching, $\pm 2.0\%$ Accuracy
 Integrated 40V/2.5A Switch, 20mA/Channel



4-Channel, Complete LCD Backlight and Bias Power

I²C Dimming: 11-bit linear or exponential
 PWM Dimming: down to 0.2% duty at 20KHz
 Integrated 32V/2.1A Switch, up to 30mA/Channel
 Bias Driver: $\pm 4.0\text{V}$ to $\pm 6.3\text{V}$ (50mV/step), up to 150mA



4-Channel, Complete LCD Backlight and Bias Power

I²C Dimming, 11-bit linear or exponential
 PWM Dimming: down to 0.2% duty at 20kHz
 Integrated 33V/2.1A Switch, up to 35mA/channel
 Bias Driver: $\pm 4.0\text{V}$ to $\pm 6.3\text{V}$ (50mV/step), up to 200mA
 LDO: 3.5V to 5.2V(8 options), up to 350mA

LCD Backlight and Bias Power

LCD Backlight Selector Guide

Single-Channel Backlight LED Driver										
Device	VIN (V)	# LED Channels	LEDs/CH	Total LEDs	Switch Current (A)	I ² C	Single Wire	PWM	OVP (V)	Package
KTD2801B	2.7 - 5.5	1	6	6	0.52		√	√	24	TDFN22-6
KTD2801A	2.7 - 5.5	1	8	8	0.52		√	√	30	TSOT23-6/TDFN22-6
KTD2801	2.7 - 5.5	1	10	10	0.52		√	√	36	TSOT23-6/TDFN22-6
KTD2500	2.7 - 5.5	1	10	10	0.75		√	√	38	TDFN22-6
KTD2505R	2.7 - 5.5	1	10	10	1.2		√	√	38	TDFN22-6
KTD251	2.7 - 5.5	1	10	10	0.8			√	36	TSOT23-6
KTD2531	2.7 - 5.5	1	10	10	0.8			√	36	TSOT23-6
KTD2536	2.7 - 5.5	1	10	10	0.8			√	36	TSOT23-6
KTZ8850*	3.0 - 5.5	1	10	10	1.3	√		√	Adj < 36	WLCSP-18

Multi-Channel Backlight LED Driver										
Device	VIN (V)	# LED Channels	LEDs/CH	Total LEDs	Switch Current (A)	I ² C	Single Wire	PWM	OVP (V)	Package
KTD3112	2.7 - 5.5	2	6	12	1.5			√	25	WLCSP-9
KTD3122	2.7 - 5.5	2	8	16	1.0	√		√	Adj 24/30	WLCSP-12
KTD3133	2.7 - 5.5	2	8	16	1.8	√		√	25.9/32	WLCSP-12
KTD3134	2.7 - 5.5	2	8	16	2.6	√		√	25.9/32	WLCSP-12
KTD3113	2.7 - 5.5	3	6	18	1.8			√	25	WLCSP-9
KTD3136	2.7 - 5.5	3	8	24	2.6	√		√	25.9/32	WLCSP-12
KTD3137	2.7 - 5.5	3	8	24	2.6	√		√	25.9/32	WLCSP-12
KTZ8863A*	2.9 - 5.5	3	8	24	2.1	√		√	Adj < 32	WLCSP-24
KTZ8864A*	2.7 - 5.5	4	8	32	2.1	√		√	Adj < 32	WLCSP-24
KTZ8874**	2.8 - 5.5	4	9	36	2.1	√		√	Adj < 33	WLCSP-30
KTZ8866*	2.7 - 5.5	6	10	60	2.5	√		√	Adj < 40	WLCSP-28
KTD3156B	2.7 - 5.5	6	10	60	2.5			√	Adj < 40	TQFN33-16

LCD Bias Selector Guide

LCD Bias Power Supply							
Device	VIN (V)	Control	Max. Current per Channel (mA)	VOUT (V)	Accuracy (%)	IQ Shutdown (SDA=SCL=1.8V) (μA)	Package
KTD2151	2.7 - 5.5	I ² C	80	4.0~5.2V, -4.0~-5.2V, 100mV Steps	1.5	6	WLCSP-15
KTZ8850*	3.0 - 5.5	I ² C	80	4.0~6.3V, -4.0~-6.3V, 12.5mV Steps	2.0	1	WLCSP-18
KTZ8863A*	2.9 - 5.5	I ² C	150	4.0~6.3V, -4.0~-6.3V, 50mV Steps	1.5	1	WLCSP-24
KTZ8864A*	2.7 - 5.5	I ² C	150	4.0~6.3V, -4.0~-6.3V, 50mV Steps	1.5	1	WLCSP-24
KTZ8866*	2.7 - 5.5	I ² C	200	4.0~6.3V, -4.0~-6.3V, 50mV Steps	1.5	1	WLCSP-28
KTZ8874**	2.8 - 5.5	I ² C	200	4.0~6.3V, -4.0~-6.3V, 50mV Steps	1.5	1	WLCSP-30

* Integrated LED Driver IC and LCD Bias IC

** Integrated LED Driver IC and LCD Bias IC. Contact Kinetic Sales for availability.

RGB LED Driver ICs

Highly Integrated Drivers with the Smallest Footprint

Kinetic Technologies' highly integrated drivers have an on-chip timing control unit, where LED blink rate, fade-in and fade-out are user adjustable, resulting in unique color lighting patterns.

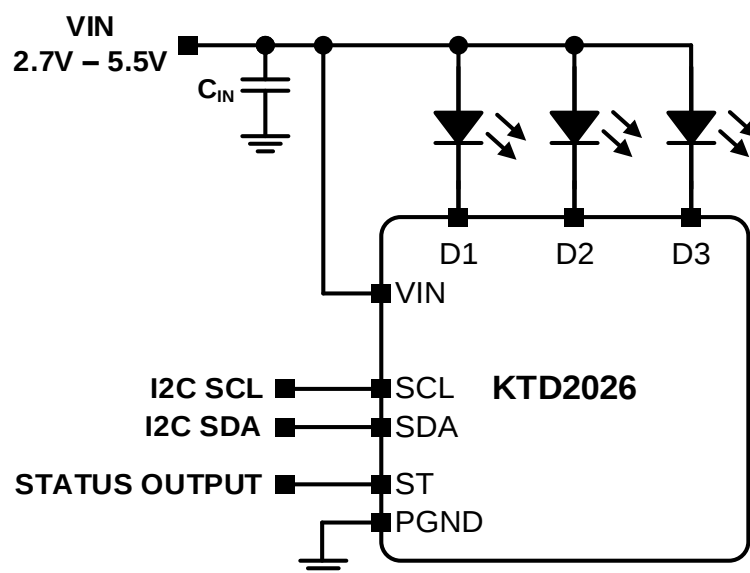
TARGET APPLICATIONS

- ▶ Digital still cameras and camcorders
- ▶ Smart PCs, tablets, and notebooks
- ▶ PDA
- ▶ Fault indicator
- ▶ Status indicator
- ▶ Lighting pattern generator

KEY FEATURES

- ▶ Individual channel control
 - On/Off interval time control
 - Dimming up/down time
 - Current level setting
 - RGB LED color control
- ▶ 192 current levels
- ▶ $\pm 5\%$ current matching
- ▶ 200 μ A supply current
- ▶ Input voltage range: 2.7V – 5.5V
- ▶ Low dropout: 40mV at 10mA
- ▶ I²C interface programming

KTD2026: Constant Current RGB LED Driver with I²C Control*



*Specific device shown may not include all the features shown to the left.





KTD2052

12-Channel RGB LED Driver with I²C Control

Fully Programmable Current Regulator for up to 4 RGB LED Modules (12 LEDs) with the Smallest PCB Footprint

The KTD2052 has a 4-wire bus that is multiplexed to reduce pin-count and PCB traces. A standard IC would need 12 separate pins for each LED connection, while the Kinetic part needs only 4 pins to drive 12 LEDs, resulting in a 3x smaller footprint and easier PCB routing.

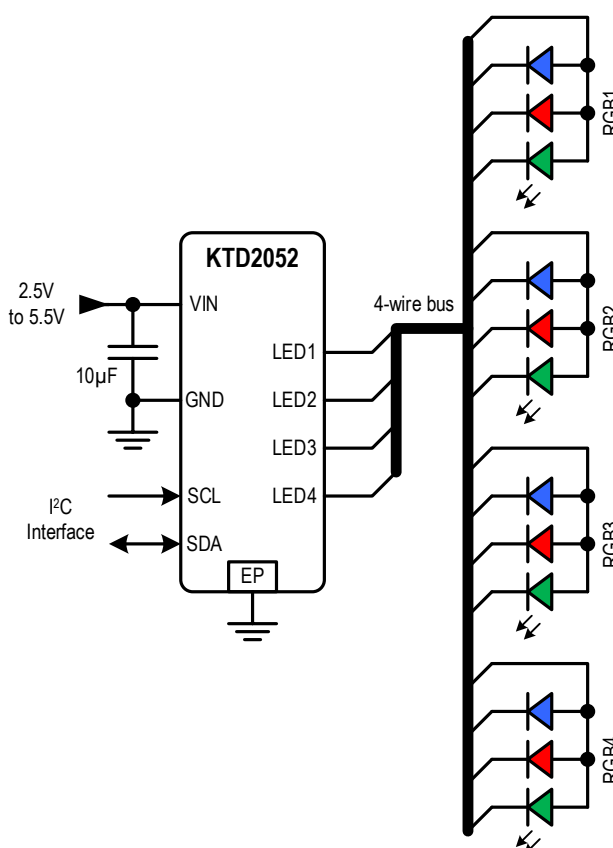
TARGET APPLICATIONS

- ▶ Charging Indicator, TWS Case, Power Tools
- ▶ Bluetooth / WiFi Loudspeakers
- ▶ Automotive Indicator and Ambiance Lighting
- ▶ IoT, Gaming, Toys, Indicator / Button Lighting

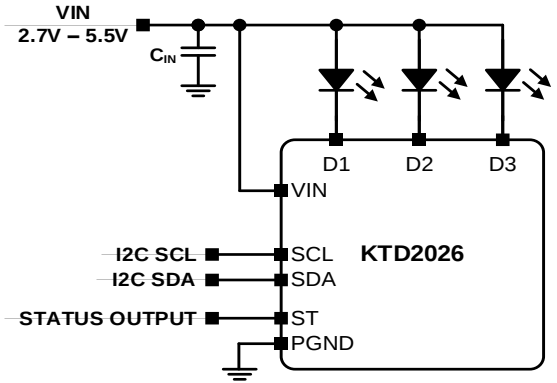
KEY FEATURES

- ▶ Drives up to 12 LEDs (4 RGBs)
 - Multiplexed LED Current Driver Outputs
 - Only 4 PCB Traces to the LEDs
 - 20.8kHz MUX Frequency Prevents Audio Noise
- ▶ 14 Million Colors
 - LED Current: 125μA to 24mA in 125μA Steps
 - Night-Mode: 8μA to 1.5mA in 8μA Steps
 - 5% Max. Current Accuracy & Matching
- ▶ 12 Independent Exponential Fade-Engines
 - Ultra-Smooth 3072-Step (8μA) Fade Resolution
 - 3-bit Programmable Fade-Rate
- ▶ Flexible Pattern Generator with Watchdog Counter
 - Autonomous "Set and Forget" Operation
- ▶ Optional AutoBreathe™ Mode (KTD2052B/D)
- ▶ Patented BrightExtend™ Technology
 - Maintains Color-Accuracy and PSRR for Battery-Powered Applications with Low Vin
- ▶ Proprietary CoolExtend™ Technology
 - 2-bit Programmable Maximum Die-Temp
- ▶ 0.6μA Automatic Shutdown (Standby) Current
- ▶ 1MHz I²C Serial Interface
- ▶ 2.5V to 5.5V Operating Supply Voltage Range
- ▶ -40°C to +85°C Operating Temperature Range
- ▶ 8 pin UDFN 2x2mm (0.5mm pitch)

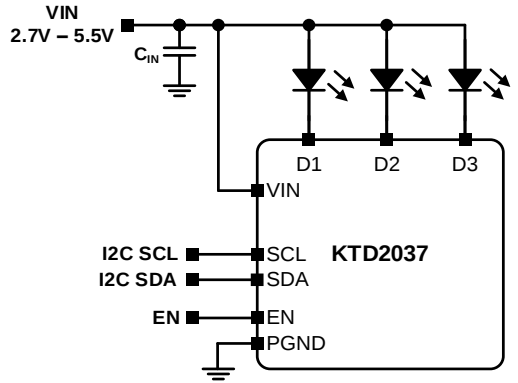
KTD2052: 12-Channel RGB LED Driver with I²C Control



RGB LED Drivers
Constant Current RGB LED Driver ICs

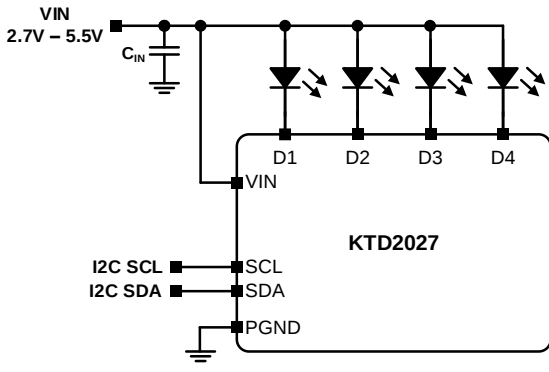


3-Channel RGB LED Driver with I²C Dimming
1.5 x 1.5mm UDFN-8

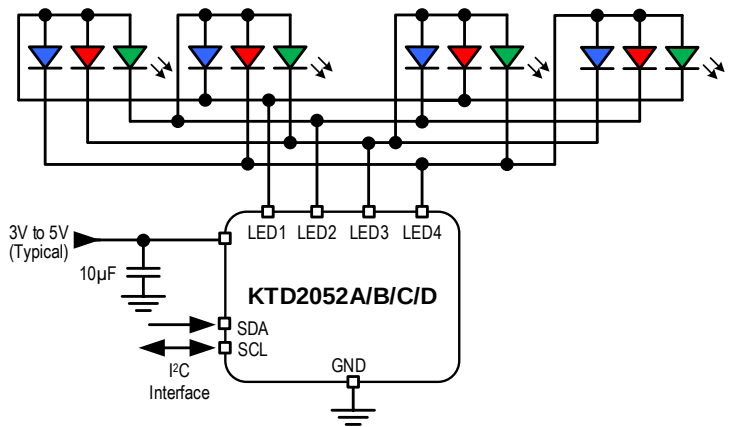


3-Channel RGB LED Driver with I²C and AutoBlinQ™
1.5 x 1.5mm UDFN-8

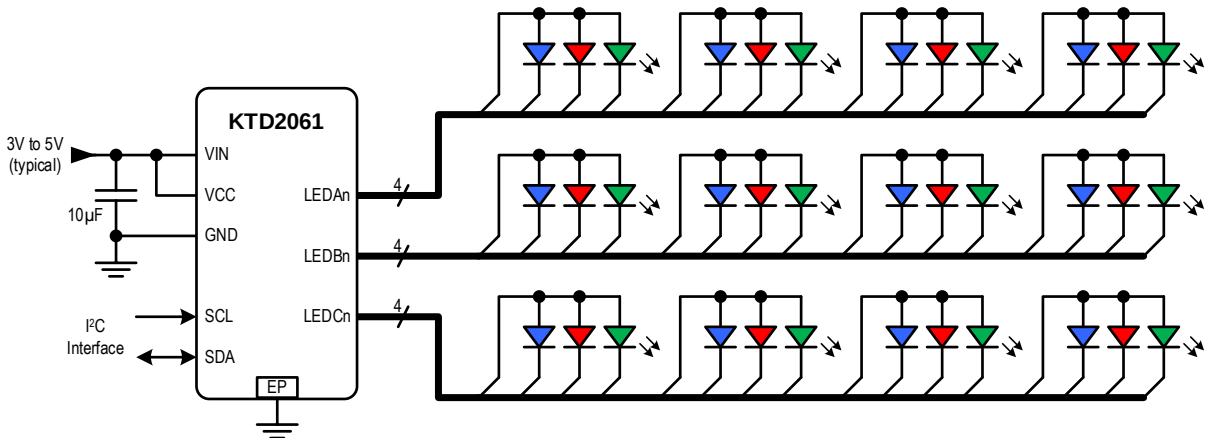
AutoBlinQ – mode automatically turns on and off LED1 (on D1 pin) after EN goes high without the need to send an I²C command.



4-Channel RGB LED Driver with I²C Dimming
1.5 x 1.5mm UDFN-8



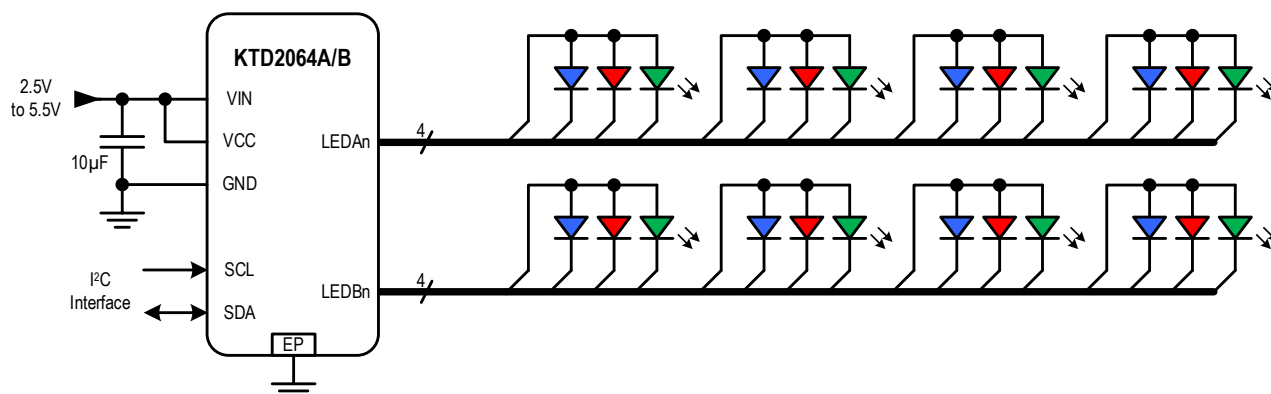
12-Channel RGB LED Driver with I²C Control
Multiplexed LED Current Output
12 Independent Exponential Fade Engines
Optional "AutoBreathe™" default
Flexible Pattern Generator for "Set and Forget"
2mm x 2mm UFDN-8



36-Channel RGB LED Driver with I²C Control
Multiplexed LED Current Outputs
36 Independent Exponential Fade Engines
3mm x 3mm UQFN-20

RGB LED Drivers

Constant Current RGB LED Driver ICs (continued)



24-Channel RGB LED Driver with I²C Control

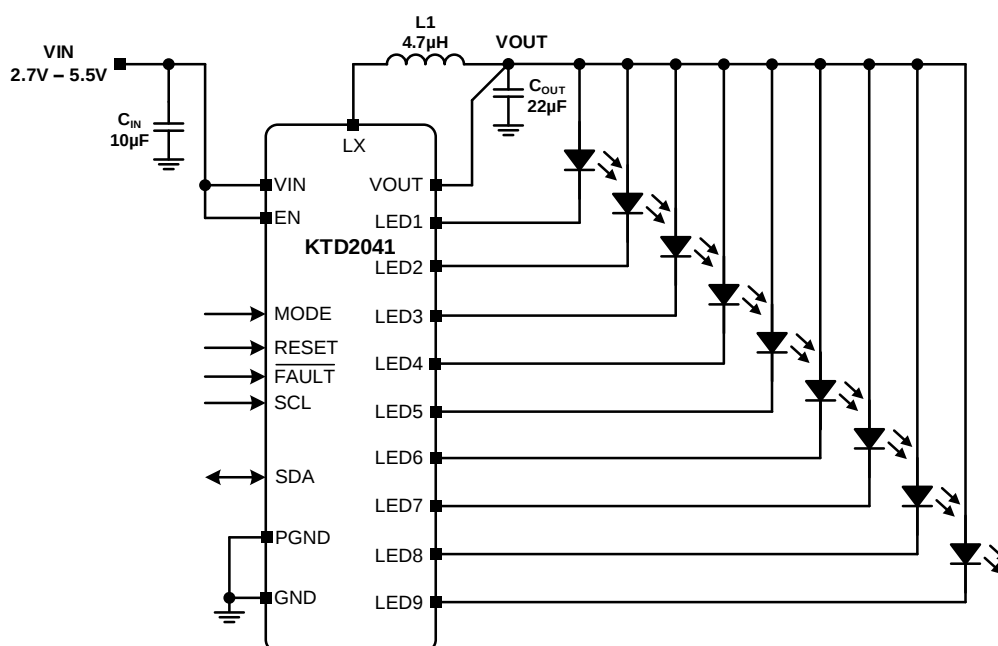
Multiplexed LED Current Outputs

24 Independent Exponential Fade Engines

3mm x 3mm UQFN-20

Infrared (IR) LED Drivers

LED Driver ICs



9-Channel IR LED Driver with Buck Regulator and I²C Interface

High Efficiency for Long Battery Life

9 Independent Controlled Current Sinks with Adaptive V_{OUT} Control

3mm x 3mm UQFN-20

LED Selector Guide

Device	VIN (V)	# LED Channels	IMAX (mA)	Levels	Interface	AECQ100 Approved	Package	Package Size (L x W)
Constant Current RGB LED Drivers								
KTD2026	2.7 - 5.5	3	24	192	I ² C		UTDFN-8	1.5 x 1.5mm
KTD2027	2.7 - 5.5	4	24	192	I ² C		UTDFN-8	1.5 x 1.5mm
KTD2037	2.7 - 5.5	3	24	191	I ² C		UTDFN-8	1.5 x 1.5mm
KTD2041*	2.7 - 5.5	9	32	64	I ² C		UQFN-20	3.0 x 3.0mm
KTD2052A/C**	2.5 - 5.5	12	24	192	I ² C		UQFN-8	2.0 x 2.0mm
KTD2052B/D**	2.5 - 5.5	12	24	192	I ² C		UQFN-8	2.0 x 2.0mm
KTD2058 (Q)***	2.5 - 5.5	36	24	192	I ² C	√	UQFN-20	3.0 x 3.0mm
KTD2059 (Q)***	2.5 - 5.5	36	24	192	I ² C	√	UQFN-20	3.0 x 3.0mm
KTD2060 (Q)***	2.5 - 5.5	36	24	192	I ² C	√	UQFN-20	3.0 x 3.0mm
KTD2061 (Q)	2.5 - 5.5	36	24	192	I ² C	√	UQFN-20	3.0 x 3.0mm
KTD2064A	2.5 - 5.5	24	24	192	I ² C		UQFN-20	3.0 x 3.0mm
KTD2064B****	2.5 - 5.5	24	24	192	I ² C		UQFN-20	3.0 x 3.0mm
IR LED Drivers								
KTD2041*	2.7 - 5.5	9	32	64	I ² C		UQFN-20	3.0 x 3.0mm

* Please contact Kinetic Technologies Sales for availability

** KTD2052A/C = defaults disabled at initial power-up; KTD2061B/D = execute AutoBreathe™ pattern by default at initial power-up or at reset

*** Alt. I²C Address to KTD2061

**** Alt. I²C Address to KTD2064A

Camera LED Flash Driver ICs

Maximum Flash/torch Efficiency and Light with the Smallest Footprint

Kinetic Technologies' highly integrated, high efficiency LED flash drivers are ideal for driving up to two high-brightness LEDs with an additional front-side LED. Their small size and high internal 2MHz switching frequency minimize the design footprint.

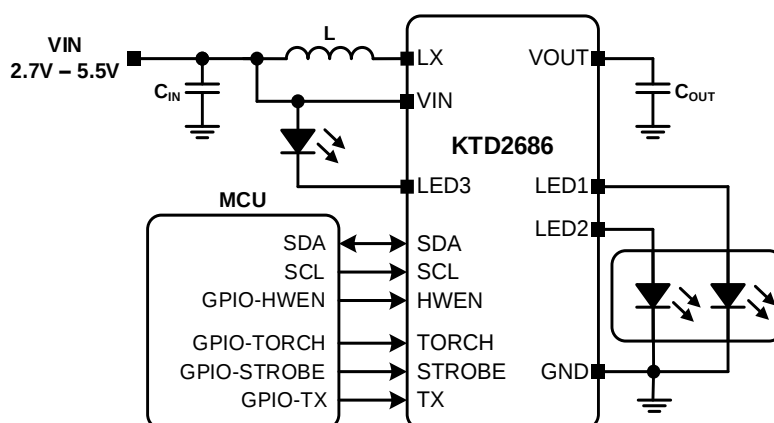
TARGET APPLICATIONS

- ▶ High brightness LED lighting
- ▶ Industrial lighting
- ▶ Cameras-enabled smartphones
- ▶ Digital still cameras and camcorders
- ▶ Smart PCs, tablets and notebooks
- ▶ PDA

KEY FEATURES

- ▶ High power output current
 - Flash up to 1.5A
 - Torch up to 375mA
- ▶ 2MHz Synchronous boost converter
- ▶ Independent flash mode enable
- ▶ Resistor programmable flash/torch current
- ▶ Input voltage range: 2.7V – 5.5V
- ▶ LED open/short protection
- ▶ I²C interface programming

KTD2686: 3-Channel Flash/Torch/IR Mode LED Driver*

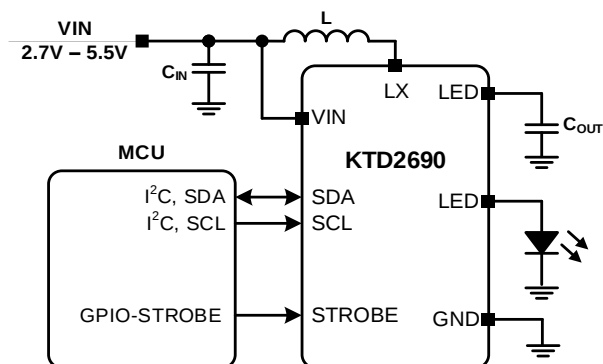


*Specific device shown may not include all the features shown to the left.



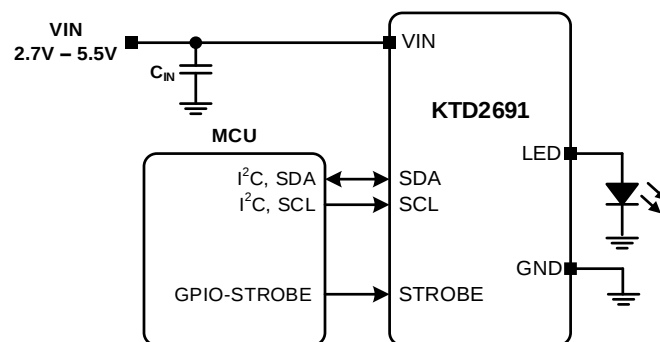
Camera Flash/Torch LED Driver ICs

Flash LED Driver ICs



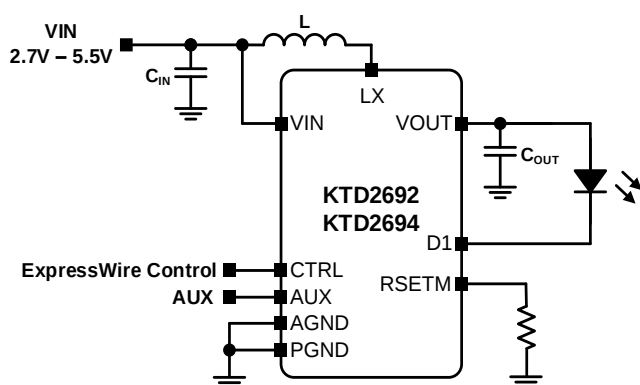
1-Channel, 1.5A Flash/Torch/IR Mode LED Driver

Flash: Up to 1.5A (128 Levels)
Torch: Up to 0.375A (128 Levels)
LED open/short protection
1.519 x 0.808mm WLCSP-8



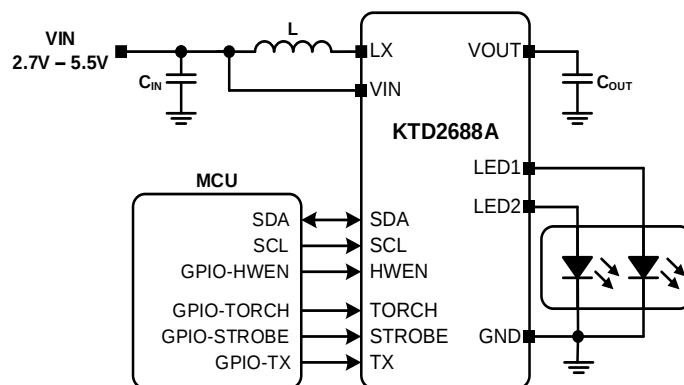
1-Channel, 1.5A Flash/Torch/IR Mode LED Driver

Flash: Up to 1.5A (128 Levels)
Torch: Up to 0.375A (128 Levels)
LED short protection
1.519 x 0.808mm WLCSP-8



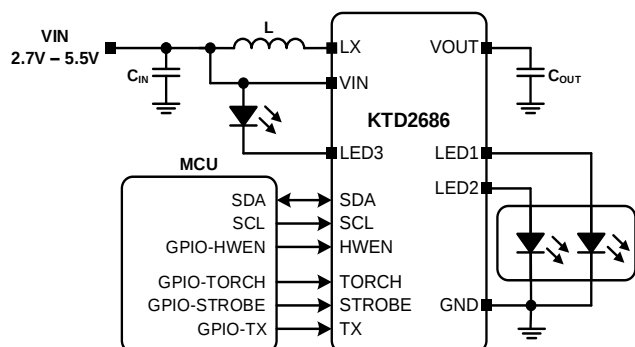
1-Channel, 1.5A Flash LED Driver

Flash: Up to 1.5A (4 bits, 16 Levels)
Torch: Up to 400mA (4 bits, 16 Levels)
KTD2692 – 2 x 3mm TDFN-14
KTD2694 – 2 x 2mm UDFN-10



2-Channel 1.5A/1.5A Flash/Torch/IR Mode LED Driver

LED1/LED2 Flash: Up to 1.5A (7-bits, 128 Levels)
LED1/LED2 Torch: Up to 375mA (7-bits, 128 Levels)
LED open/short protection
1.30 x 1.57mm WLCSP-12



3-Channel 1.5A/1.0A/0.5A Flash/Torch/IR Mode LED Driver

LED1 Flash: Up to 1.5A (7 bits, 128 Levels)
LED2 Flash: Up to 1.0A (6 bits, 64 Levels)
LED3 Flash: Up to 0.5A (6 bits, 64 Levels)
Flash/Torch/IR modes
1.42 x 1.66mm WLCSP-12

Flash LED Selector Guide

PWM /Single-Wire Control							
Device	VIN (V)	# LED Channels	IMAX (A)	Interface	Type	Package	Package Size (L x W)
KTD2692	2.7 - 5.5	1	1.5	SINGLE-WIRE	BOOST	TDFN-14	2 x 3mm
KTD2694	2.7 - 5.5	1	1.5	SINGLE-WIRE	BOOST	UDFN-10	2 x 2mm

I ² C Interface Control							
KTD2681	2.7 - 5.5	1	1.5	I ² C	BOOST	WLCSP-12	1.3 x 1.57mm
KTD2688A	2.7 - 5.5	2	1.5/1.5	I ² C	BOOST	WLCSP-12	1.3 x 1.57mm
KTD2686	2.7 - 5.5	3	1.5/1.0/0.5	I ² C	BOOST	WLCSP-12	1.42 x 1.66mm
KTD2690*	2.7 - 5.5	1	1.5	I ² C	BOOST	WLCSP-8/ UDFN-10	1.519 x 0.808mm / 2mm x 2mm
KTD2691	2.7 - 5.5	1	1.5	I ² C	LINEAR	WLCSP-8	1.519 x 0.808mm

* Please contact Kinetic Technologies Sales for availability

DC-DC Converters

Buck and Boost Converters in Miniature Packages with Advanced Features

Kinetic Technologies' expanding range of DC-DC Converters include buck, boost mixed function and isolated flyback products, all designed to reduce size, improve efficiency and improve system performance.

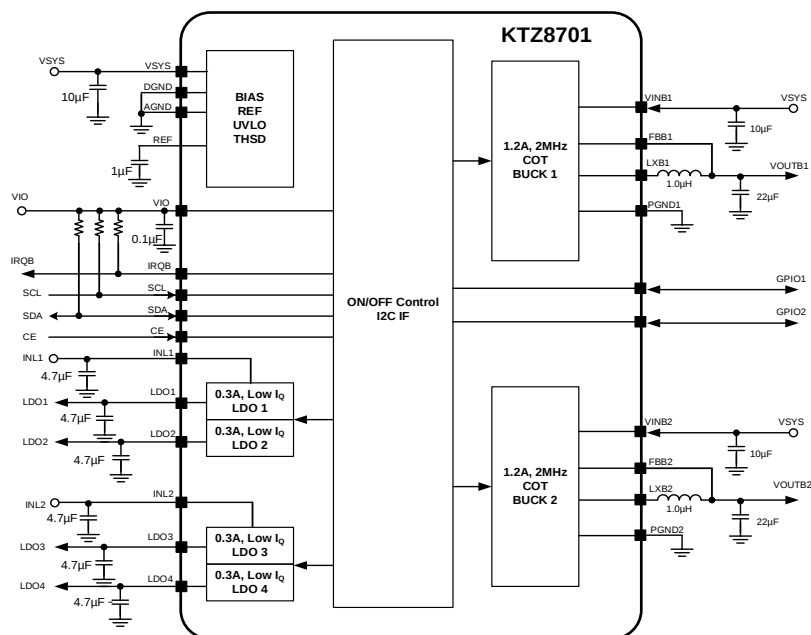
TARGET APPLICATIONS

- ▶ Tablets, Smartphones, IoT, Wearables
- ▶ DSC, Drones, Gaming, Accessories
- ▶ USB-OTG
- ▶ CPU, GPU, AP, DSP, FPGA, I/O, XCVR Power
- ▶ HDD, LPDDR3, LPDDR4 Memory Power

KEY FEATURES

- ▶ Input voltage range: 2.7V – 5.5V
- ▶ Output currents up to 3A
- ▶ Quiescent current down to 35μA
- ▶ Digital voltage scaling with programmable ramp rates
- ▶ Fast transient response 24mV droop, 10mA – 1.4A step $t_r = 100\text{ns}$
- ▶ High PSSR, 300mA low drop-out LDOs
- ▶ Programmable sequencing
- ▶ Dual phase (buck converter option)
- ▶ High efficiency 89%
- ▶ True load disconnect

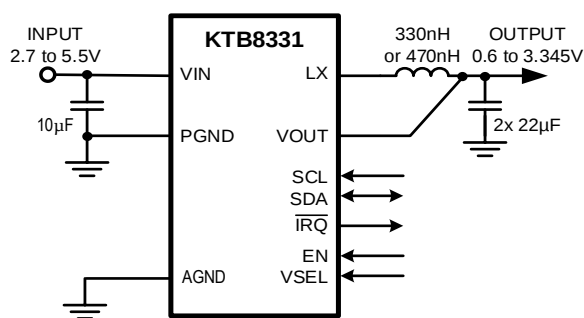
KTZ8701: 6-Ch PMIC with Dual DC-DC & Quad LDOs*



*Specific device shown may not include all the features shown to the left.

DC-DC Converters

Buck Converter



3A, Sync. AOT Buck with DVS

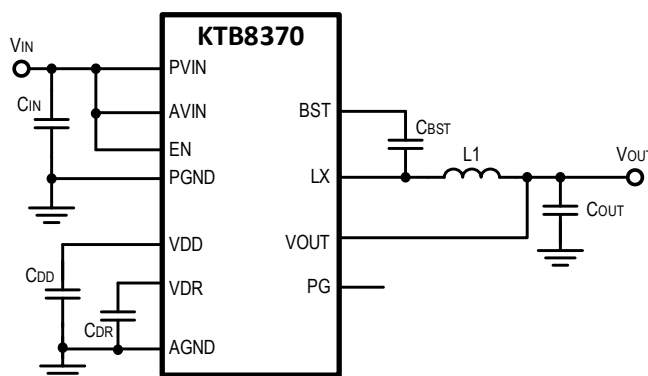
$V_{IN} = 2.7V - 5.5V$, $I_{OUT} = 3A$

I^2C Programmable $V_{OUT} = 0.6V - 3.345V$

$I_Q = 48\mu A$, $F_{SW} = 2.4MHz$ with Auto-skip at light load

OC, SC, UVLO, OVLO and OTP Protection

1.31 x 2.015mm WLCSP-15



5A, 12V Input Sync. AOT Buck

$V_{IN} = 4.7V - 17.0V$,

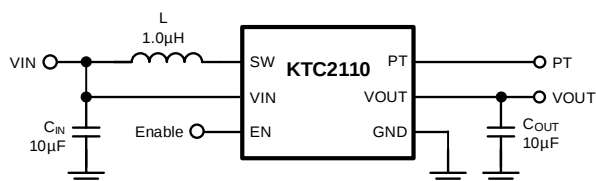
$V_{OUT} = 5.0V$, $I_{OUT} = 5A$

$I_Q = 50\mu A$, $F_{SW} = 0.5MHz$ with Auto-skip at light load

OC, SC, UVLO, OVLO and OTP Protection

1.7 x 2.0mm WLCSP-20

Boost Converter



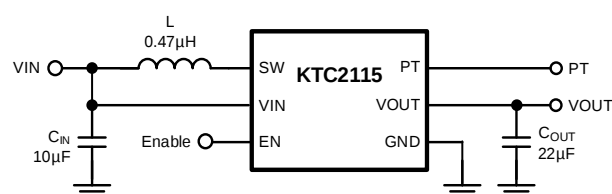
1A, Low I_Q , Synchronous Boost

$V_{IN} = 2.5V - 5.5V$, $V_{OUT} = 5.0V$, $I_{OUT} = 1A$,

3MHz PWM Switching Frequency

Selectable Pass-through or True Load

Disconnect in Shutdown



1.5A, Low I_Q , Synchronous Boost

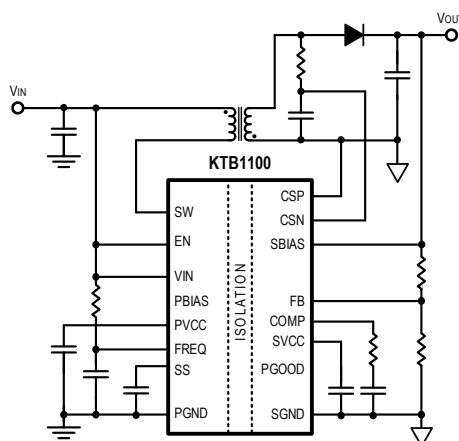
$V_{IN} = 2.5V - 5.5V$, $V_{OUT} = 5.0V$, $I_{OUT} = 1.5A$,

2.5MHz PWM Switching Frequency

Selectable Pass-through or True Load

Disconnect in Shutdown

Isolated Flyback Converter



Isolated Flyback Regulator with Integrated Feedback and Digital Isolator

$V_{IN} = 7V - 100V$, $V_{OUT} = 3.3 - 48V$, $P_{OUT} = 15W$, 2.5kV Isolation

10.3 x 7.5mm SOIC-16

DC-DC Converter Selector Guide

Buck								
Device	VIN (V)	VOUT (V)	IMAX Current (mA)	IQ (μA)	Interface	Output Auto-Discharge	Package	Package Size (L x W)
KTB8331*	2.5 - 5.5	0.6 – 3.345	3000	48	I ² C/EN	Yes	WLCSP-15	1.31 x 2.015mm
KTB8360**	2.5 - 5.5	0.6 – 3.345	3000	3	I ² C/EN	Yes	WLCSP-15	1.31 x 2.015mm
KTB8370*	4.7 - 17	5	5000	50	EN/PG	Yes	WLCSP-20	1.7 x 2.0mm
KTB8371*	4.7 - 17	0.8V to 5.5V	5000	50	I ² C	Yes	WLCSP-20	1.7 x 2.0mm
Dual Buck + Quad LDO								
KTZ8701**	2.7 - 5.5	Bucks: 0.6 – 3.3, 12mV Steps LDOs: 1.2 – 3.5, 25mV Steps	Bucks: 1200 LDOs: 300	140	I ² C	Yes	WLCSP-25	2.42 x 2.35mm
Boost								
KTC2110	2.5 - 5.5	5	1000	60	EN/PT	–	WLCSP-9	1.38 x 1.38mm
KTC2110A	2.5 - 5.5	5.4	1000	60	EN	–	WLCSP-9	1.38 x 1.38mm
KTC2115**	2.5 - 5.5	5	1500	56	EN/PT	–	WLCSP-9	1.27 x 1.30mm
Buck & Boost								
KTZ8812	2.5 - 5.5	+4.0 – 5.2; 100mV Steps -4.0 – -5.2; 100mV Steps	150	–	I ² C/ENP/ENN	Yes	WLCSP-15 TDFN3x2.5-14	2.2 x 1.45mm 3.0 x 2.5mm
Isolated Flyback								
Device	VIN (V)	VOUT (V)	Output Power (W)	IQ (mA)	Interface	Output Auto-Discharge	Package	Package Size (L x W)
KTB1100	7 - 100	3.3 – 48	15	2.5	EN/PG	–	SOIC-16	10.3mm x 7.5mm

* Default output voltage & mode options available. Please contact Kinetic Sales for detailed ordering information

** Please contact Kinetic Technologies Sales for availability



Wireless Power Receiver

Wireless Power Receiver for WPC/Qi

Kinetic Technologies' single chip wireless power receiver solutions are compliant to Qi/WPC v1.3 and features a peak efficiency of 97% with minimal parts count.

TARGET APPLICATIONS

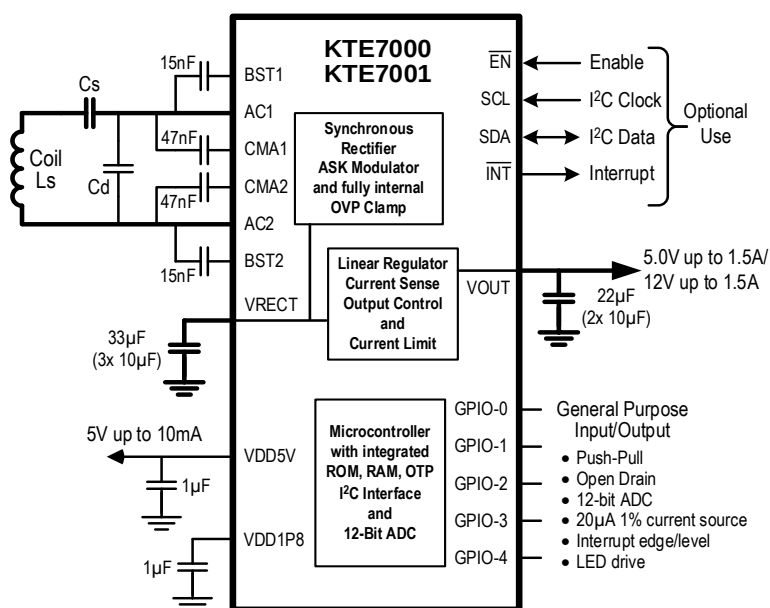
- ▶ Smartphones, IoT, Wearables
- ▶ DSC, Gaming, Accessories
- ▶ Wireless Headsets, Headphones, Earbuds
- ▶ Battery Powered Medical, Industrial and Consumer

KEY FEATURES

- ▶ Single-chip solution for 5W*/15W wireless power
- ▶ WPC/Qi v1.3 standards compliant
- ▶ 97% Peak Efficiency from Coil to 5VOUT (KTE7000)
- ▶ 98% Peak Efficiency from Coil to 12VOUT (KTE7001)
- ▶ Full Synchronous Rectification with Low-RDSON
- ▶ 12V/5V LDO Mode or Pass-Through Mode
 - Up to 5V/1.5A peak output current (KTE7000)
 - Up to 12V/1.5A peak output current (KTE7001)
 - 2.25A short-circuit protection
- ▶ Embedded Microcontroller and OTP Memory
- ▶ Standard Firmware with Resistor Configuration
- ▶ Optional I²C Monitoring, Interrupts, and Enable
- ▶ Proprietary Robust Internal Over-Voltage Protection
 - Without external "Sink" resistor or other devices
- ▶ Optional External NTC Over-Temperature Protection
- ▶ Configurable Foreign Object Detection (FOD)
- ▶ 52-bump WLCSP 2.66 x 3.90mm (0.4mm pitch)

* Up to 8W in proprietary modes

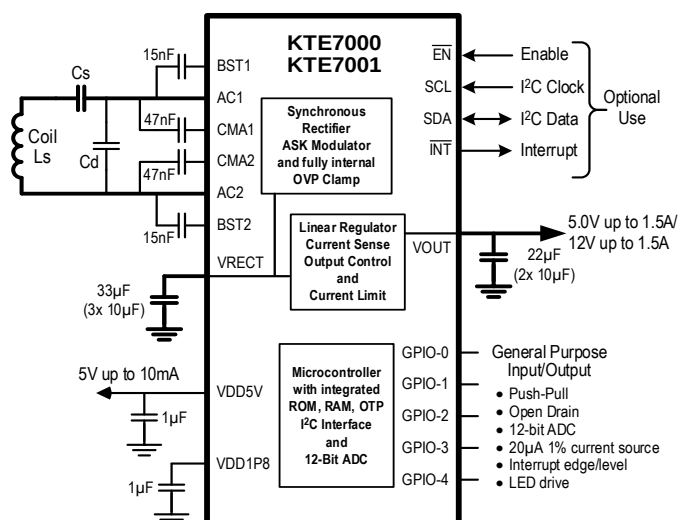
KTE7000/KTE7001: 5W/15W Wireless Power Receiver for WPC/Qi BPP*



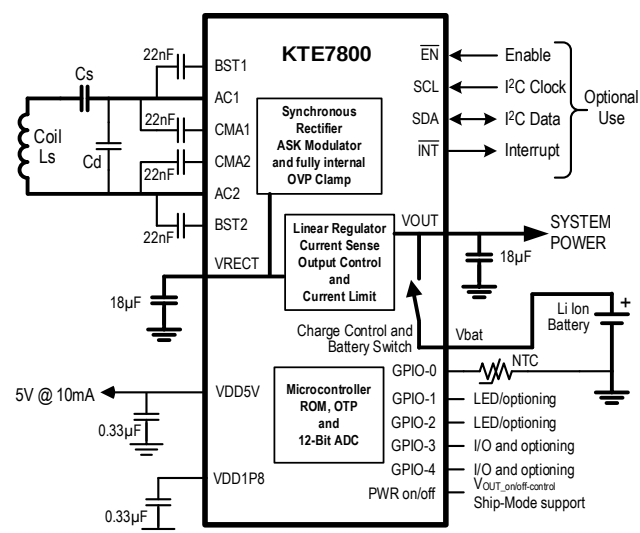
*Specific device shown may not include all the features shown to the left.



Wireless Power Receiver



5W/15W Wireless Power Receiver for WPC/Qi



5W Wireless Power Receiver for WPC/Qi

Wireless Power Receiver Selector Guide

Device	Function	Wireless Power Standard	Recommended Operating Range (V)	Output Voltage (V)	Output Power Max (W)	Maximum Output Current (A)	Package	Package Size (L x W)
KTE7000	Power Receiver	WPC/Qi 1.3 BPP	4.0 to 18.0	5.0 in BPP Mode	5	1.5	WLCSP-52	2.66 x 3.90mm
KTE7001	Power Receiver	WPC/Qi 1.2.4 EPP	4.0 to 18.0	5.0 in BPP Mode 9/12 in EPP Mode	15	1.5	WLCSP-52	2.66 x 3.90mm
KTE7800*	Power Receiver / Linear Charger	WPC/Qi 1.2.4	3.6 to 10.0	5.0 in BPP Mode	5	1.0	QFN-24	5.0 x 5.0mm

*Please contact Kinetic Technologies Sales for availability

Power Over Ethernet ICs

Power over Ethernet (PoE) has Emerged as a Preferred Technology for Delivering Remote Power to Connected Devices

Kinetic Technologies offers compliant products to the latest IEEE 802.3 specification for both Type 1 and Type 2 powered device (PD) equipment. Our PD products include both a PD controller and integrated PWM controller, providing a compact solution size.

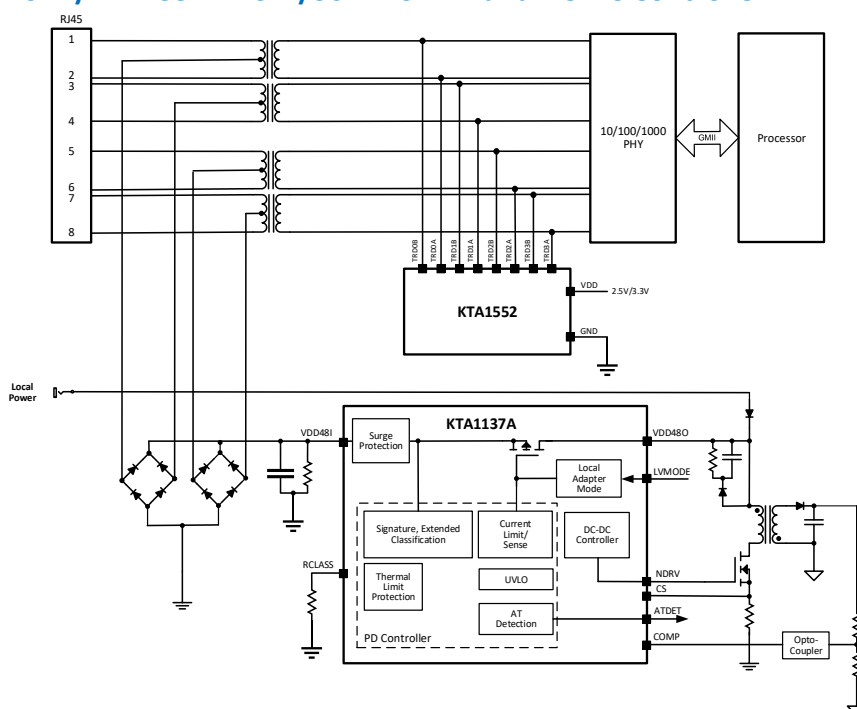
TARGET APPLICATIONS

- ▶ IP security cameras
- ▶ Wi-Fi access points
- ▶ Point of Sale (POS) terminals
- ▶ PoE VoIP videophones
- ▶ PoE VoIP speakerphones
- ▶ LED lighting

KEY FEATURES

- ▶ IEEE 802.3af/at/bt compliant
 - KTA1136 -Type1
 - KTA1137A - Type 1 & 2
- ▶ Inrush current limiting
- ▶ Internal Hot-Swap FET switch
- ▶ Integrated 150V Open Drain Output MOSFET
- ▶ Up to 30W
- ▶ Type 2 PSE detect indicator
- ▶ IEC 61000-4-2/3/4/5/6 for EMC compliance

KTA1137A/KTA1552: 13W/30W PoE PD and DC-DC Controller*



13W/30W PoE PD and DC-DC Controller

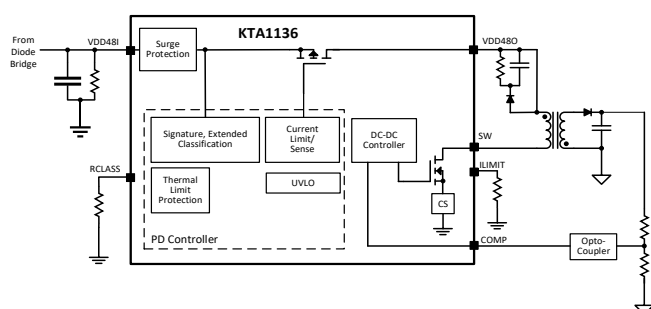
IEEE 802.3af/at compliant
 Supports operation to IEEE 802.3bt
 Over-voltage and transient protection
 Internal Hot-Swap FET switch
 5 x 5mm, QFN-20 Package

*Specific device shown may not include all the features shown to the left.

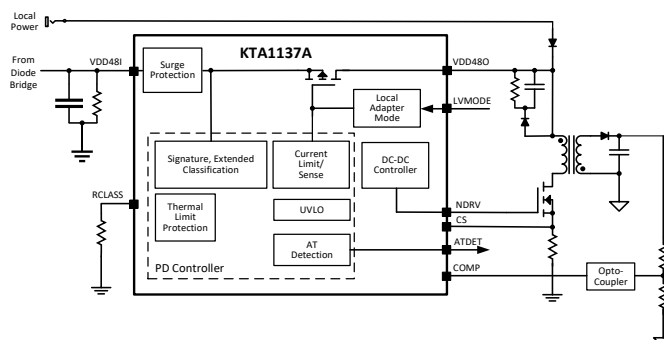


Power Over Ethernet ICs

PoE PD and DC-DC Controller/Regulator



13W PoE PD and DC-DC Regulator
IEEE 802.3af/at/bt Type 1 Compliant
Internal 100V Hot-Swap Switch
Integrated 150V Switching Power MOSFET
4 x 4 mm QFN44-16 Package



13W/30W PoE PD and DC-DC Controller
IEEE 802.3af/at/bt Type 1 & 2 Compliant
Internal 100V Hot-Swap Switch
Type 2 PSE Detect, Local Power Capable
5 x 5mm QFN55-20

EMI/ESD Suppression ICs

Highly integrated CMOS solution for Common Mode (CM) noise suppression and transient voltage protection in Ethernet applications.

ESD Performance

- High System-level ESD Protection for fine line Ethernet PHYs
- Air Discharge: $>\pm 25\text{kV}$
- Contact Discharge: $>\pm 12\text{kV}$
- EFTB & Surge: $>\pm 2\text{kV}$
- HBM: JESD22-A114-A: $>\pm 8\text{kV}$

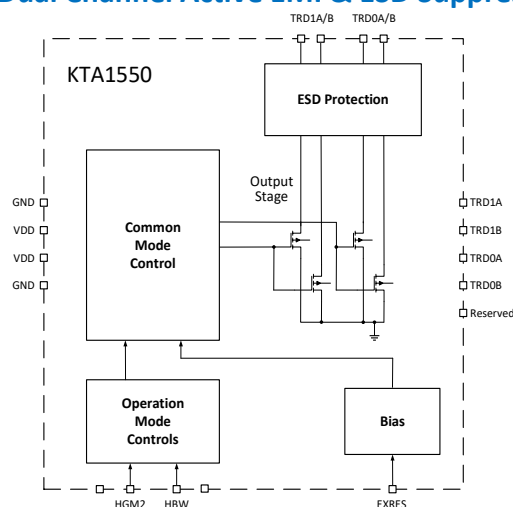
Common Mode Performance

- Enables Class B EMI compliance with $>10\text{dB}$ of Common Mode rejection
- Continuous monitoring and Active suppression of Common Mode noise
- Suppresses differential-to-common mode imbalance of Ethernet lines

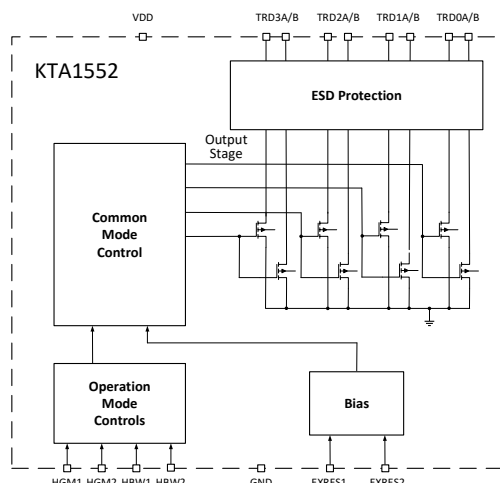
Gigabit Ethernet Performance

- 802.3 Fully Ethernet compliance completed; return loss, range, template
- Works with standard Ethernet transformer and PHY (10/100/1000)
- Single supply (2.5V/3.3V); Industrial Temp, Low Power Consumption

KTA1550: Dual Channel Active EMI & ESD Suppressor



KTA1552: Quad Channel Active EMI & ESD Suppressor



Power Over Ethernet ICs

PoE Product Selector Guide

Device	VIN (V)	Power (W)	802.3af/at/bt Power Level		Power Supply Configuration				Package
			Type 1	Type 2	Flyback	Forward	PSR	Buck	
KTA1136	37 - 57	13	✓		✓	✓	✓	✓	QFN44-16
KTA1137A	9.5 - 57	13/30	✓	✓	✓	✓	✓	✓	QFN55-20

EMI/ESD Suppressor Product Selector Guide

Device	VIN (V)	# of Channels	CISPR22 and FCC Part 15	IEC 61000-4-2 ESD (Air Discharge)	IEC 61000-4-2 ESD (Contact Discharge)	Cable Discharge Event (CDE)	Package
KTA1550	2.17 - 3.47	2	Class B, for Radiated and Conducted Emissions	±25kV	±25kV	±25kV	QSOP-16L TDFN-4 x 2.5 – 16L
KTA1552	2.17 - 3.47	4					DFN94-36L



Motor Controllers

Kinetic's Family of PureSine™ Controllers

With one of the world's first independent motor winding control techniques, Kinetic enables the extremely high electrical efficiency in 3 phase BLDC motors. Our products control standard 3-phase BLDC motor, stepper motors and proprietary BLDC independent winding motors.

Kinetic motor control ICs support a wide range of voltage and output power for application from simple fan to complex vacuum and high voltage compressor drives. Our proprietary 6-wire independent winding drive technology significantly improves electrical efficiency therefore it is well-suited for battery operated eco-friendly devices. This efficiency enables our customers to extend battery usage and, in some cases, reduce battery requirements thus offering benefits such as decreased motor size and increased torque.

Product Lines



6-wire, 3 Phase Motor Solutions



3-wire, 3 Phase Motor Solutions

Applications

Battery Operated Applications

- Vacuums: handheld, upright and robotic
- Power tools: drills, saw
- Power garden tools

Fan Control

- Washer and Dryers
- Refrigerators
- Ovens and Ranges
- Air Conditioning both industrial and consumer

White Goods and Home Appliances

- PC, Data Mining and Data Center
- Ceiling and free standing
- Extraction and cooling

General Automotive

- Seat Control
- Wiper
- Pumps, etc...
- EV motor control

6-wire, 3 Phase Motor Controllers

Proprietary Control Technique: Intelligent independent winding motor controller offers unbeatable electrical efficiency

Our phase voltage and current drive offers 1.7 x RPM increase and a 15% increase in torque for the same output power. Size and Efficiency trade-off giving the potential to reduce motor size or increase motor ability. Machine learning capability with the ability to analyze winding differences over time, compensate for amplitude changes and report. Our GUI offers enhanced flexibility with an easy-to-use interface enabling fast programming and control.

TARGET APPLICATIONS

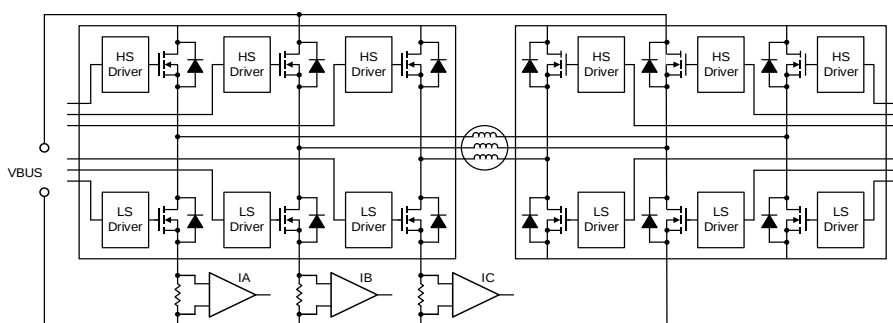
- ▶ Brushless DC Motors
- ▶ Permanent Magnet Synchronous Motor
- ▶ Home appliances and air-conditioning
- ▶ Battery Operated devices
 - Portable vacuum cleaners
 - Power Tools, etc.
- ▶ Drones and aero modeling
- ▶ EV non-drivetrain

KEY FEATURES

- ▶ Built-in Vector Engine controller
- ▶ Sensorless Field Oriented Control
- ▶ Sensorless Direct Torque Control
- ▶ Initial Position Detection
- ▶ Initial Speed Detection
- ▶ Smart start-up method
- ▶ Full-Bridge Inverter
 - Reduced Harmonics
 - Removed common mode noise
 - Reduced EMI
 - Pure-Spin Rotor
- ▶ 12-bit ADC converters
- ▶ I²C interfaces
- ▶ QFN48L 6mm x 6mm x 0.75mm

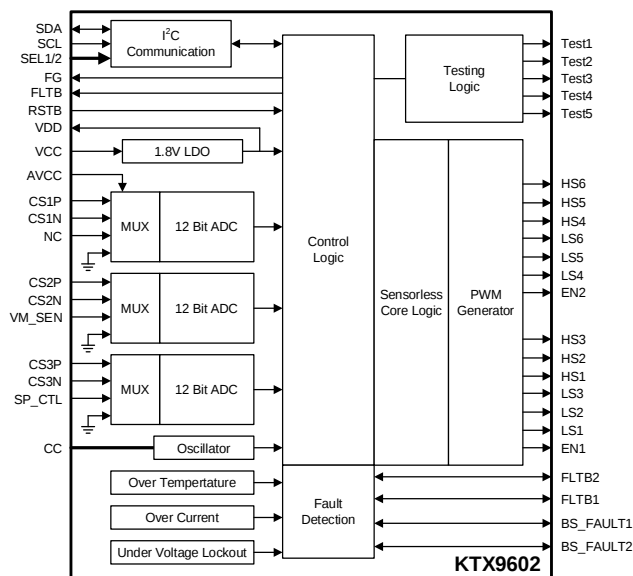
KTX9602

Independent winding controller for 6-wire BLDC motor for use with IPM and External Power Module inverters

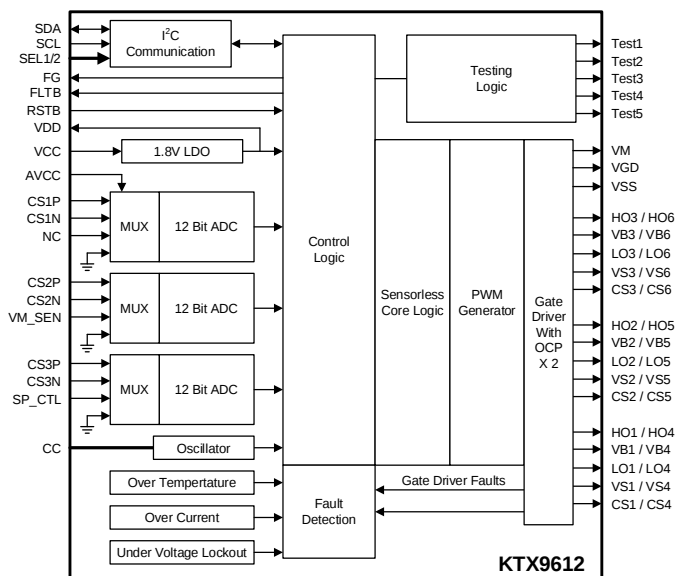


Simplified System Diagram

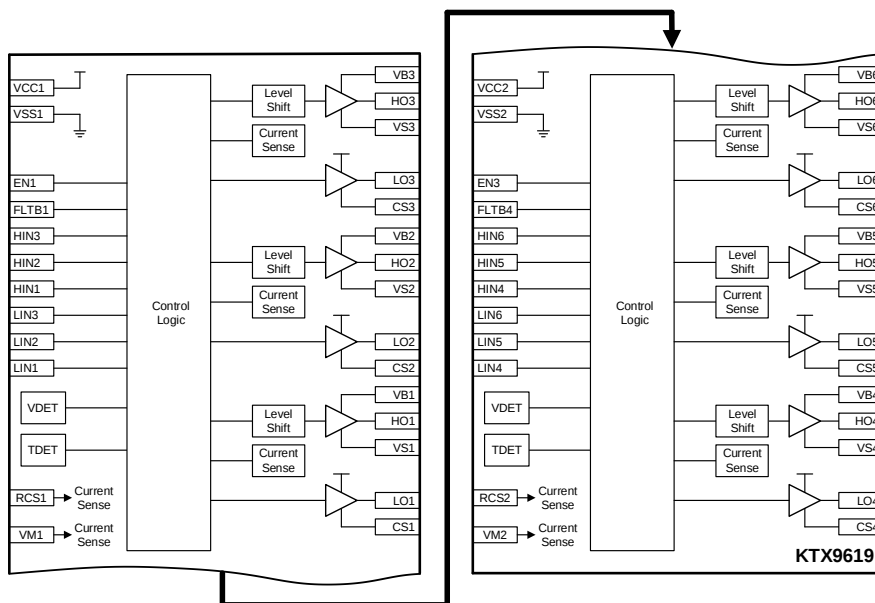
6-wire Controller



3-phase BLDC Motor Controller for 6-wire
PURESINE™ 3-phase independent driver
 FOC with Close-loop Start-up
 Supports ISD/IPD/MTPA/Flux-weakening
 Supports Torque/Speed/Power mode
 Adjustable PWM Frequency
 QFN66-48 Package



3-phase BLDC Motor Controller for 6-wire with Built-in Gate Drivers
PURESINE™ 3-phase independent driver
 FOC with Close-loop Start-up
 Supports ISD/IPD/MTPA/Flux-weakening
 Supports Torque/Speed/Power mode
 Adjustable PWM Frequency
 Built-in 100V 3 Full-Bridge Gate Drivers with OCP
 QFN77-56 Package



3-phase BLDC Motor Controller for 6-wire
 3 Full-Bridges 100V Gate Driver
 Adjustable Over-current Protection
 Built-in charge pump with 96% duty cycle support
 0.3A Source and 1.3A Sink Gate Driver Current Capability
 QFN77-56 Package

6-wire Controllers Selector Guide

Part Number	Description	Specification	Package	Package Size (L x W)
KTX9602*	3-phase BLDC Motor Controller for 6-wire	Designed to work with IPM, IGBT, Independent Gate Drivers and Inverters	QFN66-48	6 x 6mm
KTX9612*	3-phase BLDC Motor Controller for 6-wire with Built-in Gate Drivers	Integrated 100V gate driver with advanced control techniques, targeted at high electrical efficiency	QFN88-72	8 x 8mm
KTX9619*	6-channel Half-Bridge Gate Driver IC	Dedicated external 100V gate driver for KTX9602 or multi-channel dual drive 3-wire applications	QFN77-56	7 x 7mm

*Please contact Kinetic Technologies Sales for availability

3-wire, 3 Phase Motor Controllers

A monolithic hybrid ASIC architecture with advanced control, monitoring, torque, speed and position detection.

Kinetic Technologies' motor controllers offer enhanced electrical efficiency over available competitive solution, with patented ground-up architecture changed features including position detection and speed detection, the difference will be seen from first start-up. The custom ROM based solution offers a technology configuration protection through dedicated ICs.

TARGET APPLICATIONS

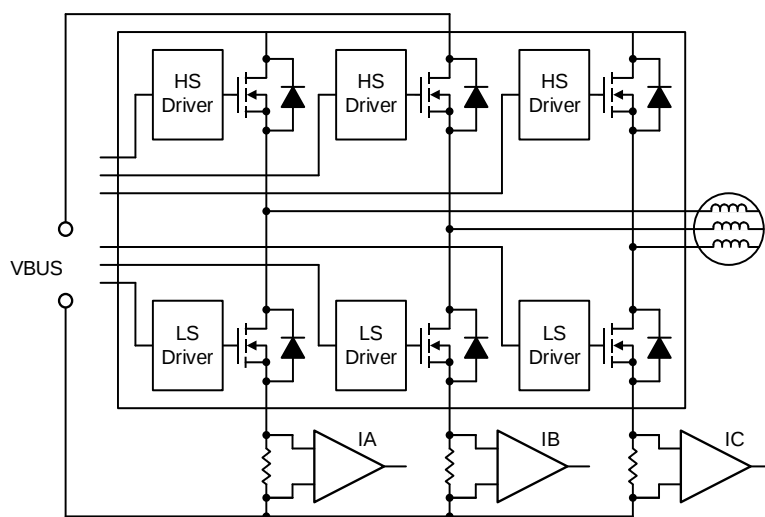
- ▶ Brushless DC Motors
- ▶ Permanent Magnet Synchronous Motor
- ▶ Home appliance and air-con fans
- ▶ Battery Operated devices
 - Portable vacuum cleaners
 - Power Tools, etc.
- ▶ Drones and aero modeling
- ▶ EV non-drivetrain

KEY FEATURES

- ▶ Built-in Vector Engine controller
- ▶ Sensorless Field Oriented Control
- ▶ Sensorless Direct Torque Control
- ▶ Initial Position Detection
- ▶ Initial Speed Detection
- ▶ Smart start-up method
- ▶ 12-bit ADC converters
- ▶ I²C interfaces
- ▶ QFN48L 6mm x 6mm x 0.75mm

KTX9302

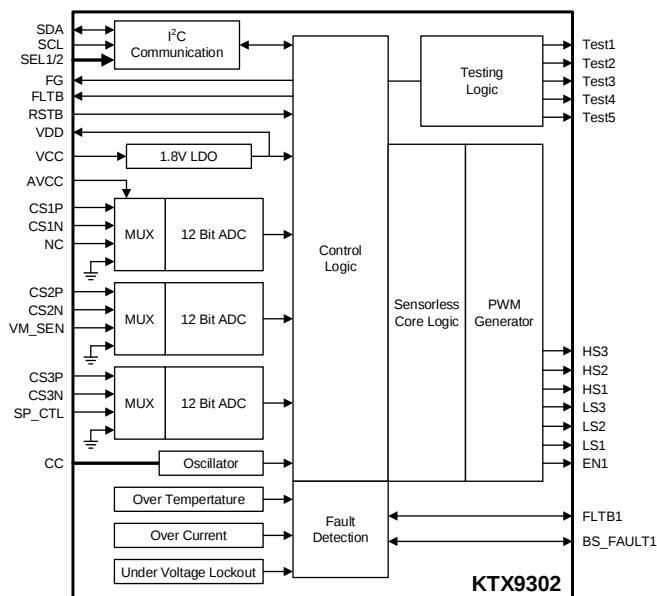
Standard 3-wire BLDC motor controller for use with IPM and External Power Module inverters



Simplified System Diagram

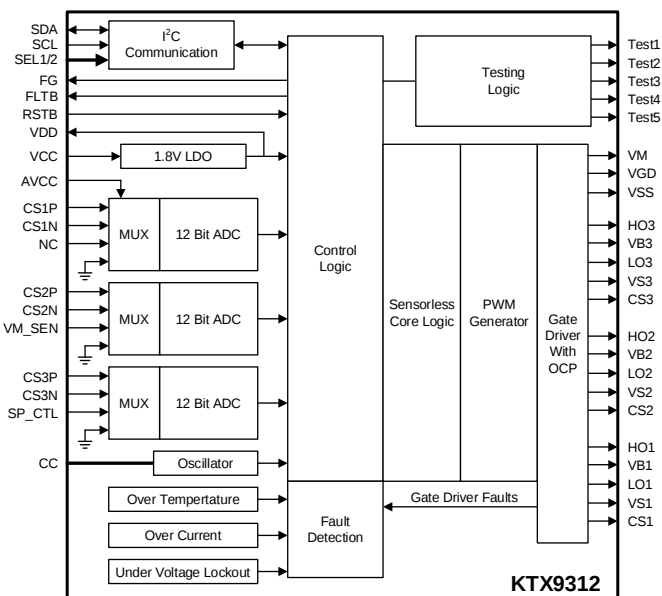


3-wire Controller



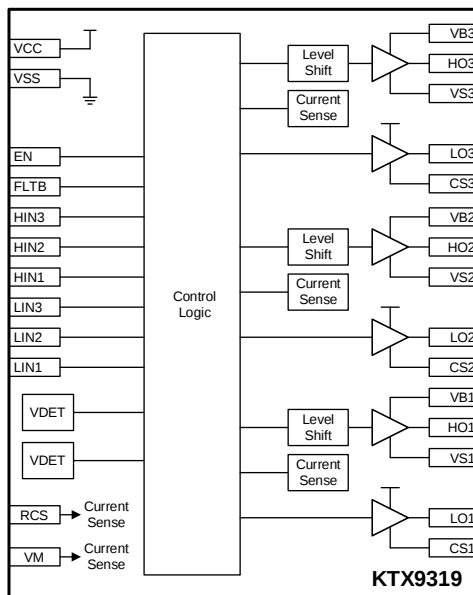
3-phase BLDC Motor Controller for 3-wire

FOC with Close-loop Start-up
Supports ISD/IPD/MTPA/Flux-weakening
Supports Torque/Speed/Power mode
Adjustable PWM Frequency
QFN66-48 Package



3-phase BLDC Motor Controller for 3-wire with Built-in Gate Drivers

FOC with Close-loop Start-up
Supports ISD/IPD/MTPA/Flux-weakening
Supports Torque/Speed/Power mode
Adjustable PWM Frequency
Built-in 100V Gate Drivers with OCP
QFN77-56 Package



Standard BLDC 3 channel Gate Driver

3 Half-Bridges 100V Gate Driver
Adjustable Over-current Protection
Built-in charge pump with 96% duty cycle support
0.3A Source and 1.3A Sink Gate Driver Current Capability
QFN44-32 Package

3-wire Controllers Selector Guide

Part Number	Description	Specification	Package	Package Size (L x W)
KTX9302*	3-phase BLDC Motor Controller for 3-wire	Designed to work with IPM, IGBT, Independent Gate Drivers and Inverters	QFN66-48	6 x 6mm
KTX9312*	3-phase BLDC Motor Controller for 3-wire with Built-in Gate Drivers	Integrated 100V gate driver and advanced control techniques	QFN77-56	7 x 7mm
KTX9319*	3-Channel Half-Bridge Gate Driver IC	Standard multi-function 100V half-bridge gate driver	QFN44-32	4 x 4mm

*Please contact Kinetic Technologies Sales for availability

Smart Connectivity (DisplayPort + USB)

High-Speed and High-Resolution Video Transmission

Versatility, scalability, and high-bandwidth make DisplayPort an increasingly popular audio-video interface for users of computers, smart devices, and other multimedia processing products that demand an uncompromised audio-visual experience. Kinetic Technologies offers a variety of DisplayPort converter products, bridging the latest DP standard to other analog and digital audio-video interfaces and addressing both legacy and future connectivity needs. Kinetic also has applications in DP and USB retimer products that extend the PCB trace length and the cable length to carry the high frequency signals. The best-in-class receiver equalization capability and transmitter performance allows user to design the system beyond the standard specification limit. Our chipsets power some of the most popular mobile devices, accessories, and display products in the market, affecting tens of millions of users. Additionally, these products feature Kinetic's innovative technologies in protocol conversion, audio-video rendering, color fidelity, low power, uncompromised content security and device anti-tampering.

Product Lines



Single Port Converters



Multiport Converters



Repeaters



USB Type-C Controllers

Applications

- Desktop Computers
- Tablets and Laptops
- Monitors
- Smart Devices
- Video Hubs and Streamers
- Games Consoles
- DP/USB Type-C Accessories
- 4K TVs
- Projectors
- Digital Signage
- AR/AV Headset
- Docking Stations
- DP and USB Type-C Active Cables
- Set Top Box (STB)

Single Port Converters

Seamlessly Bridges between Different Audio / Video Transport Protocol

Kinetic Technologies' DP/eDP converters transform audio-video signals from DisplayPort to other standards such as HDMI, DVI, VGA, LVDS and digital RGB format and vice-versa. These bridge chips support deep color video and audio with best-in-class interoperability among commercial DisplayPort Graphics sources and displays.

TARGET APPLICATIONS

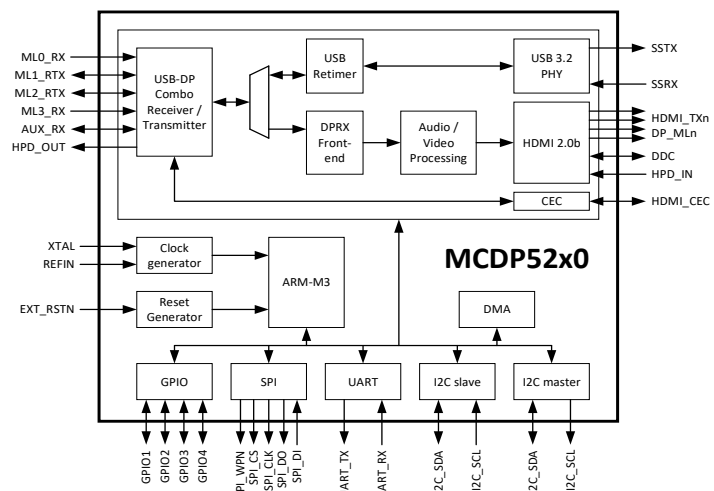
- ▶ TV, Digital Signage, Game Console, HMD
- ▶ USB-C/PC/Phone/Gaming Docking stations / Dongles
- ▶ Desktop, Notebook PCs
- ▶ AV Accessories
- ▶ Monitors/TVs/Digital Signage
- ▶ Video walls
- ▶ POS system
- ▶ Video conferencing system
- ▶ USB-C splitter cable

KEY FEATURES

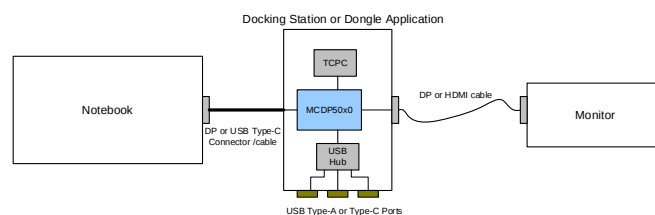
- ▶ USB Type-C "DP Alt mode" receiver
- ▶ USB3.2 Gen1/Gen2 x 1 Retimer
- ▶ DP 1.4a RX with SST/MST support
 - Link rate 1.62/2.7/5.4/8.1 Gbps/lane
- ▶ HDMI 2.0b PHY compliant transmitter
- ▶ Video resolution: 5K3K60Hz
- ▶ HDR support (HDR10, HDR10+, Dolby Vision®, Dolby Atmos®)
- ▶ HBR Audio Formats - Dolby, TrueHD, Atmos, DTS Master
- ▶ LPCM 192KHz 32Ch, HBR 8CH, One Bit, DSD formats support
- ▶ Adaptive sync support
- ▶ CEC Tunneling over AUX
- ▶ HDCP 1.x/2.x repeater with embedded keys
- ▶ ARM Cortex M3 core 300MHz / peripheral controllers

MCDP52x0

USB Type-C / DisplayPort1.4a to DP++ / HDMI 2.0b Protocol Converter*



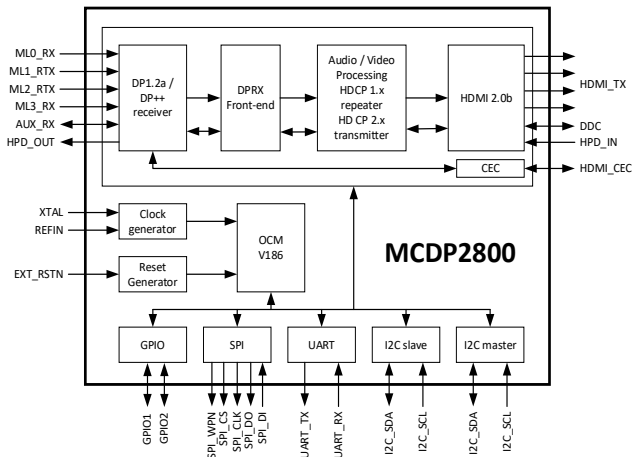
Simplified System Diagram



*Specific device shown may not include all of the features shown to the left.



Single Port Converters



DisplayPort 1.2a-to-HDMI 2.0b LSPCON

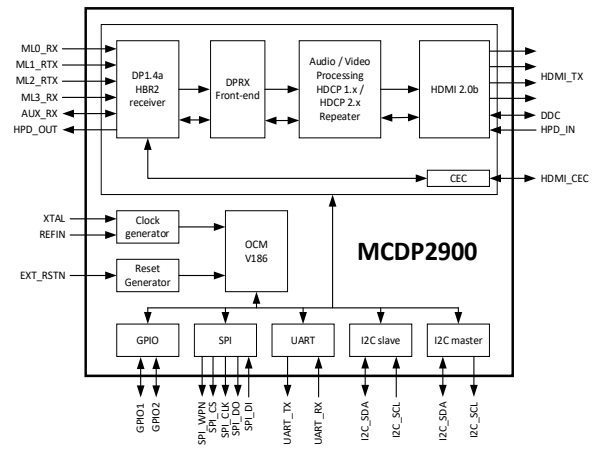
LSPCON for Intel Platform

DP 1.2a to HDMI 2.0b converter (up to 6Gbps)

HDR Imaging 4k2k 60Hz (HDR10/Dolby Vision)

Low Power Operation (470mW Active/0.1mW Standby)

TFBGA77-64 Package



DisplayPort 1.4a-to-HDMI 2.0b Converter

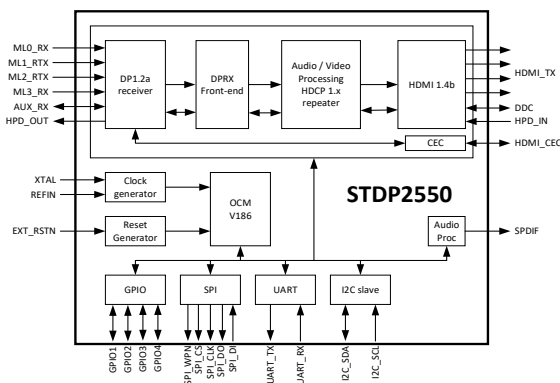
DP 1.4a to HDMI 2.0b converter (up to 6Gbps)

HDR Imaging 4k2k 60Hz (HDR10/Dolby Vision/Dolby ATMOS)

HDCP 2.x Repeater

Low Power Operation (482mW Active/11mW Standby)

TFBGA77-64 Package



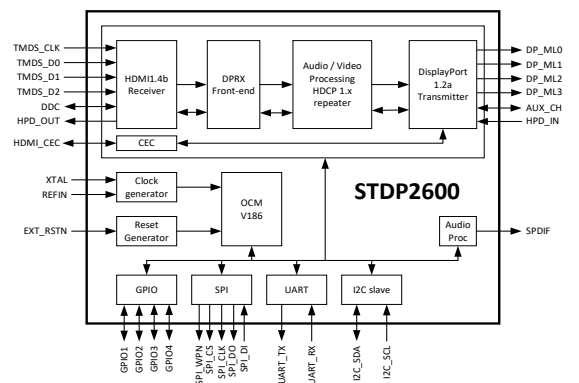
Mobility DisplayPort (MyDP)-to-HDMI 1.4b Converter

MyDP/DP 1.2a to HDMI 1.4b converter (up to 2.97Gbps)

Video Resolution 4K2K 30Hz, 1920x1080@120Hz & 7.1 Ch audio

Low Power Operation (462mW Active/21mW Standby)

VFBGA55-81 Package



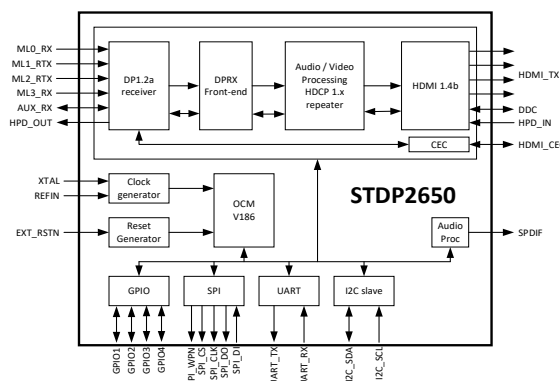
HDMI 1.4b-to-DP1.2a Dual Mode Converter

HDMI 1.4b to Dual Mode DP 1.2a converter (Supports eDP)

Video Resolution 4K2K 30Hz, 1920x1080 & 7.1 Ch audio

Low Power Operation (450mW Active/21mW Standby)

LFBGA88-81 Package



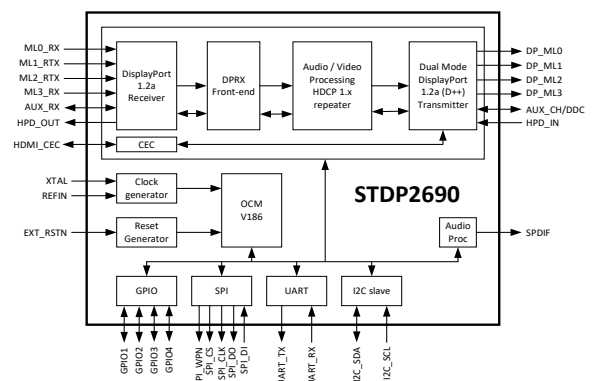
Dual mode DP 1.2a-to-HDMI 1.4b Converter

Dual Mode DP 1.2a (Supports eDP) to HDMI 1.4b converter

Video Resolution 4K2K 30Hz, 1920x1080@120Hz & 7.1 Ch audio

Low Power Operation (462mW Active/21mW Standby)

LFBGA88-81 Package



DP 1.2a-to-DP 1.2a Dual Mode Converter

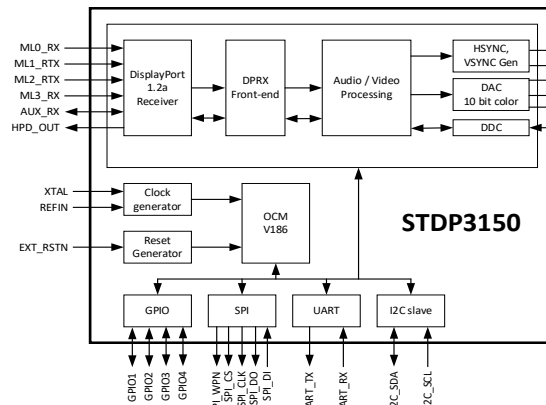
DP 1.2a to Dual Mode DP 1.2a converter (Supports eDP)

Video Resolution 4K2K 60Hz, 1920x1080@120Hz & 7.1 Ch audio

Low Power Operation (493mW Active/21mW Standby)

LFBGA88-81 Package

Single Port Converters (cont.)



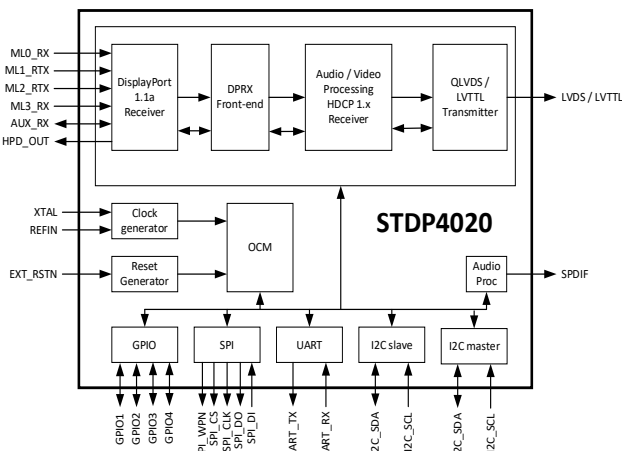
DP 1.2a-to-VGA Converter

2-lane DP 1.2a to VGA converter

10b Video DAC, Resolution thro' to WUXGA

Low Power Operation (400mW Active/15mW Standby)

QFN66-64 Package



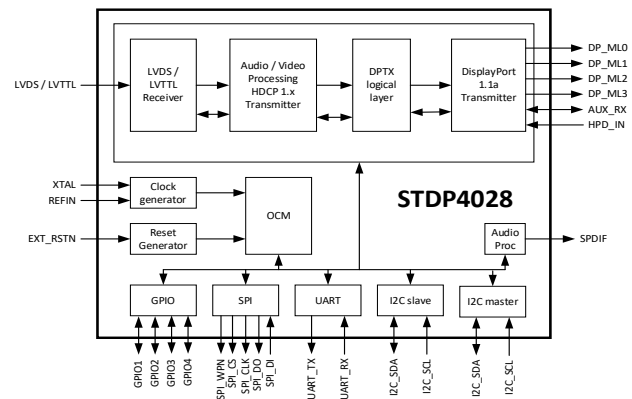
DP 1.1a-to-LVDS/LVTTL Converter

DP 1.1a-to-LVDS/LVTTL Converter (DP/eDP/iDP Compliant)

Video Resolution WQXGA, FHD 120Hz, 10b Video & 7.1 Ch audio

Low Power Operation (520mW Active/24mW Standby)

LFBGA1212-164 Package



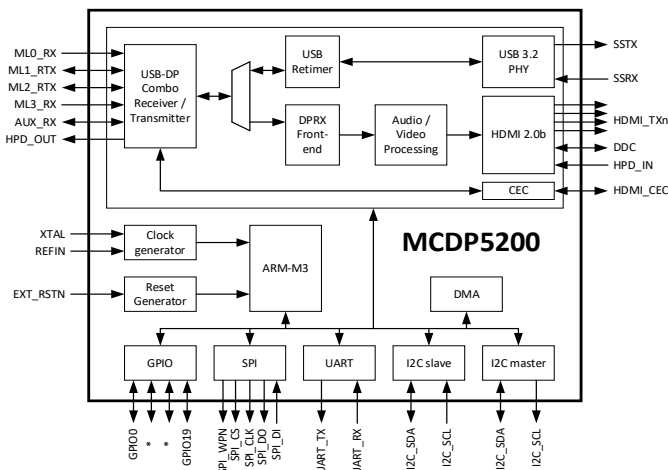
LVDS/LVTTL-to-DP 1.1a Converter

LVDS/LVTTL-to-DP 1.1a Converter (DP/eDP/iDP Compliant)

Video Resolution WQXGA, FHD 120Hz, 10b Video & 7.1 Ch audio

Low Power Operation (270mW Protocol Converter/18mW Standby)

LFBGA1212-164 Package



USB Type-C/DP 1.4a Alt-mode-to-HDMI 2.0b Converter with USB Retimer

Video resolution 4k2k 60Hz, RGB/YCbCr444 & 4k2k 120Hz, 4:2:0 with Adaptive Sync to VRR conversion

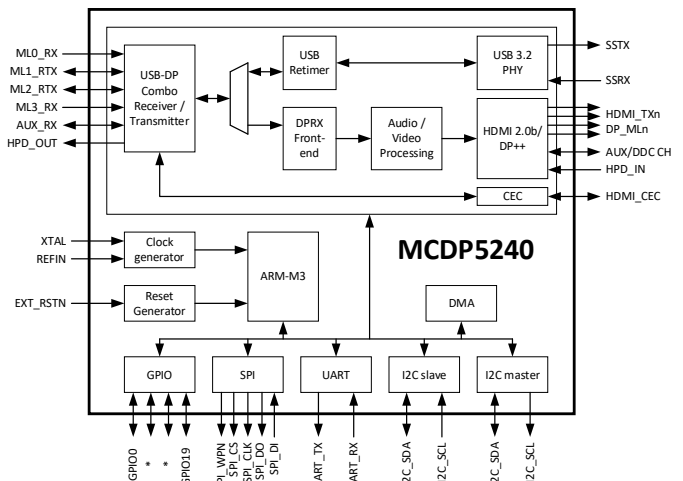
HDR10/HDR10+/Dolby TrueHD/Dolby ATMOS, DTS Master

HDCP 1.3/2.x to HDCP 1.4/2.x Repeater Function

USB3.1 compliant retimer

Low Power Operation (900mW Active w retimer/650mW w/o retimer/9.2mW Standby)

TFBGA77-169 Package



USB Type-C/DP 1.4a Alt-mode-to-DP++ Converter with USB Retimer

Video resolution 4k2k 60Hz, RGB/YCbCr444 & 4k2k 120Hz, 4:2:0 with Adaptive Sync to VRR conversion

HDR10/HDR10+/Dolby TrueHD/Dolby ATMOS, DTS Master

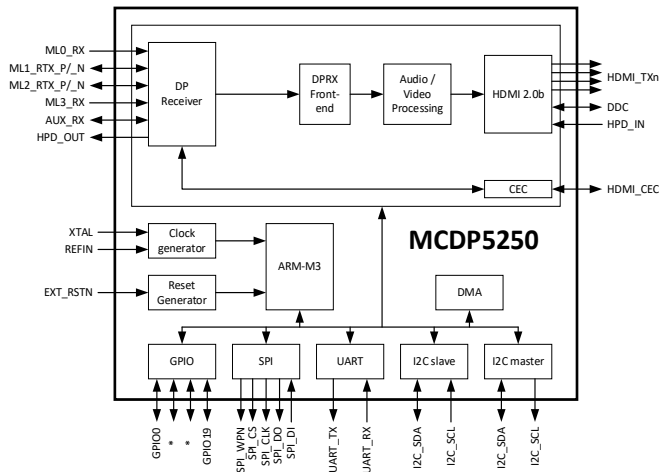
HDCP 1.3/2.x to HDCP 1.4/2.x Repeater Function

USB3.1 compliant retimer

Low Power Operation (900mW Active w retimer/650mW w/o retimer/9.2mW Standby)

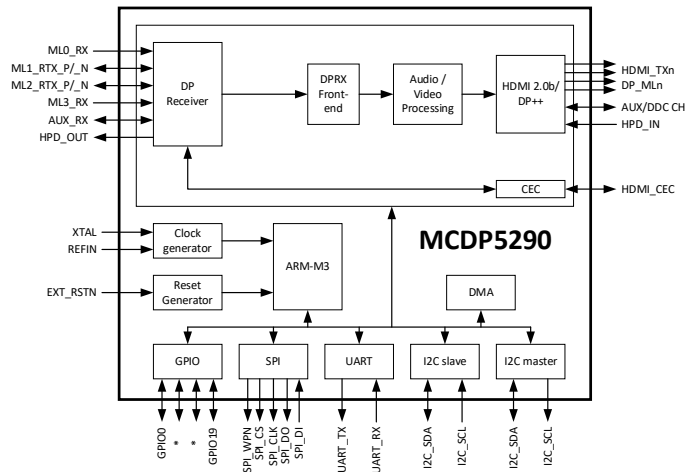
TFBGA77-169 Package

Single Port Converters (cont.)



DP 1.4a-to-HDMI 2.0b Converter

Video resolution 4k2k 60Hz, 4k2k 30Hz
 HDR10/HDR10+/Dolby TrueHD/Dolby ATMOS, DTS Master
 HDCP 1.3/2.x to HDCP 1.4/2.x Repeater Function
 Low Power Operation (468mW Active/9.2mW Standby)
 TFBGA77-169 Package



DP 1.4a-to-DP++ Converter

Video resolution 5k3k 60Hz, 8k4k 60Hz, 4k2k 120Hz
 HDR10/HDR10+/Dolby TrueHD/Dolby ATMOS, DTS Master
 HDCP 1.3/2.x to HDCP 1.4/2.x Repeater Function
 Low Power Operation (650mW Active/9.2mW Standby)
 TFBGA77-169 Package

Single Port Converters

Single Port Converter Selector Guide

Part Number	Input	Output	Application	Package	Package Size (L x W)
MCDP28x0	DP 1.2a	HDMI 2.0a Level Shifter/ Protocol Converter [LSPCON]	Desktop PC, Notebook, Tablet motherboard, dongle applications	LFBGA77-64	7 x 7mm
MCDP2900	DP 1.4a (HBR2, BT2020 HDR, HDCP 2.2, CEC)	HDMI 2.0b	Notebook/Tablet Accessories (USB Type-C dongles, docking stations), TV, Game Console, STB, etc.	LFBGA77-64	7 x 7mm
MCDP5200	USB-C/DP 1.4a (USB3.2, HBR3, HDCP 2.3)	HDMI 2.0b/USB-A	Notebook, Tablet Accessories (USB Type-C dongles, docking stations), TV, Game Console, STB, etc.	TFBGA77-169	7 x 7mm
MCDP5240	USB-C/DP 1.4a (USB3.2, HBR3, HDCP 2.3)	DP++/USB-A	Notebook, Tablet Accessories (USB Type-C dongles, docking stations), TV, Game Console, STB, etc.	TFBGA77-169	7 x 7mm
MCDP5250	DP 1.4a	HDMI 2.0b	Notebook, Tablet Accessories (Adapters (Dongles), docking stations, and other AV accessories)	TFBGA77-169	7 x 7mm
MCDP5290	DP 1.4a	DP++	Notebook, Tablet Accessories (Adapters (Dongles), docking stations, and other AV accessories)	TFBGA77-169	7 x 7mm
STDP2550	MyDP Mobility DisplayPort	HDMI	Phone dock, gaming dock, dongle	VFBGA55-81	5 x 5mm
STDP2600	HDMI 1.4b	DP++	Audio-video accessory (dongle), Docking station, etc.	LFBGA88-81	8 x 8mm
STDP2650	DP 1.2a	HDMI 1.4b	TV, Projector, Audio-video accessory (dongle), Desktop PC, Notebook, Tablet, etc.	LFBGA88-81	8 x 8mm
STDP2690	DP 1.2a	DP++	Audio-video accessory (dongle), Desktop PC, Notebook, Docking station, Thunderbolt source, Peripheral device, etc.	LFBGA88-81	8 x 8mm
STDP31x0	DP 1.2a 10-bit Video DAC	VGA	Notebook, Desktop PC, Dongle, Desktop PC motherboard, etc.	QFN66-64	6 x 6mm
STDP4020	DP/eDP	LVDS/DVI (LVTTTL)	TV, LCD monitor, Mobile display, Projector, dongles (DP2DVI)	LFBGA1212-164	12 x 12mm
STDP4028	LVDS/LVTTTL	DP/eDP	TV, Docking station, STB, Game console, etc.	LFBGA1212-164	12 x 12mm

Single Port Converter Reference Design Evaluation Kits

Part Number	Evaluation Kit Number	Description
STDP2600	RD4-2600	HDMI 1.4b-to-DP 1.2a Dual Mode Converter
STDP2650	RD3-2650	DP 1.2 to HDMI 1.4 Converter
STDP2690	RD5-2690	DP 1.2a to Dual Mode DP 1.2a Converter
STDP2800	RD3-2800	DP 1.2a to HDMI 2.0b Converter (LSPCON)
STDP2900	RD2-2900	DP 1.4a to HDMI 2.0b Converter
STDP4020	RD1-4020	DP 1.1a-to-DVI Converter
STDP4020	RD2-4020	DP 1.1a-to-Quad LVDS Converter
STDP4028	RD2-4028	LVDS-to-DP 1.1a Converter
MCDP5200	RD1-5200	USB Type-C/DP Alt Mode to HDMI2.0 & USB Type-A

Multiport Converters

Reliable and Interoperable Solution to enable Immersive Multiple Displays

Kinetic Technologies' advanced DisplayPort 1.4a MST hub with an integrated USB type-C de-multiplexer is primarily targeted for mobile notebook accessories and display applications. This device functions as a multi-stream audio-video splitter and protocol converter with an HDCP 1.x/HDCP 2.3 repeater supporting both compressed (DSC) and uncompressed AV streams.

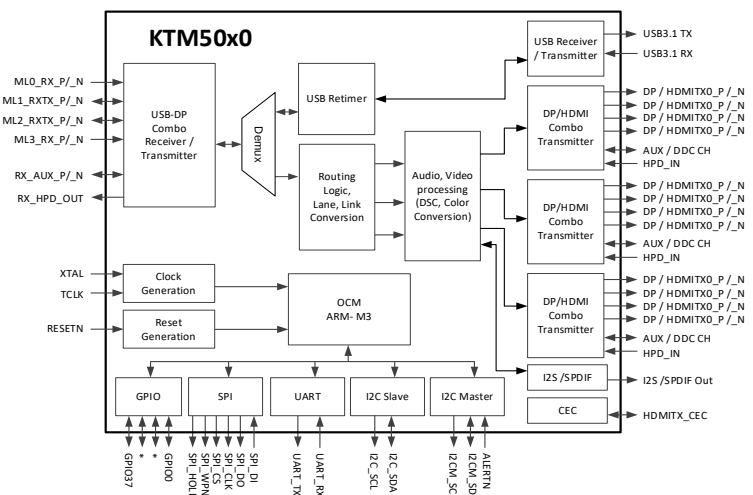
TARGET APPLICATIONS

- ▶ Audi-video Router
- ▶ Docking Station
- ▶ MST Video Hub
- ▶ AR/VR Headset
- ▶ 4k2k TV
- ▶ Information Panels
- ▶ Daisy Chain Monitors
- ▶ Digital Signage

KEY FEATURES

- ▶ USB Type-C "Alt mode" compatible receiver / DP MST hub
- ▶ USB3.1 ESS GEN1/GEN2 Retimer: 5.0Gbps / 10.0Gbps pairs
- ▶ DP 1.4 RX PHY 1.62/2.7/5.4/8.1/Gbps/lane
- ▶ Triple DP++ TX PHY 1.62/2.7/5.4/8.1/Gbps/lane *4 lanes each
- ▶ Video resolution up to 8Kp30Hz uncompressed; 8Kp60Hz compressed
- ▶ HDR Image processing (Static and Dynamic HDR)
- ▶ DP MST routing / DP MST-to-SST conversion / DP-to-HDMI conversion
- ▶ Display Stream Compression (DSC 1.2) and Forward Error Correction (FEC)
- ▶ Pixel format conversion and Chroma down sampling
- ▶ HDCP 1.x/2.x repeater with embedded keys
- ▶ CEC Tunneling over AUX
- ▶ SPDIF / I2S 8CH audio outputs
- ▶ 249-ball LFBGA 12x12mm package

KTM50x0: USB-C / DisplayPort1.4 MTS HUB / 3x DP 1.4a or HDMI 2.0b (DP++)*



Docking Station Application



*Specific device shown may not include all of the features shown to the left.



Multiport Converters

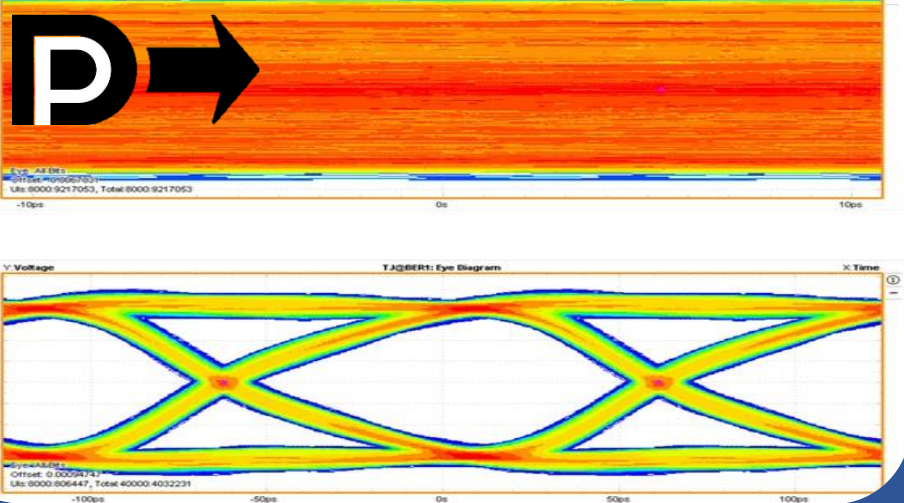
Multiport Converter Selector Guide

Part Number	Input	Output	Application	Package	Package Size (L x W)
KTM50x0	USB-C (DP alt-mode) (DP 4 lanes OR 2 lanes DP and 2 lanes USB3.2)	3x DP++ (DP or HDMI) 1x USB3.2	Audio-video router, Docking station, Hub, 4K2K TV, Signage, Daisy chain monitor, Digital signage	LFBGA-289 0.65mm pitch	12 x 12mm
KTM54x0*	USB-C (DP alt-mode) (DP 4 lanes OR 2 lanes DP and 2 lanes USB3.1)	1x HDMI2.1 2xDP2.0++ (DP2.0 or HDMI2.0) 1x USB3.1	Audio-video router, Docking station, Hub, 8K TV, Signage, Daisy chain monitor, Digital signage	LFBGA-249, 0.65mm pitch	12 x 12mm
STDP4320	DP 1.2a/HDMI 1.4b	DP 1.2a/HDMI 1.4b DP 1.2a/HDMI 1.4b	Audio-video router, Docking station, Hub, 4K2K TV, Signage, Daisy chain monitor, Digital signage	LFBGA-172	12 x 12mm

*Please contact Kinetic Technologies Sales for availability

Multiport Converter Reference Design Evaluation Kits

Part Number	Evaluation Kit Number	Description
KTM50x0	RD4-5000	USB-C / DP Alt-mode Input to 1xUSB-C, 1xDP, 1xHDMI + 2xUSB-A
KTM50x0 + MCDP5200	RD5-5000	Intel-Based Goshen Ridge -Gulliver Creek with Thunderbolt™ 4
STDP4320	RD1-4320	DP 1.2a to 2x DP 1.2a Splitter
STDP4320	RD5-4320	DP 1.2a to 2x HDMI 1.4b Splitter



Repeaters (Retimers)

High Quality Receiver and Transmitter to Extend PCB Trace and Cable Length

Kinetic Technologies' retimers extend the PCB trace length and the cable length to carry the high frequency signals. The best-in-class receiver equalization capability and transmitter performance allows a user to design the system beyond the standard specification limit. Comprehensive monitoring features provides useful debugging interface as well as manufacturing test capabilities.

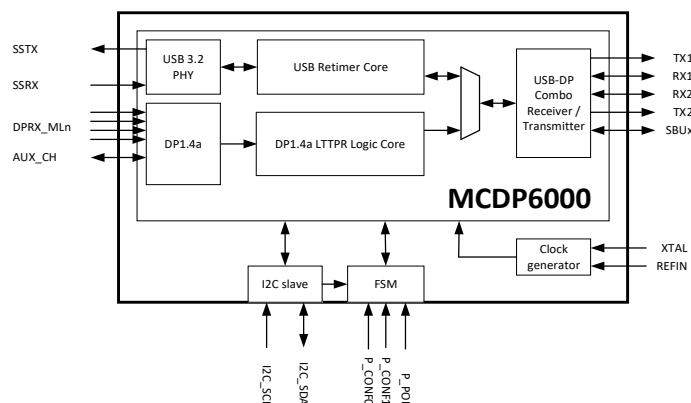
TARGET APPLICATIONS

- ▶ AR/VR Headset
- ▶ DP/USB Active cable for embedded systems
- ▶ DisplayPort extender
- ▶ Smartphone/Tablets
- ▶ Desktop/Laptop for DP Channel
- ▶ Monitors
- ▶ Video walls
- ▶ USB 1:2 Switching retimer

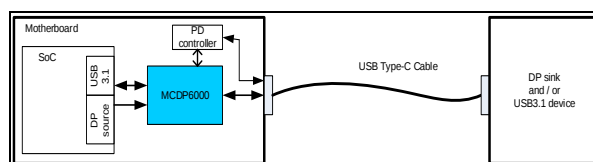
KEY FEATURES

- ▶ DP 1.4a Retimer (1.62 / 2.7 / 5.4 / 8.1 Gbps)
- ▶ USB3.2 x1 compliant Retimer for both SS and ESS mode (5 / 10 Gbps)
- ▶ Compliant with DP 1.4a specification, supports LT tunable PHY repeater (LTTTPR)
- ▶ Reliable PHY performance
- ▶ 1.8V / 1.2V dual supply
- ▶ Low Power consumption
- ▶ TWI slave for device configuration (compatible with I2C)
- ▶ Sophisticated monitoring features
- ▶ Eye Opening Monitor
- ▶ QFN4.5 x 6.5mm-46 package

MCDP6000: USB Type-C DP Alt-mode Repeater*



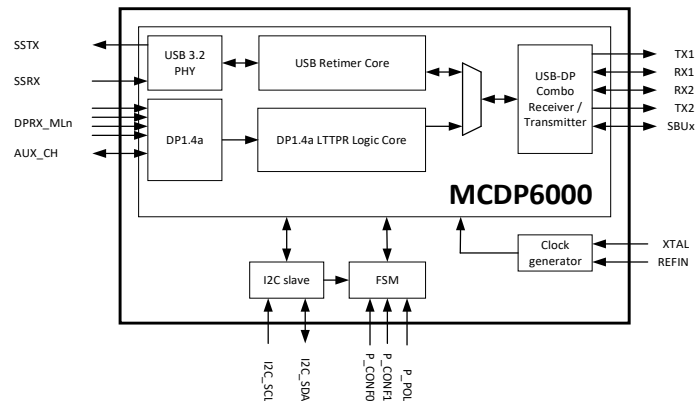
Motherboard Down-use Scenario



*Specific device shown may not include all of the features shown to the left.



Repeaters



6:4 USB-C DP 1.4a Alt-mode Retimer

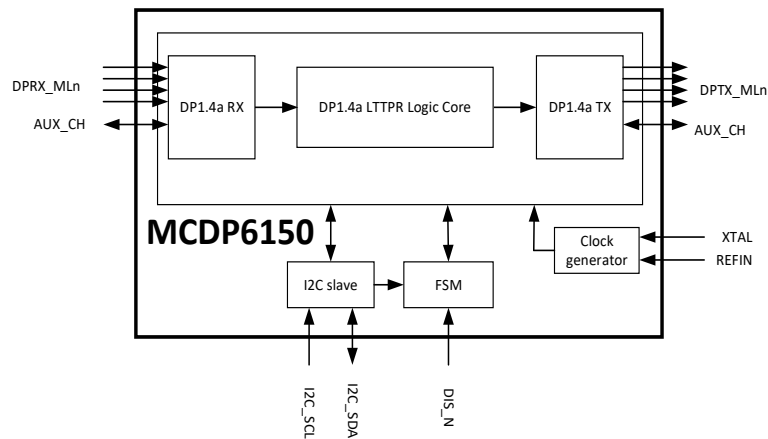
USB 3.2 x1 Compliant Retimer for both Gen1 and Gen2 mode (5/10 Gbps)

DP 1.4a Compliant Retimer (RBR/HBR/HBR2/HBR3)

DP 1.4a Compliant Retimer (1.62/2.7/5.4/8.1 Gbps)

Low Power Operation (520mW in USB3.1 Gen2 + 2-lane HBR3 config.)

QFN4.5x6.5-46 Package



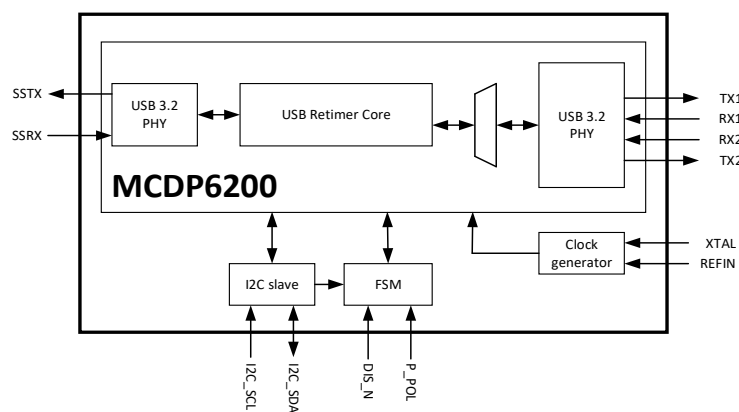
DisplayPort 1.4a Retimer

DP 1.4a Link Trainable (LTTTPR) PHY Retimer (RBR/HBR/HBR2/HBR3)

DP 1.4a Compliant Retimer (1.62/2.7/5.4/8.1 Gbps)

Low Power Operation (460mW in 4-lane HBR3 in typ. condition)

QFN4.5x6.5-46 Package



USB 3.2 x1 Gen1/Gen2 Retimer

USB 3.2 x1 Compliant Retimer for both Gen1 and Gen2 mode (5/10 Gbps)

TWI slave to configure integrated lane mode and mapping.

Low Power Operation (270mW in USB3.2 Gen2 mode with 1.2V/1.8V power supply)

QFN4.5x6.5-46 Package

Repeaters

Repeater Selector Guide

Part Number	Input	Application	Package	Package Size (L x W)
KTM6400*	USB-C DP2.0/USB4 retimer	Laptop, 2-in-1 PC, Desktop, AIO PC, Tablet, Smartphone, Set-top-box, active cable, KVM switch, motherboard enabling USB Type-C DP Alt-mode	WLCSP or BGA (small form factor)	TBD
MCDP6000	6:4 USB-C DP 1.4a Alt-mode Retimer	Laptop, 2-in-1 PC, Desktop, AIO PC, Tablet, Smartphone, Set-top-box, active cable, KVM switch, motherboard enabling USB Type-C DP Alt-mode	QFN4.5x6.5-46	4.5 x 6.5mm
MCDP6150	DP 1.4a Retimer	Laptop, 2-in-1 PC, Desktop, AIO PC, Tablet, Smartphone, Gaming monitor, DP active cable, KVM switch, public display	QFN4.5x6.5-46	4.5 x 6.5mm
MCDP6200	USB3.2 x1 Gen1/Gen2 Retimer	Laptop, 2-in-1 PC, Desktop, AIO PC, Tablet, Smartphone, USB active cable	QFN4.5x6.5-46	4.5 x 6.5mm

*Please contact Kinetic Technologies Sales for availability

Repeater Reference Design Evaluation Kits

Part Number	Evaluation Kit Number	Description
MCDP6000	RD4-6000	USB Type-C DP Alt-mode Switching Retimer

USB Type-C Port Controllers

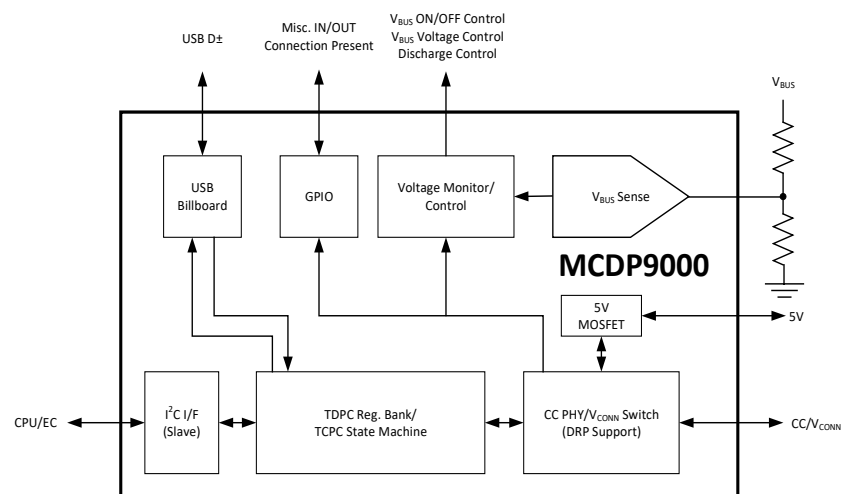
Enabling Comprehensive Support for USB Type-C Accessories

Kinetic Technologies' power delivery controllers together with MST routers and/or SST converters provide customers with one stop support for both USB Type-C power delivery communications and DisplayPort protocol conversion over USB Type-C. The combination of the Kinetic port protection, load switch and DC-DC converter provides the complete set of USB Type-C accessories.

TARGET APPLICATIONS

- ▶ Smartphone/Tablet
- ▶ Desktop/Notebook Computers
- ▶ Digital Still/Video Cameras
- ▶ Monitors
- ▶ Docking Station
- ▶ VR/AR Headsets
- ▶ All device with USB Type-C Port
- ▶ KEY FEATURES
- ▶ TCPC specification compliant device
- ▶ PD 3.0 specification compliant with Kinetic's PD protocol stack
- ▶ DRP/DFP/UEP support
- ▶ Fast-Role-Swap support
- ▶ Debug Accessory Detection
- ▶ VCONN switch to support 1.5W
- ▶ Integrated Billboard device (USB FS mode)
- ▶ I²C interface as defined in TCPC standard
- ▶ Up to 1MHz
- ▶ Dead battery operation
 - R_D expose on both CC1 and CC2
- ▶ 5V single power supply
- ▶ QFN44-24 package

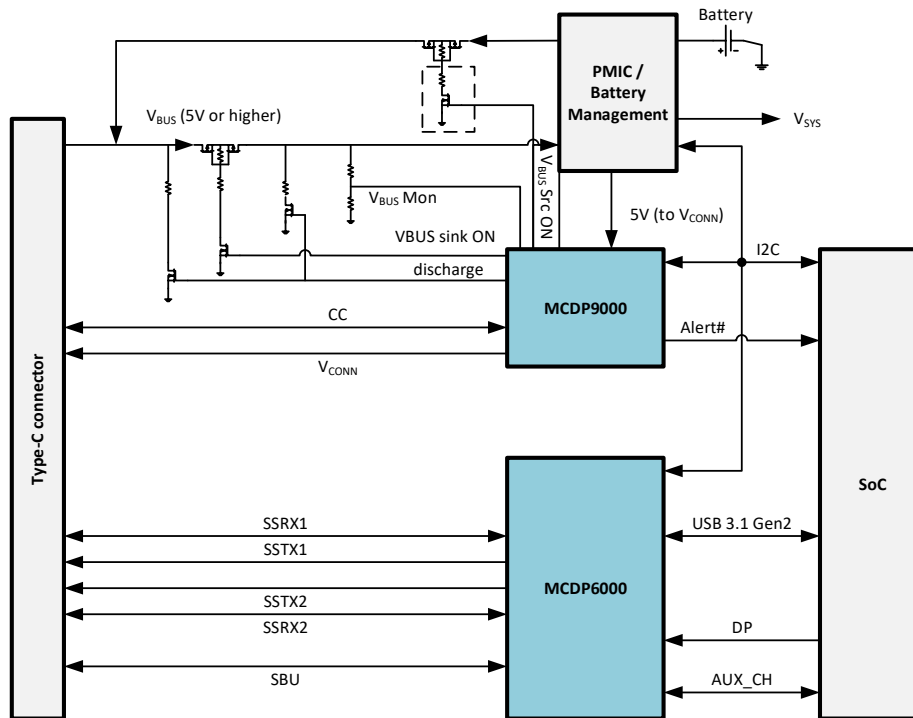
MCDP9000 USB Type-C Port Controller



USB Type-C Port Controller

MCDP9000

MCDP9000 together with MCDP6000 In Notebook



USB Type-C Port Controller Selector Guide

Part Number	Input	Application	Package	Package Size (L x W)
MCDP9000	USB Type-C Port Controller	Laptop, 2-in-1 PC, Desktop, AIO PC, Tablet, Smartphone, USB-C Docking station, USB-C DA/V dongle, Set-top-box, USB-C monitor, KVM switch, public display	QFN44-24	4.0 x 4.0mm

Kinetic Technologies at a Glance

Power ICs

USB and USB-C OVP Solutions

Single Load Switch with OVP	
KTS1688	2.5A Adjustable, 5.8V Fixed OVP Switch with RBP
KTS1671	3.0A, 6.15V Fixed or 20V Adjustable OVP Switch
KTS1662	4.5A, Fixed or 28V Adjustable OVP Switch
KTS1640 (Q)	6.0A, 27V Fixed OVP Switch with -28V reverse polarity protection (AECQ100 Approved)

Surge Protected, Single Load Switch with OVP	
KTS1650B	4.5A, $\pm 200V$ Surge, 6.4V/13.8V Fixed or 24V Adj. OVP
KTS1675	5.0A, $\pm 100V$ Surge, 13V/17V Fixed OVP with RBP
KTS1675A	5.0A, $\pm 100V$ Surge, 13V/23.4V Fixed OVP with RBP
KTS1676	5.0A, $\pm 100V$ Surge, 13V/17V Fixed OVP with RBP
KTS1693*	6.0A, $\pm 110V$ Surge, 13V/17V Fixed OVP, OCP with RBP

Surge Protected, Dual Output Switch with OVP	
KTS1678B	Dual 3.5A/6.0A, $\pm 100V$ Surge, 28V OVP Switch with RBP
KTS1656	Dual 3.5A/6.0A, $\pm 200V$ Surge, 28V OVP Switch with RBP

USB-PD Protected Switch	
KTS1677A	5A, 90V Surge, 30V OVP with RBP, RCP, OCP, CL
KTS1690A*	400mA to 3.3A, $\pm 80V$ Surge, 30V OVP with RBP, RCP, OCP, CL
KTS1696A	7 _{ARMS} VBUS Current-Sink Protection Load Switch
KTS1697A	7 _{ARMS} VBUS Current-Sink Protection Load Switch
KTS1698**	5 _{ARMS} VBUS Current-Sink Protection Load Switch
KTS1865	5A/100W USB Power Delivery $I_{SINK}/I_{SOURCE}/DRP$ Protection Switch

USB Data Line Protection

USB Data Line Protection	
KTU1001A	USB Hi-Speed Switch with Fault Protection
KTU1101	USB Type-C Port Protector for CC & SBU Pins
KTU1108	USB Type-C Protector for CC Pins
KTU1120	USB Type-C Port Protector - CC & SBU Pins
KTU1121	USB Type-C Port Protector - CC & SBU Pins
KTU1121A***	USB Type-C Port Protector - CC & SBU Pins
KTU1128**	USB 28V EPR Type-C Port Protector - CC & SBU Pins
KTU1125**	USB Type-C Port Protector
KTU1131***	USB Type-C Protector for CC, SBU & D+/D- Pins

Smart Push Button Reset ICs

Dual-Input Smart Push Button Reset ICs	
KTS1612	Dual-Input Push Button Reset IC with Two Discharge Paths
KTS1613	Dual-Input Push Button Reset IC

Load Switches

Single, Slew-Rate Controlled Load Switch	
KTS1601	2.0A Slew Rate Controlled Load Switch with RBP
KTS1605	5.0A Slew Rate Controlled Load Switch with RBP

Power Over Ethernet Solutions

Power over Ethernet (PoE) PD	
KTA1136	13W PoE PD and DC-DC Regulator
KTA1137A	13W/30W PoE PD and DC-DC Controller
KTA1137AEUAB-EV1	KTA1137A EVAL Kit

Active EMI & EMI Suppressor for PoE	
KTA1550	Dual Channel Active EMI & ESD Suppressor
KTA1552	Quad Channel Active EMI & ESD Suppressor

GPIO Solutions

I/O Expander	
KTS1622	16-Bit I ² C Bus I/O Expander
KTS1620	24-Bit I ² C Bus I/O Expander

Wireless Power

Wireless Power Receiver	
KTE7000	5W Wireless Power Receiver for WPC/Qi BPP
KTE7001	15W Wireless Power Receiver for WPC/Qi EPP
KTE7800**	5W Wireless Power Receiver for WPC/Qi BPP

New Products in italics

* Safety approvals:

UL 2367, file no. E515099-20210819.

IEC 62368-1, file no. DK-118085-UL

**Please contact Kinetic Technologies Sales for availability

*** Thunderbolt™ Compatible

Kinetic Technologies at a Glance

Power ICs – Continued

LCD Backlight and Bias Solutions

Single Channel Backlight LED Driver	
KTD2801	0.52A/40V Integrated Switch with ExpressWire™ or PWM
KTD2500	0.75A/40V Integrated Switch with ExpressWire™ or PWM
KTD2536	0.8A/40V Integrated Switch with PWM Dimming

Multi-Channel Backlight LED Driver	
KTD3122	2-Channel, 1.0A/40V Integrated Switch with Internal Diode
KTD3134	2-Channel, 2.6A/32V Integrated Switch with Panel Flash
KTD3136	3-Channel, 2.6A/32V Integrated Switch
KTD3156B	6-Channel, 2.5A/40V Integrated Switch

LCD Bias Power Supply	
KTD2151	I ² C Programmable, Dual LCD Bias Supply with 100mV Steps
KTZ8850	Complete LCD 1-Channel LED Backlight plus Bias Power
KTZ8863A	Complete LCD 3-Channel LED Backlight plus Bias Power
KTZ8864A	Complete LCD 4-Channel LED Backlight plus Bias Power
KTZ8866	Complete LCD 6-Channel LED Backlight plus Bias Power
KTZ8874**	Complete LCD 4-Channel LED Backlight plus Bias Power

LED Driver Solutions

RGB LED Drivers	
KTD2026	3-Channel RGB LED Driver with I ² C Dimming
KTD2027	4-Channel RGB LED Driver with I ² C Dimming
KTD2037	3-Channel RGB LED Driver with I ² C Control, AutoBlinQ™
KTD2052	12-Channel RGB LED Driver with I ² C Control
KTD2058* (Q)	36-Channel RGB LED Driver with I ² C Control (AECQ100 Approved)
KTD2059* (Q)	36-Channel RGB LED Driver with I ² C Control (AECQ100 Approved)
KTD2060* (Q)	36-Channel RGB LED Driver with I ² C Control (AECQ100 Approved)
KTD2061 (Q)	36-Channel RGB LED Driver with I ² C Control (AECQ100 Approved)
KTD2061 EVAL Kit	36-Channel RGB LED Driver with I ² C Control
KTD2064	24-Channel RGB LED Driver with I ² C Control

IR LED Drivers	
KTD2041**	9-Channel LED Driver with I ² C Dimming

Camera Flash/Torch LED Driver Solutions

PWM or Single-Wire Brightness Control	
KTD2692	1-Channel, 1.5A Flash LED Driver
I ² C Interface Control	
KTD2681	1-Channel, 1.5A Flash/Torch/IR Mode LED Driver
KTD2688A	2-Channel, 1.5A/1.5A Flash/Torch/IR Mode LED Driver
KTD2686	3-Channel, 1.5A/1.0A/0.5A Flash/Torch/IR Mode LED Driver
KTD2690**	1-Channel, 1.5A Flash/Torch/IR Mode LED Driver
KTD2691	1-Channel, 1.5A Flash/Torch/IR Mode LED Driver

DC-DC Converters

Buck	
KTB8331***	3A, 2.4MHz, Low-Voltage, I ² C Programmable Buck Regulator
KTB8360***	3A, 2.4MHz, Low-Voltage, Low I _Q , I ² C Programmable Buck Regulator
KTB8370***	5A, 4.7V to 17V, Synchronous Buck Regulator with AOT Control
KTB8371	5A, 4.7V to 17V, Synchronous Buck Regulator with AOT Control & I ² C Interface
KTZ8701**	6-Channel PMIC with Dual DC-DC & Quad LDOs

Boost	
KTC2110	3.0Mhz High Efficiency, Low I _Q Synchronous Boost Converter with Pass Through Enable Pin
KTC2110A	3.0Mhz High Efficiency, Low I _Q Synchronous Boost Converter
KTC2115**	2.5Mhz, 1.5A High Efficiency, Low I _Q Synchronous Boost Converter

Buck & Boost	
KTZ8812	Dual Output DC/DC Converter

Isolated Flyback	
KTB1100	7V to 100V, Isolated Flyback Regulator with Integrated Feedback and Digital Isolator

Motor Controllers

6-wire 3 Phase Controllers

KTX9602**	3-phase BLDC Motor Controller for 6-wire
KTX9612**	3-phase BLDC Motor Controller for 6-wire with Built-in Gate Drivers
KTX9619**	6-channel Half-Bridge Gate Driver IC

3-wire 3 Phase Controllers

KTX9302**	3-phase BLDC Motor Controller for 3-wire
KTX9312**	3-phase BLDC Motor Controller for 3-wire with Built-in Gate Drivers
KTX9319**	6-channel Half-Bridge Gate Driver IC

New Products in italics

* Alt. I²C Address to KTD2061

** Please contact Kinetic Technologies Sales for availability

*** Default output voltage & mode options available. Contact Kinetic Sales for detailed ordering information

Kinetic Technologies at a Glance

Smart Connectivity

Single Port Converters

MCDP2800	DisplayPort 1.2a-to-HDMI 2.0b LSPCON
MCDP2900	DisplayPort 1.4a-to-HDMI 2.0b Converter
MCDP5200	USB Type-C/DP 1.4a Alt-mode-to-HDMI 2.0b Converter with USB Timer
MCDP5240	USB Type-C/DP 1.4a Alt-mode-to-DP++ Converter with USB Timer
MCDP5250	DP 1.4a-to-HDMI 2.0b Converter
MCDP5290	DP 1.4a-to-DP++ Converter
STDP2550	Mobility DisplayPort (MyDP)-to-HDMI 1.4b Converter
STDP2600	HDMI 1.4b-to-DP 1.2a Dual Mode Converter
STDP2650	Dual mode DP 1.2a-to-HDMI 1.4b Converter
STDP2690	DP 1.2a-to-DP 1.2a Dual Mode Converter
STDP3150	DP 1.2a-to-VGA Converter
STDP4020	DP 1.1a-to-LVDS/LVTTL Converter
STDP4028	LVDS/LVTTL-to-DP 1.1a Converter

Multiport Converters

KTM50x0	USB Type-C/ DisplayPort1 .4 MST Hub
KTM54x0*	USB Type-C / DisplayPort2.0 MST Hub Protocol Converter
STDP4320	DP 1.2a/HDMI 1.4b

Repeaters

KTM6400*	DP2.0/USB-C/USB4 Retimer
MCDP6000	6:4 USB-C DP 1.4a Alt-mode Retimer
MCDP6150	DisplayPort 1.4a Retimer
MCDP6200	USB 3.2 x1 Gen1/Gen2 Retimer

USB Type-C Port Controllers

MCDP9000	USB Type-C Port Controller
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Design Evaluation Boards

Part Number	Evaluation Kit Number	Description
KTM50x0	RD4-5000	USB-C to USB-A / 3x DP 1.4a or HDMI 2.0b (DP++)
KTM50x0	RD5-5000	USB-C to USB-A / 3x DP 1.4a or HDMI 2.0b (DP++): Intel based
MCDP5200	RD1-5200	USB Type-C/DP Alt Mode to HDMI2.0 & USB Type-A
MCDP6000	RD4-6000	USB Type-C DP Alt-mode Switching Retimer
STDP2600	RD4-2600	HDMI 1.4b-to-DP 1.2a Dual Mode Converter
STDP2650	RD3-2650	DP 1.2 to HDMI 1.4 Converter
STDP2690	RD5-2690	DP 1.2a to Dual Mode DP 1.2a Converter
STDP2800	RD3-2800	DP 1.2a to HDMI 2.0b Converter (LSPCON)
STDP2900	RD2-2900	DP 1.4a to HDMI 2.0b Converter
STDP4020	RD1-4020	DP 1.1a-to-DVI Converter
STDP4020	RD2-4020	DP 1.1a-to-Quad LVDS Converter
STDP4028	RD1-4028	DVI to Display Port Converter
STDP4028	RD2-4028	LVDS-to-DP 1.1a Converter
STDP4320	RD1-4320	DP 1.2a to 2x DP 1.2a Splitter
STDP4320	RD5-4320	DP 1.2a to 2x HDMI 1.4b Splitter

New Products in italics

* Please contact Kinetic Technologies Sales for availability

Notes

Notes



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