

### GENERAL DESCRIPTION

The SGM2555 is a single channel power distribution switch. The switch operates from a wide range of 2.2V to 5.5V supply voltage, and is controlled by the EN pin. It can be used in USB power distribution applications.

A 95mΩ low R<sub>ON</sub> N-MOSFET is integrated. The small size and quiescent current make the device very suitable for space limited, battery-powered applications.

A number of protection features are provided in the device including soft-start, current limit of 1.85A and thermal shutdown. The internal reverse-voltage function will protect devices on the input side of the switch.

The SGM2555 is available in a Green TDFN-2×2-6L package and is rated over the -40°C to +85°C temperature range.

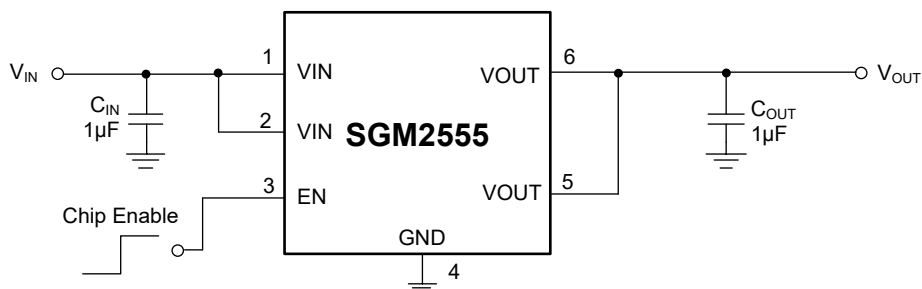
### FEATURES

- **Input Voltage Range: 2.2V to 5.5V**
- **On-Resistance: 95mΩ (TYP)**
- **Continuous Current: 1.1A**
- **Current Limit: 1.85A**
- **Quiescent Current: 19μA**
- **Shutdown Current: 1μA (MAX)**
- **Full Set of Protections**
  - ◆ **Soft-Start**
  - ◆ **Under-Voltage Lockout for VIN**
  - ◆ **No Reversed Leakage Current**
  - ◆ **Thermal Shutdown**
- **Evaluated to IEC 60950-1, Ed 2, Am1, Annex CC, Test Program 1 with CB Report**
- **Available in a Green TDFN-2×2-6L Package**

### APPLICATIONS

- Digital TV
- Set-Top Boxes
- Portable Medical Equipment
- Battery Powered Equipment
- Hot-Plug Power Supply
- Motherboard USB Power Switch
- USB Device Power Switch

### TYPICAL APPLICATION



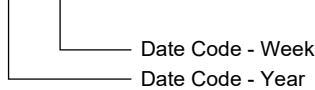
**PACKAGE/ORDERING INFORMATION**

MODEL	PACKAGE DESCRIPTION	SPECIFIED TEMPERATURE RANGE	ORDERING NUMBER	PACKAGE MARKING	PACKING OPTION
SGM2555	TDFN-2x2-6L	-40°C to +85°C	SGM2555YTDI6G/TR	2555 XXXX	Tape and Reel, 3000

**MARKING INFORMATION**

NOTE: XXXX = Date Code.

**XXXX**



Green (RoHS & HSF): SG Micro Corp defines "Green" to mean Pb-Free (RoHS compatible) and free of halogen substances. If you have additional comments or questions, please contact your SGMICRO representative directly.

**ABSOLUTE MAXIMUM RATINGS**

Input Supply Voltage.....	6V
EN Pin.....	-0.3V to 6V
Operating Temperature Range.....	-40°C to +85°C
Package Thermal Resistance	
TDFN-2x2-6L, $\theta_{JA}$ .....	80°C/W
Junction Temperature.....	+150°C
Storage Temperature Range.....	-65°C to +150°C
Lead Temperature (Soldering, 10s).....	+260°C
ESD Susceptibility	
HBM.....	2000V
MM.....	300V

**OVERSTRESS CAUTION**

Stresses beyond those listed in Absolute Maximum Ratings may cause permanent damage to the device. Exposure to absolute maximum rating conditions for extended periods may affect reliability. Functional operation of the device at any conditions beyond those indicated in the Recommended Operating Conditions section is not implied.

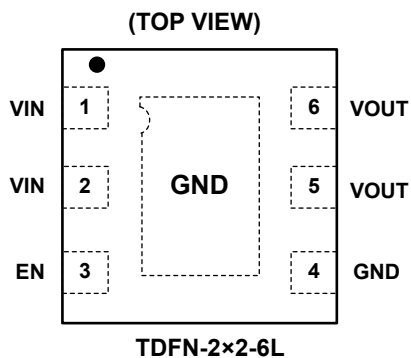
**ESD SENSITIVITY CAUTION**

This integrated circuit can be damaged if ESD protections are not considered carefully. SGMICRO recommends that all integrated circuits be handled with appropriate precautions. Failure to observe proper handling and installation procedures can cause damage. ESD damage can range from subtle performance degradation to complete device failure. Precision integrated circuits may be more susceptible to damage because even small parametric changes could cause the device not to meet the published specifications.

**DISCLAIMER**

SG Micro Corp reserves the right to make any change in circuit design, or specifications without prior notice.

**PIN CONFIGURATION**



**PIN DESCRIPTION**

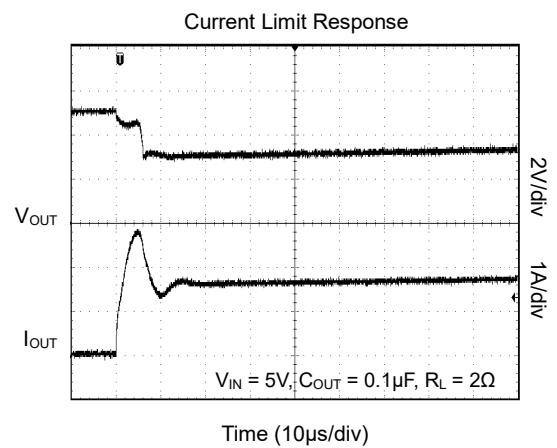
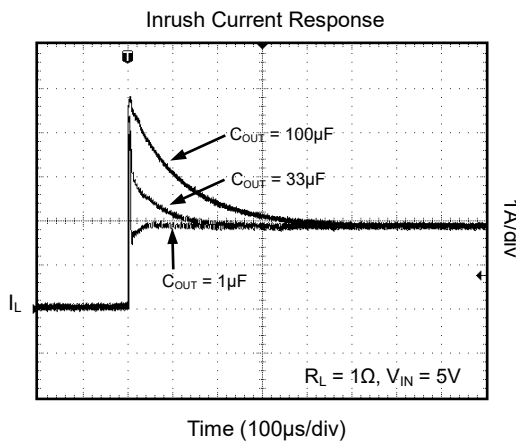
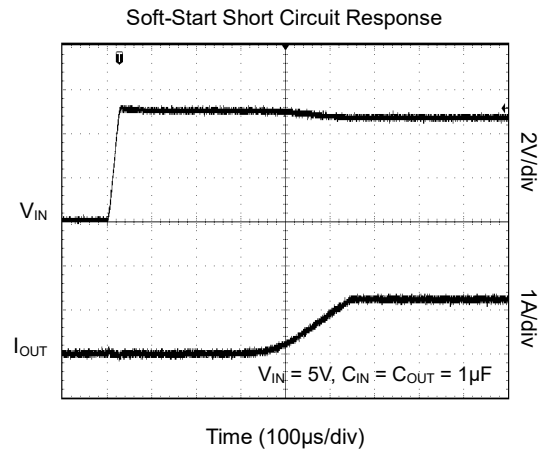
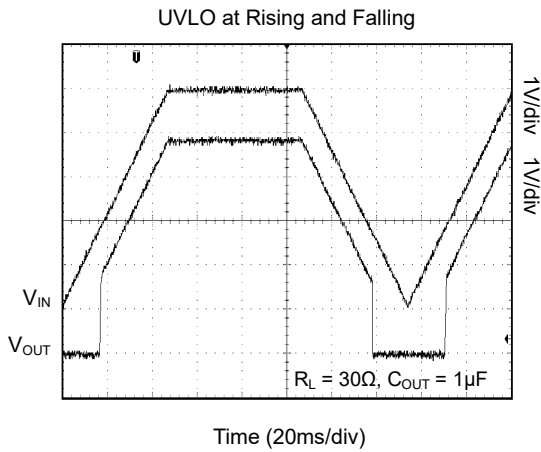
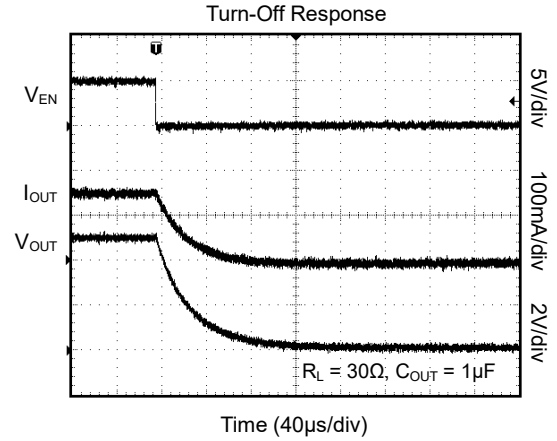
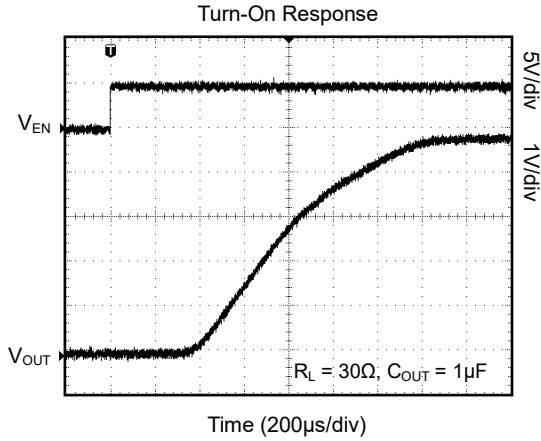
PIN	NAME	FUNCTION
1, 2	VIN	Switch Input.
3	EN	Chip Enable Pin. Logic high to enable the device.
4	GND	Ground.
5, 6	VOUT	Switch Output.
Exposed Pad	GND	Exposed pad should be soldered to PCB board and connected to GND.

**ELECTRICAL CHARACTERISTICS**(At  $T_A = +25^\circ\text{C}$ ,  $V_{IN} = 5\text{V}$ ,  $C_{IN} = C_{OUT} = 1\mu\text{F}$ , unless otherwise noted.)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Input Voltage Range	$V_{IN}$		2.2		5.5	V
Quiescent Current	$I_Q$	$V_{IN} = 3\text{V}$ , $V_{EN} = 3\text{V}$		18	27	$\mu\text{A}$
		$V_{IN} = 5\text{V}$ , $V_{EN} = 5\text{V}$		19	30	
Shutdown Current	$I_{SD}$	$V_{EN} = 0\text{V}$		0.1	1	$\mu\text{A}$
Output Leakage Current	$I_{LEAKAGE}$	$V_{EN} = 0\text{V}$ , $V_{OUT} = 0\text{V}$		0.1	1	$\mu\text{A}$
EN Input Threshold	$V_{IH}$		1.5			V
	$V_{IL}$				0.4	
Output Turn-On Delay Time	$t_{ON}$	$R_L = 30\Omega$ , $C_{OUT} = 1\mu\text{F}$		1.1		ms
Switch Resistance	$R_{DS(ON)}$	$I_L = 1\text{A}$		95	160	$\text{m}\Omega$
Current Limit Threshold	$I_{LIM}$	$R_L = 2\Omega$		1.85		A
Short-Circuit Output Current	$I_{SHORT}$	$V_{OUT} = 0\text{V}$ , $V_{IN} = 3\text{V}$		1.2		A
Under-Voltage Lockout Threshold	$V_{UVLO}$	$V_{IN}$ Rising		1.65		V
Under-Voltage Lockout Threshold Hysteresis				50		mV
Thermal Shutdown Threshold		$T_J$ increasing		125		$^\circ\text{C}$
Thermal Shutdown Hysteresis				20		$^\circ\text{C}$

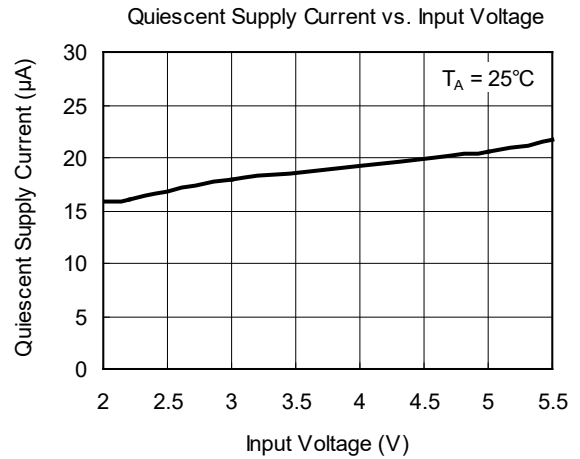
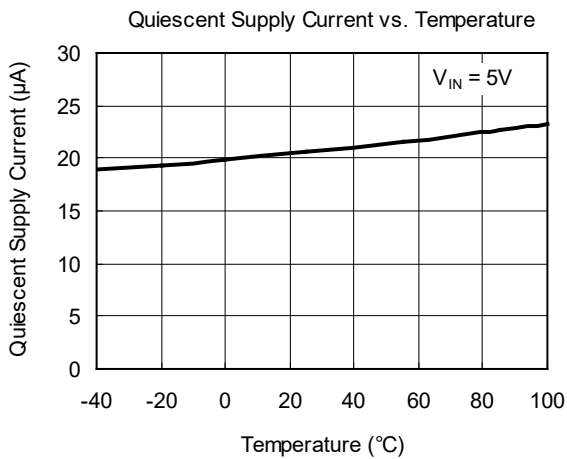
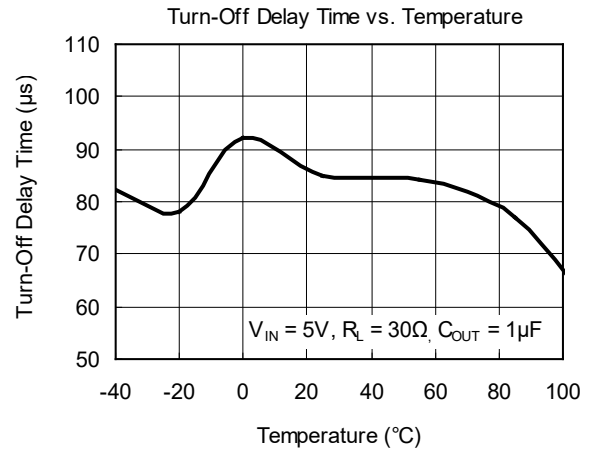
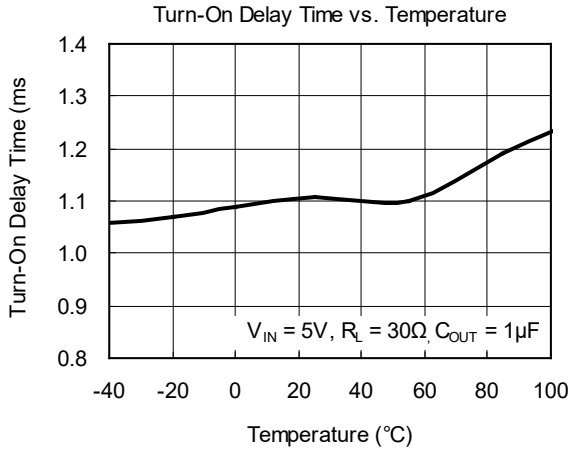
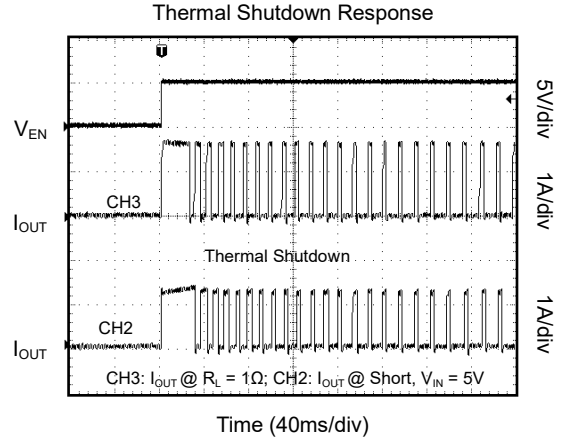
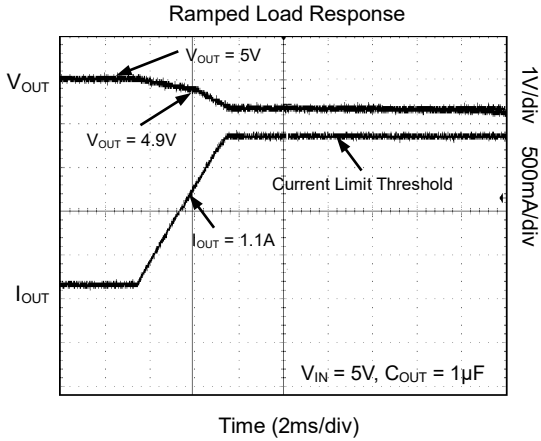
TYPICAL PERFORMANCE CHARACTERISTICS

At  $T_A = +25^\circ\text{C}$ ,  $V_{IN} = V_{EN} = 5\text{V}$ ,  $C_{IN} = C_{OUT} = 1\mu\text{F}$ , unless otherwise noted.



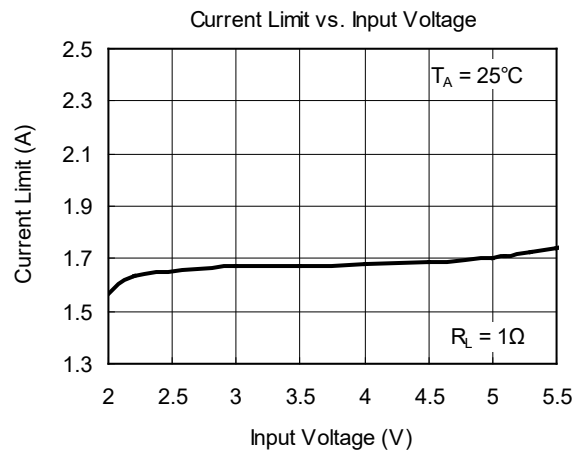
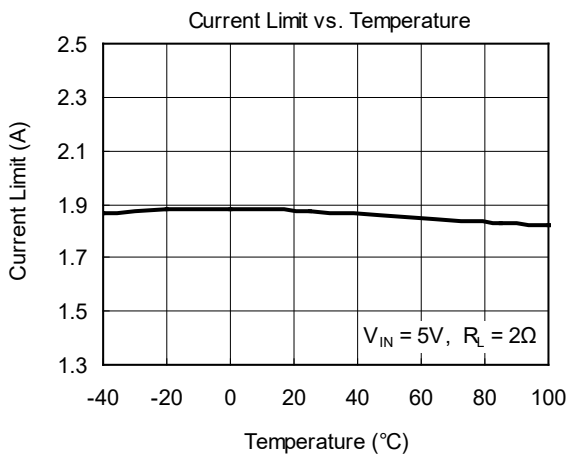
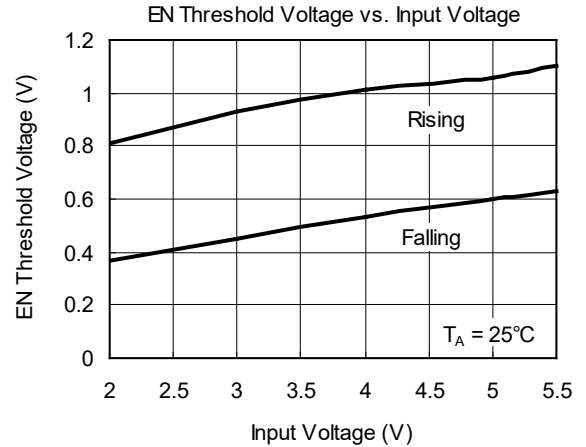
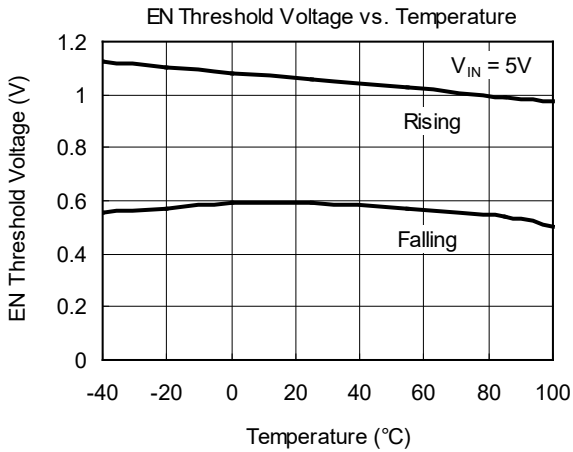
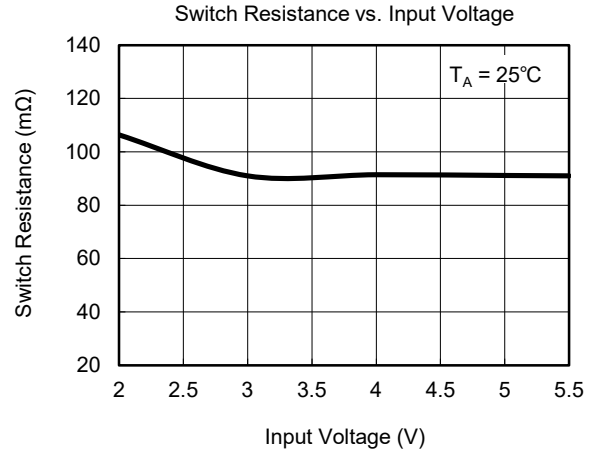
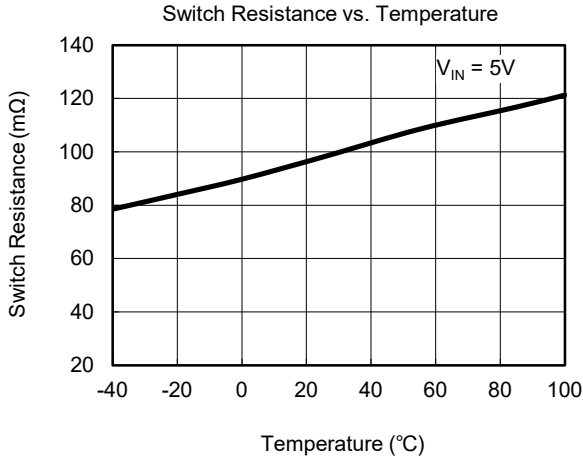
TYPICAL PERFORMANCE CHARACTERISTICS (continued)

At  $T_A = +25^\circ\text{C}$ ,  $V_{IN} = V_{EN} = 5\text{V}$ ,  $C_{IN} = C_{OUT} = 1\mu\text{F}$ , unless otherwise noted.



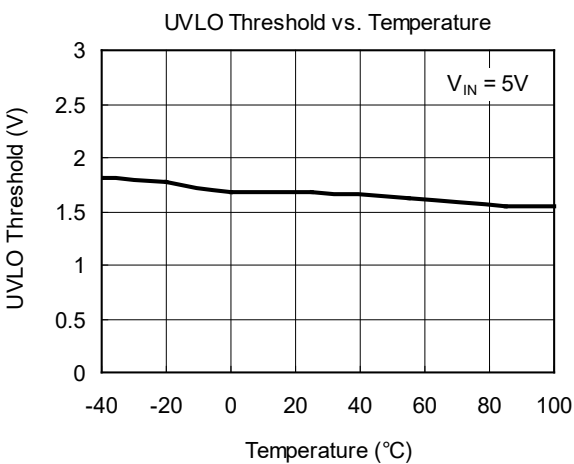
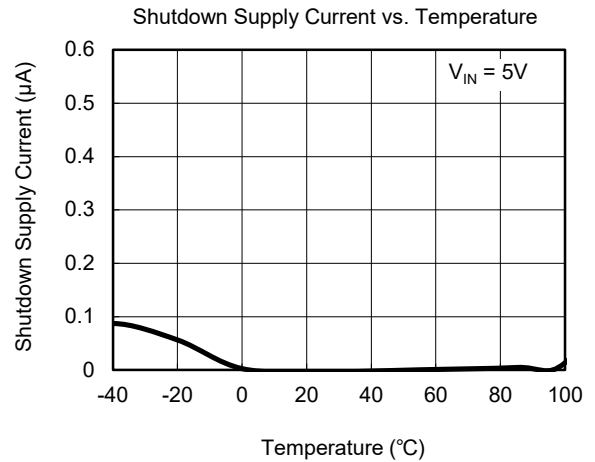
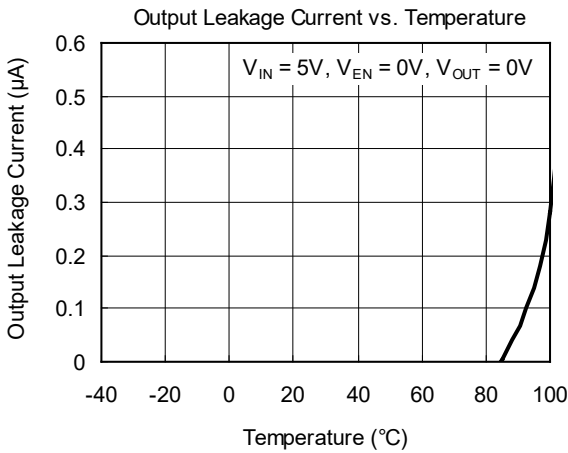
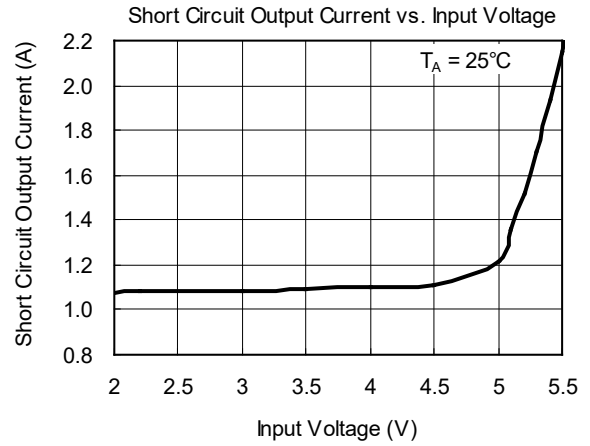
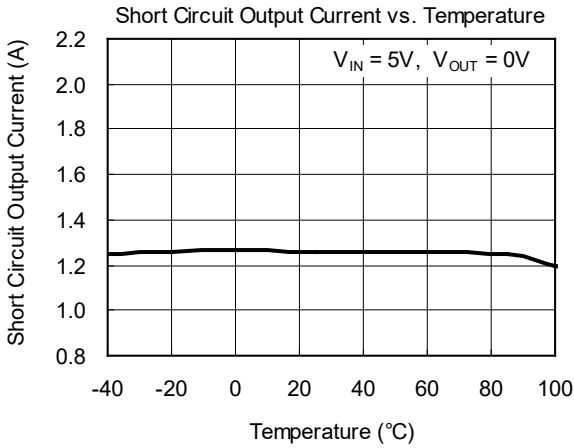
TYPICAL PERFORMANCE CHARACTERISTICS (continued)

At  $T_A = +25^\circ\text{C}$ ,  $V_{IN} = V_{EN} = 5\text{V}$ ,  $C_{IN} = C_{OUT} = 1\mu\text{F}$ , unless otherwise noted.



**TYPICAL PERFORMANCE CHARACTERISTICS (continued)**

At  $T_A = +25^\circ\text{C}$ ,  $V_{IN} = V_{EN} = 5\text{V}$ ,  $C_{IN} = C_{OUT} = 1\mu\text{F}$ , unless otherwise noted.





**REVISION HISTORY**

NOTE: Page numbers for previous revisions may differ from page numbers in the current version.

**DECEMBER 2017 – REV.A.2 to REV.A.3**

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Update Feature section ..... 1

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**APRIL 2016 – REV.A.1 to REV.A.2**

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New version.....All

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**JANUARY 2014 – REV.A to REV.A.1**

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Changed Electrical Characteristics section .....4

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**Changes from Original (MAY 2013) to REV.A**

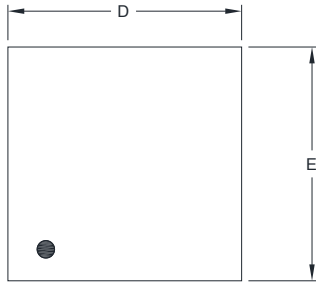
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Changed from product preview to production data.....All

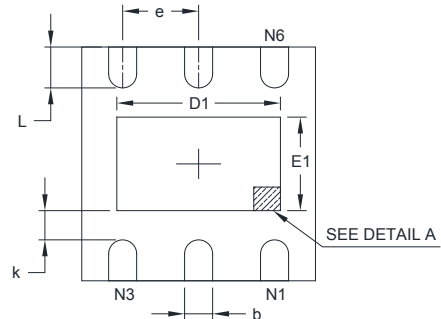
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PACKAGE OUTLINE DIMENSIONS

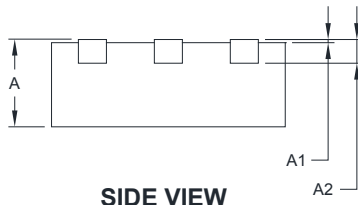
TDFN-2x2-6L



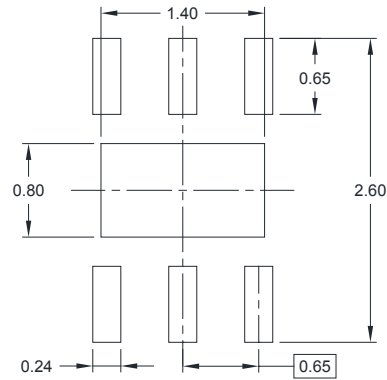
TOP VIEW



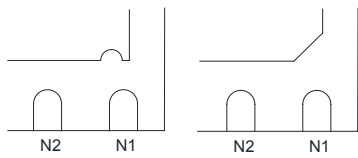
BOTTOM VIEW



SIDE VIEW



RECOMMENDED LAND PATTERN (Unit: mm)



DETAIL A

Pin #1 ID and Tie Bar Mark Options

NOTE: The configuration of the Pin #1 identifier is optional, but must be located within the zone indicated.

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MIN	MAX	MIN	MAX
A	0.700	0.800	0.028	0.031
A1	0.000	0.050	0.000	0.002
A2	0.203 REF		0.008 REF	
D	1.900	2.100	0.075	0.083
D1	1.100	1.450	0.043	0.057
E	1.900	2.100	0.075	0.083
E1	0.600	0.850	0.024	0.034
k	0.200 MIN		0.008 MIN	
b	0.180	0.300	0.007	0.012
e	0.650 TYP		0.026 TYP	
L	0.250	0.450	0.010	0.018

# PACKAGE INFORMATION

## TAPE AND REEL INFORMATION

### REEL DIMENSIONS



### TAPE DIMENSIONS



NOTE: The picture is only for reference. Please make the object as the standard.

### KEY PARAMETER LIST OF TAPE AND REEL

Package Type	Reel Diameter	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P0 (mm)	P1 (mm)	P2 (mm)	W (mm)	Pin1 Quadrant
TDFN-2×2-6L	7"	9.5	2.30	2.30	1.10	4.0	4.0	2.0	8.0	Q1

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# PACKAGE INFORMATION

## CARTON BOX DIMENSIONS



NOTE: The picture is only for reference. Please make the object as the standard.

## KEY PARAMETER LIST OF CARTON BOX

Reel Type	Length (mm)	Width (mm)	Height (mm)	Pizza/Carton
7" (Option)	368	227	224	8
7"	442	410	224	18

DD0002