

GENERAL DESCRIPTION

The SGM6039 family is a low-voltage, efficient and miniature synchronous Buck converter with ultra-low quiescent current. It can operate at a high switching frequency of 1.3MHz (TYP). The miniature inductors and capacitors can be used to achieve minimal solution size. The device features a 20nA (TYP) shutdown current and an ultra-low 245nA (TYP) quiescent current. For high light load efficiency, the operating mode can smoothly and automatically change between power-save mode and PWM. The VSET pin sets the output voltage to 18 preset values by sensing an external resistor.

The SGM6039 is available in Green WLCSP-0.8×1.05-6B and SOT-563-6 packages.

APPLICATIONS

Wearable Electronics
Smart Phones
Headphones and Earbuds
Audiphones

FEATURES

- 1.85V to 5.5V Input Voltage Range
- 0.4V to 3.6V Output Voltage Range
- 245nA (TYP) Quiescent Current
- 600mA Output Current
- 20nA (TYP) Shutdown Current
- 2.5% Output Voltage Regulation Accuracy
- VSET Pin Selectable Output Voltage
 - ♦ SGM6039A/D: 0.4V to 0.8V, 1.8/1.9/3V (Default)
 - ♦ SGM6039B/E: 0.8V to 1.8V
 - ♦ SGM6039C/F: 1.8V to 3.6V
- Optimized for Small Passive Components: 1μH Inductor and Down to 4.7μF C_{OUT}
- 100% Duty Cycle Operation Capability
- RF-Friendly and Fast Transient
- Low Output Voltage Ripple in Power-Save Mode
- Available in Green WLCSP-0.8×1.05-6B and SOT-563-6 Packages

SIMPLIFIED SCHEMATIC

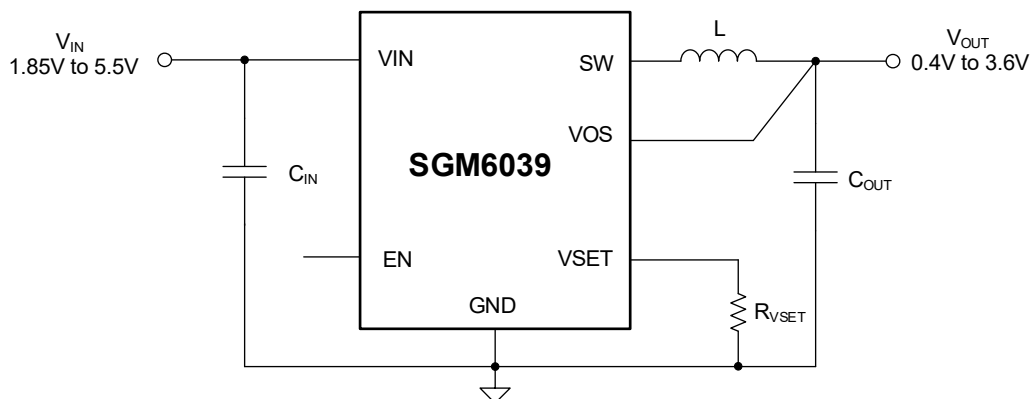


Figure 1. Simplified Schematic

PACKAGE/ORDERING INFORMATION

MODEL	PACKAGE DESCRIPTION	SPECIFIED TEMPERATURE RANGE	ORDERING NUMBER	PACKAGE MARKING	PACKING OPTION
SGM6039A-1.8	WLCSP-0.8×1.05-6B	-40°C to +125°C	SGM6039A-1.8XG/TR	XXXX 00R	Tape and Reel, 4500
SGM6039A-1.9 ⁽¹⁾	WLCSP-0.8×1.05-6B	-40°C to +125°C	SGM6039A-1.9XG/TR	XXXX 1GP	Tape and Reel, 4500
SGM6039A-3.0 ⁽¹⁾	WLCSP-0.8×1.05-6B	-40°C to +125°C	SGM6039A-3.0XG/TR	XXXX 1GQ	Tape and Reel, 4500
SGM6039B	WLCSP-0.8×1.05-6B	-40°C to +125°C	SGM6039BXG/TR	XXXX 00S	Tape and Reel, 4500
SGM6039C	WLCSP-0.8×1.05-6B	-40°C to +125°C	SGM6039CXG/TR	XXXX 00T	Tape and Reel, 4500
SGM6039D-1.8	SOT-563-6	-40°C to +125°C	SGM6039D-1.8XKB6G/TR	0LXX	Tape and Reel, 5000
SGM6039D-1.9 ⁽¹⁾	SOT-563-6	-40°C to +125°C	SGM6039D-1.9XKB6G/TR	0MXX	Tape and Reel, 5000
SGM6039D-3.0 ⁽¹⁾	SOT-563-6	-40°C to +125°C	SGM6039D-3.0XKB6G/TR	0NXX	Tape and Reel, 5000
SGM6039E	SOT-563-6	-40°C to +125°C	SGM6039EXKB6G/TR	0PXX	Tape and Reel, 5000
SGM6039F	SOT-563-6	-40°C to +125°C	SGM6039FXKB6G/TR	0QXX	Tape and Reel, 5000

NOTE: 1. Please contact SG Micro Corp for fixed V_{OUT}.

MARKING INFORMATION

NOTE: XX = Date Code. XXXX = Date Code, Trace Code and Vendor Code.

WLCSP-0.8×1.05-6B

XXXX

Vendor Code
Trace Code
Date Code - Year

SOT-563-6

YY X X

Date Code - Week
Date Code - Year
Serial Number

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.

DEVICE OPTIONS

Device	Fixed V _{OUT} (V)	Selectable Output Voltages	Typical f _{sw} (MHz)	Typical Soft-Start Time (ms)	Inductor (μH)
SGM6039A/D	1.8V, 1.9V, 3.0V (VSET = GND)	0.4V to 0.8V in 25mV steps	1.3	0.4	1
SGM6039B/E	1.8V (VSET = GND)	0.8V to 1.8V in 50mV steps	1.3	0.7	1
SGM6039C/F	3.6V (VSET = GND)	1.8V to 3.6V in 100mV steps	1.3	1.2	1

ABSOLUTE MAXIMUM RATINGS

Supply Voltage, V _{IN}	-0.3V to 6V
SW, DC Voltages.....	-0.3V to V _{IN} + 0.3V
SW (10ns Transient), while switching	-2.5V to 9V
EN, VSET Voltages	-0.3V to 6V
VOS Voltage.....	-0.3V to 5V
Package Thermal Resistance	
WLCSP-0.8×1.05-6B, θ _{JA}	166.5°C/W
WLCSP-0.8×1.05-6B, θ _{JB}	35.1°C/W
WLCSP-0.8×1.05-6B, θ _{JC}	66.2°C/W
SOT-563-6, θ _{JA}	120.3°C/W
SOT-563-6, θ _{JB}	25.5°C/W
SOT-563-6, θ _{JC}	63.6°C/W
Junction Temperature.....	+150°C
Storage Temperature Range	-65°C to +150°C
Lead Temperature (Soldering, 10s)	+260°C
ESD Susceptibility ^{(1) (2)}	
HBM.....	±4000V
CDM	±1000V

NOTES:

1. For human body model (HBM), all pins comply with ANSI/ESDA/JEDEC JS-001 specifications.
2. For charged device model (CDM), all pins comply with ANSI/ESDA/JEDEC JS-002 specifications.

RECOMMENDED OPERATING CONDITIONS

Supply Voltage, V _{IN}	1.85V to 5.5V
Output Current, I _{OUT}	0.6A
Effective Inductance, L	0.7μH to 1.2μH
Effective Output Capacitance, C _{OUT}	4μF to 25μF
Effective Input Capacitance, C _{IN}	0.5μF(MIN), 4.7μF(TYP)
Resistance Range for External Resistor at VSET Pin (E96 1% Resistor Values), R _{SET}	10kΩ to 249kΩ
External Resistor Tolerance E96 Series at VSET Pin, R _{SET}	1% (MAX)
E96 Resistor Series Temperature Coefficient (TCR), R _{SET}	-200ppm/°C to +200ppm/°C
Operating Junction Temperature Range.....	-40°C to +125°C

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.

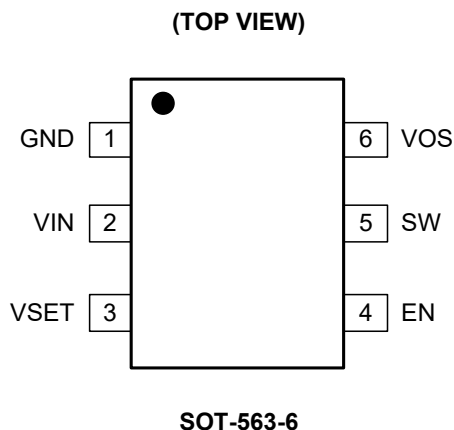
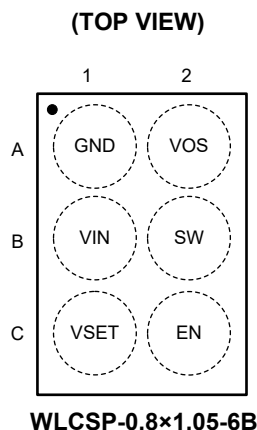
ESD SENSITIVITY CAUTION

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 CONFIGURATIONS



PIN DESCRIPTION

PIN		NAME	TYPE	FUNCTION
WLCSP-0.8×1.05-6B	SOT-563-6			
A1	1	GND	G	Ground Pin. Connect the C _{IN} and C _{OUT} ground terminals close to this pin.
B1	2	VIN	P	Power Supply Input Pin. Connect a ceramic capacitor (C _{IN}) close to this pin and GND.
C1	3	VSET	I	Selectable Output Voltage Pin. Connect an accurate resistor between this pin and GND to select a pre-defined output voltage.
A2	6	VOS	I	Output Voltage Sense Pin. Connect it with a short trace to the output capacitor.
B2	5	SW	O	Switching Node Output Pin. Connect it to the filter inductor. Discharge resistor is connected between SW pin and ground when the device is disabled.
C2	4	EN	I	Active-High Enable Input Pin. Apply a logic high voltage to enable the device or a logic low to disable it. During the initial phase of start-up, an internal pull-down resistor is temporarily connected to the EN input. The pull-down resistor is removed after all internal circuits are powered up and functional.

NOTE: I = input, O = output, P = power, G = ground.

ELECTRICAL CHARACTERISTICS

(T_J = -40°C to +125°C, V_{IN} = 1.85V to 5.5V, all typical values are measured at T_J = +25°C and V_{IN} = 3.6V, unless otherwise noted.)

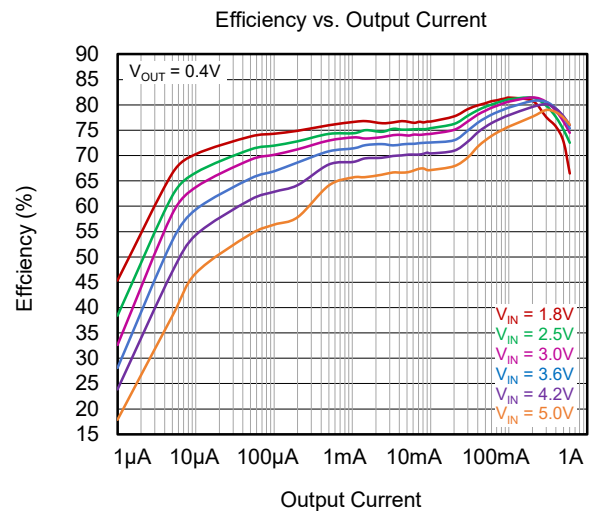
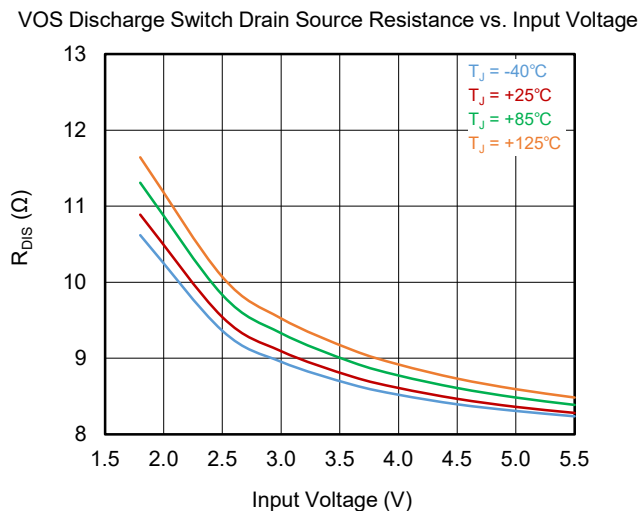
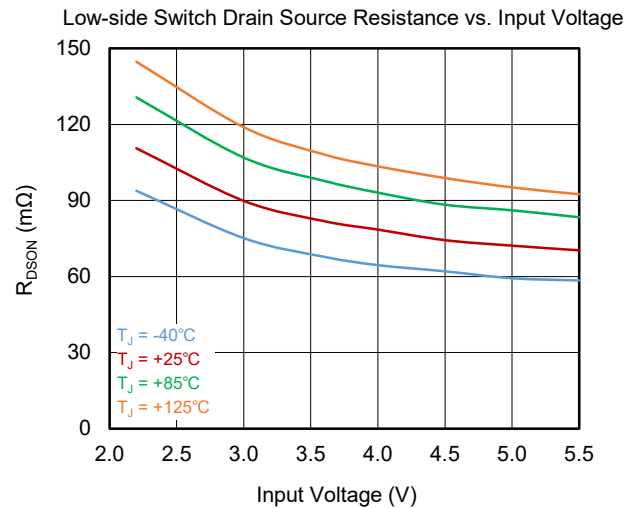
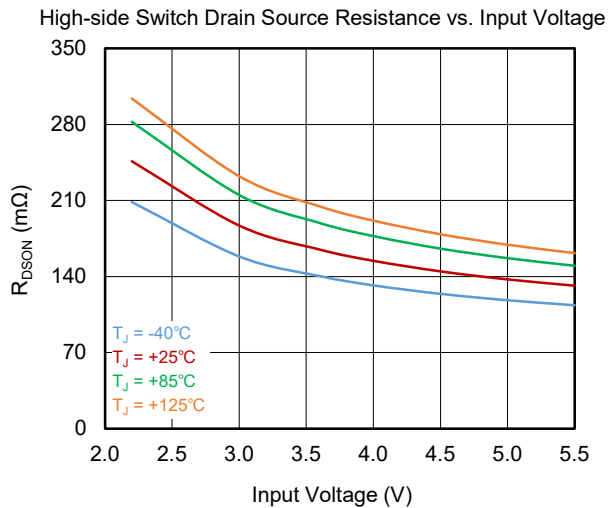
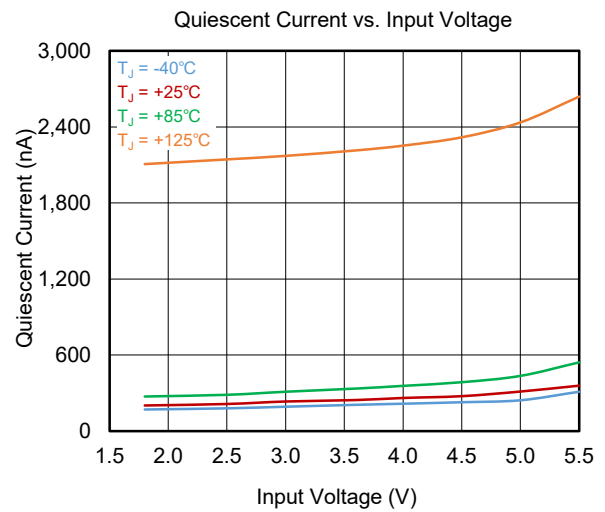
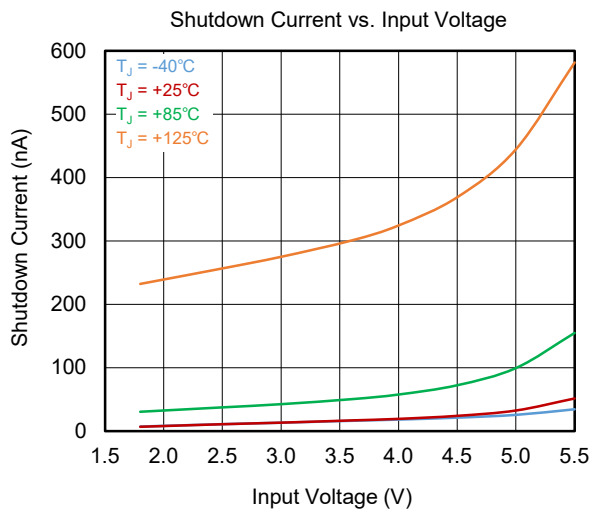
PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS	
Power Supplies							
Operating Quiescent Current (Power-Save Mode)	I _Q	T _J = -40°C to +85°C, non-switching, V _{EN} = V _{IN} , I _{OUT} = 0A		245	1000	nA	
		Switching, V _{EN} = V _{IN} , I _{OUT} = 0A, V _{OUT} = 0.7V		306		nA	
Shutdown Current	I _{SD}	T _J = -40°C to +85°C, V _{EN} = 0V, V _{SET} = GND		20	850	nA	
Under-Voltage Lockout							
Under-Voltage Lockout Rising Threshold	V _{UVLO_R}	V _{IN} rising		1.77	1.85	V	
Under-Voltage Lockout Falling Threshold	V _{UVLO_F}	V _{IN} falling		1.65	1.75	V	
Under-Voltage Lockout Hysteresis	V _{UVLO_H}			100		mV	
VSET Input Leakage Current	V _{SET_LKG}	T _J = -40°C to +85°C		5	350	nA	
VSET High-Level Detection	V _{SET_H}	Voltage at VSET during start-up	0.95			V	
R _{SET} Accuracy	R _{SET}		-4		4	%	
EN Voltage Rising Threshold	V _{EN_R}	EN rising, enable switching	0.8			V	
EN Voltage Falling Threshold	V _{EN_F}	EN falling, disable switching			0.4	V	
EN Input Leakage Current	V _{EN_LKG}	T _J = -40°C to +85°C, V _{EN} > 0.8V		3	35	nA	
EN Internal Pull-Down Resistance	R _{EN_PD}	EN pin to GND	400	540		kΩ	
Output Voltage							
DC Output Voltage Accuracy	V _{OUT}	PWM operation	-2.5		2.5	%	
		T _J = +25°C	-1.25		1.25		
Output Voltage	V _{OUT}	SGM6039A/D	0.4		0.8	V	
		SGM6039B/E	0.8		1.8	V	
		SGM6039C/F	1.8		3.6	V	
VOS Input Leakage Current	I _{VOS_LKG}	T _J = -40°C to +85°C, SGM6039A/D, V _{EN} = V _{IN} , V _{VOS} = 0.6V		75	100	nA	
		T _J = -40°C to +85°C, SGM6039B/E, V _{EN} = V _{IN} , V _{VOS} = 1.2V		140	200	nA	
		T _J = -40°C to +85°C, SGM6039C/F, V _{EN} = V _{IN} , V _{VOS} = 3.3V		375	550	nA	
PWM Switch Frequency	f _{SW}	SGM6039A/D, I _{OUT} = 400mA		1.3		MHz	
		SGM6039B/E, I _{OUT} = 400mA		1.3			
		SGM6039C/F, I _{OUT} = 400mA		1.3			
Start-up							
Soft-Start Time	t _{SS}	From V _{OUT} = 0% to V _{OUT} = 95% of V _{OUT} nominal	SGM6039A/D		0.4	0.8	ms
			SGM6039B/E		0.7	1.4	
			SGM6039C/F		1.2	2.5	
EN High to Start-up of Switching Delay		R2D = GND		180	350	μs	

ELECTRICAL CHARACTERISTICS (continued)

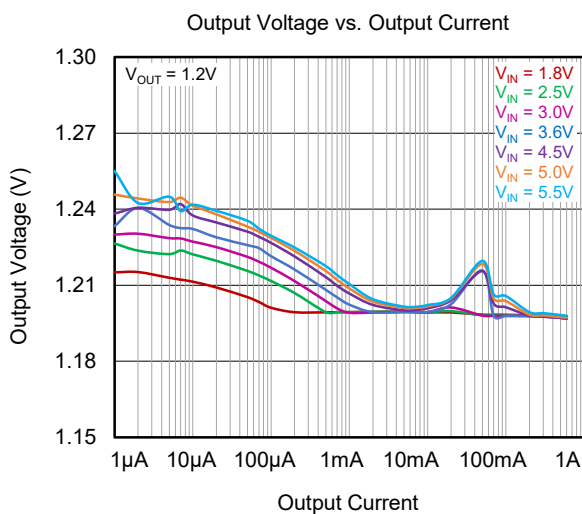
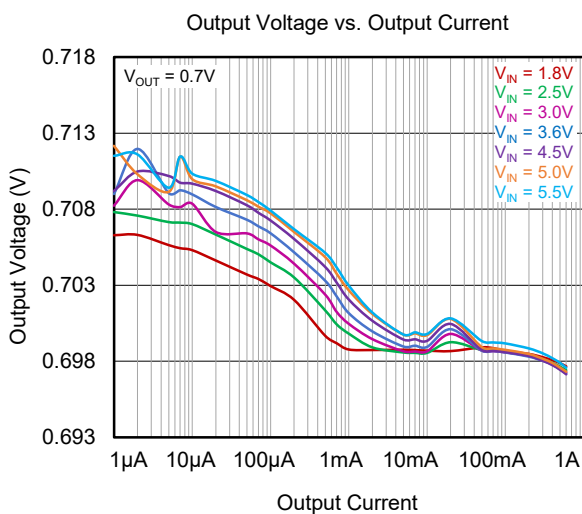
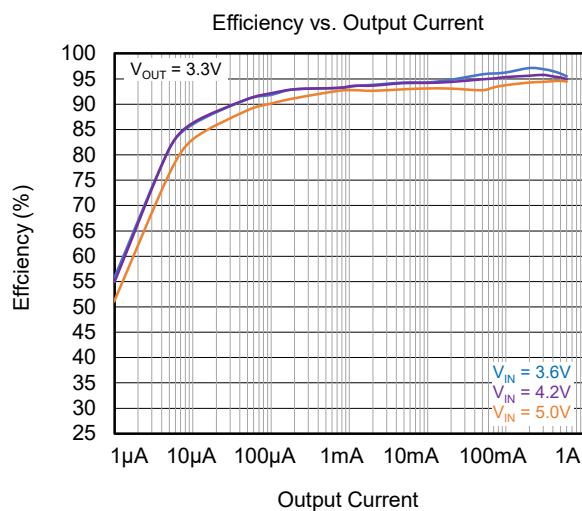
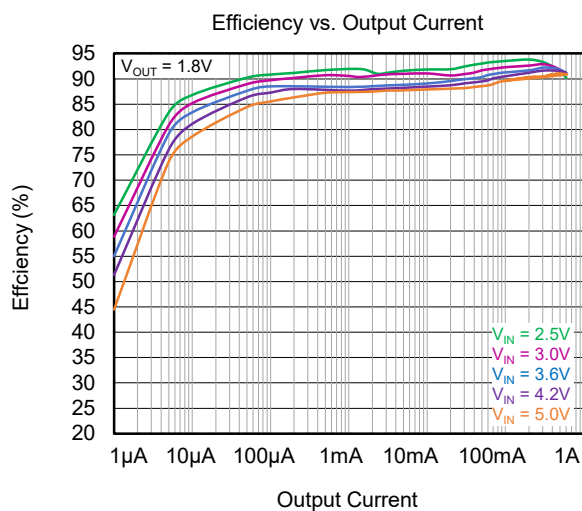
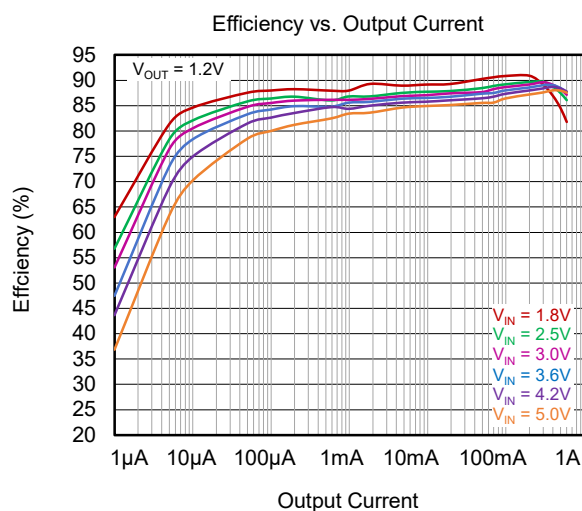
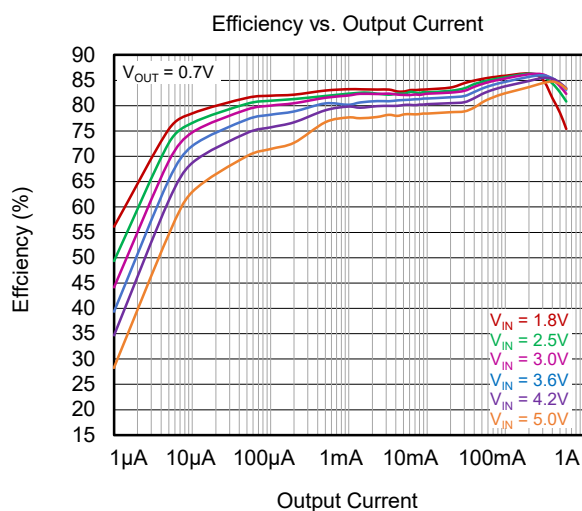
(T_J = -40°C to +125°C, V_{IN} = 1.85V to 5.5V, all typical values are measured at T_J = +25°C and V_{IN} = 3.6V unless otherwise noted.)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Power Stage						
High-side MOSFET On-Resistance	R _{DS(on)_H}	V _{IN} = 3.6V, I _{OUT} = 300mA		160	250	mΩ
Low-side MOSFET On-Resistance	R _{DS(on)_L}	V _{IN} = 3.6V, I _{OUT} = 300mA		80	140	mΩ
Leakage Current into SW Pin	I _{LKG}	T _J = -40°C to +85°C, V _{SW} = 0.7V		1	90	nA
		T _J = -40°C to +85°C, V _{SW} = 1.2V		1	110	
		T _J = -40°C to +85°C, V _{IN} > V _{SW} , V _{SW} = 3.3V		13	150	
Over-Current Protection						
High-side Peak Current Limit	I _{OC_HS}	Peak current limit on HS FET	0.9	1.1	1.32	A
Low-side Valley Current Limit	I _{OC_LS}	Valley current limit on LS FET	0.8	1.0	1.15	A
Output Discharge						
Output Discharge Resistor	R _{DIS}	V _{EN} = GND, I _{VOS} = -10mA		9	15	Ω
Thermal Protection						
Thermal Shutdown Threshold	T _{SD}	Temperature rising		160		°C
Thermal Shutdown Hysteresis	T _{SD_HYS}			20		°C

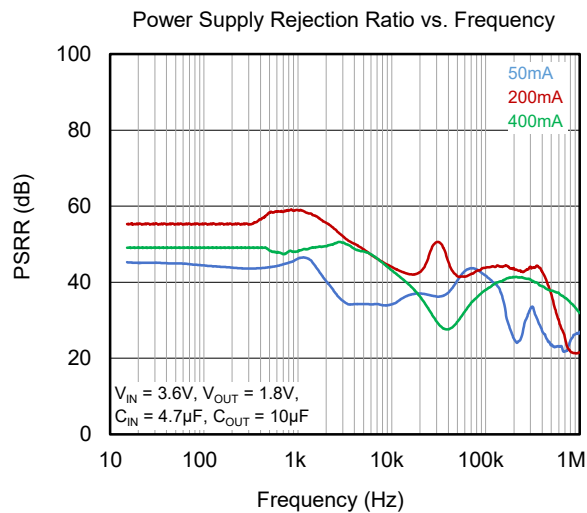
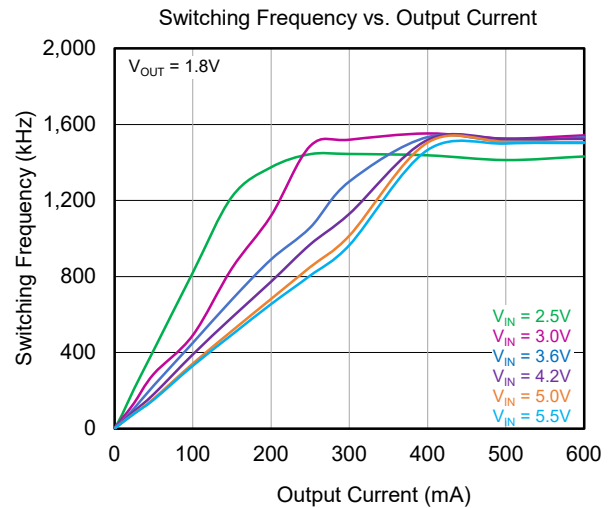
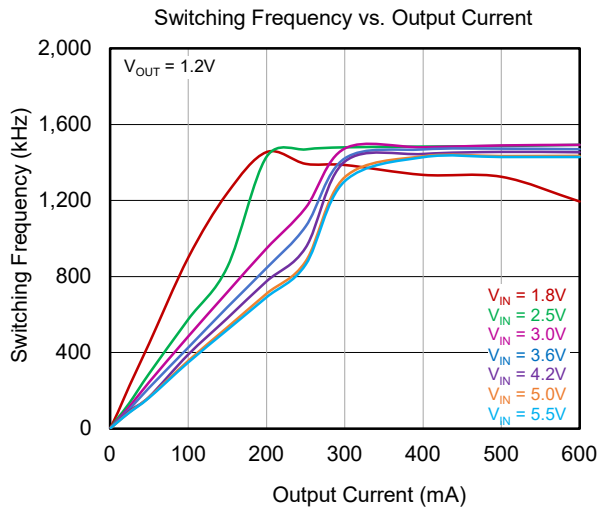
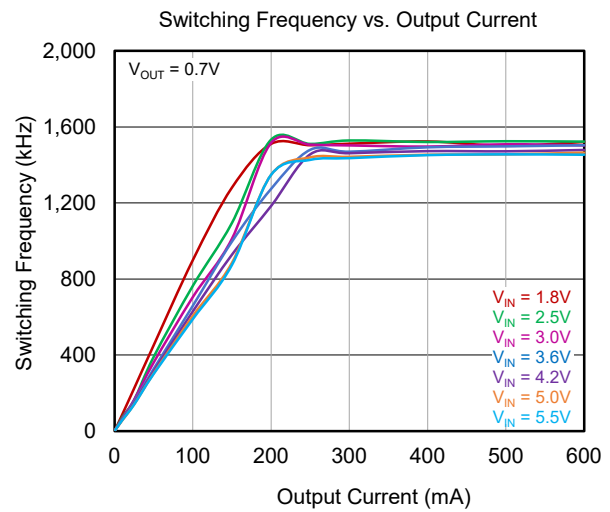
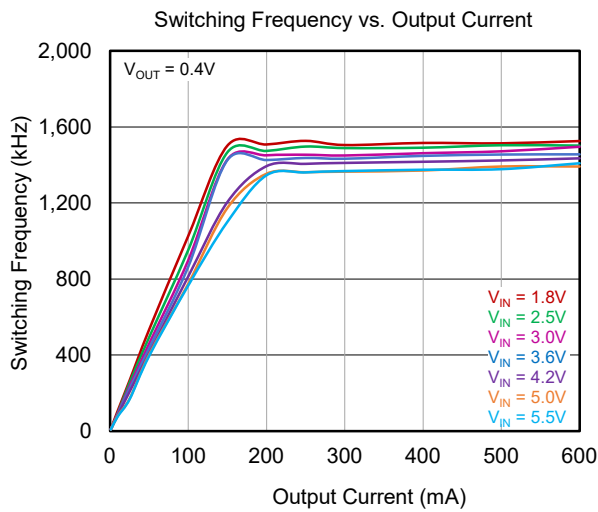
TYPICAL PERFORMANCE CHARACTERISTICS

T_A = +25°C, unless otherwise noted.

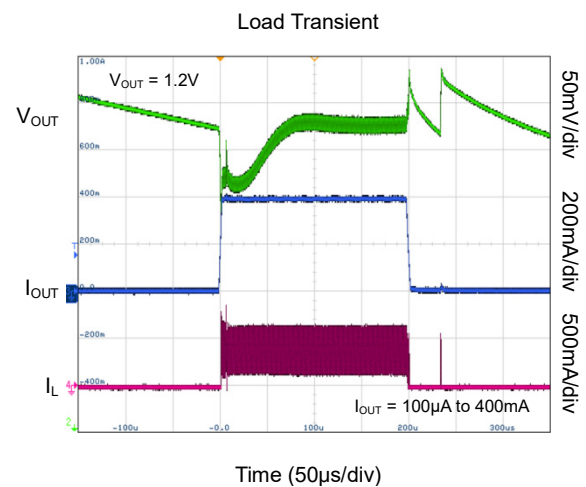
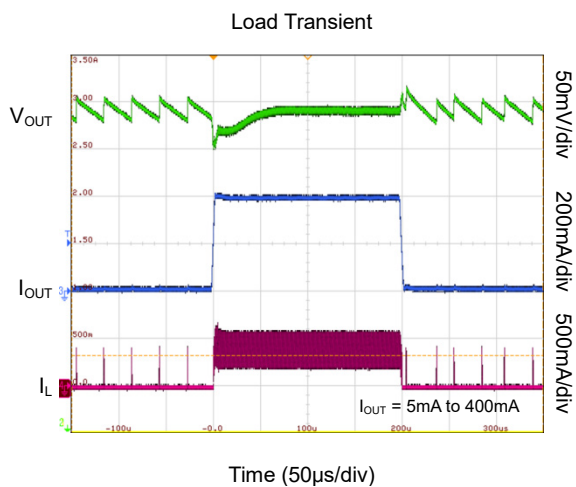
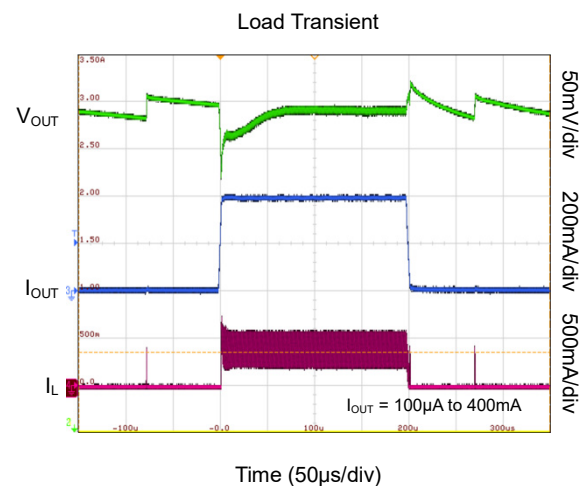
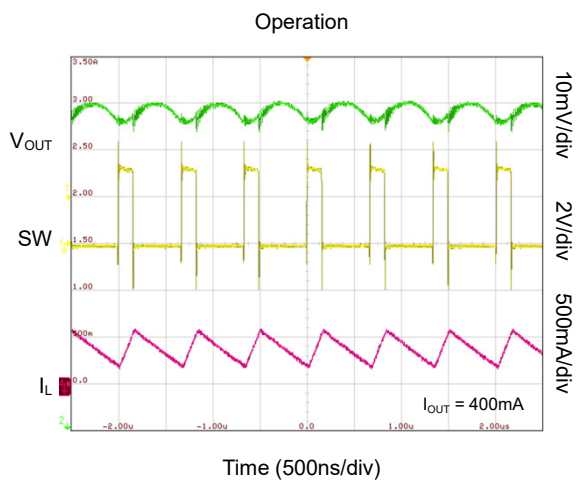
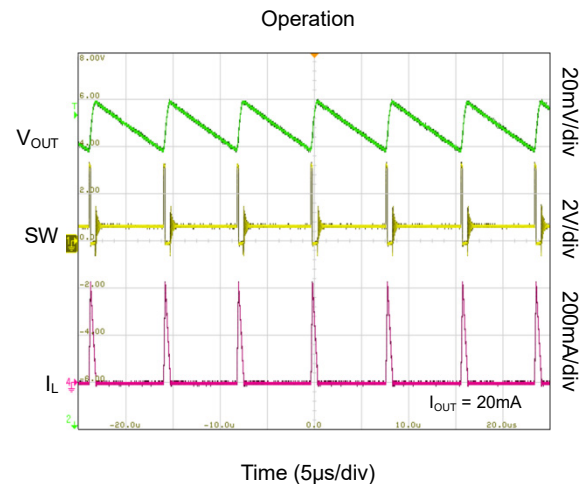
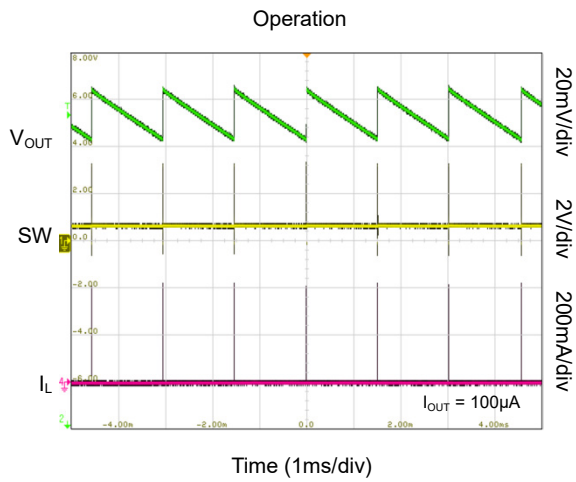
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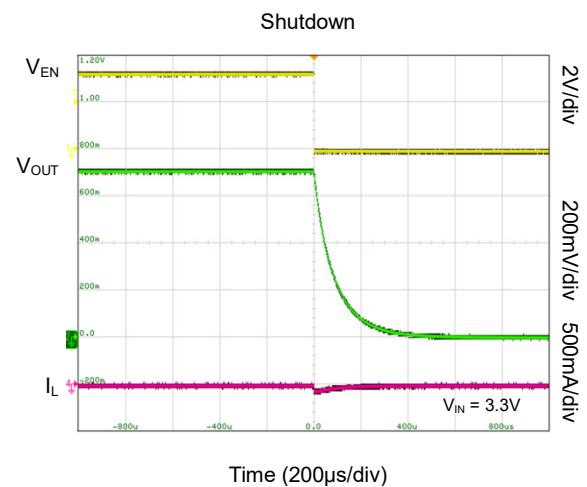
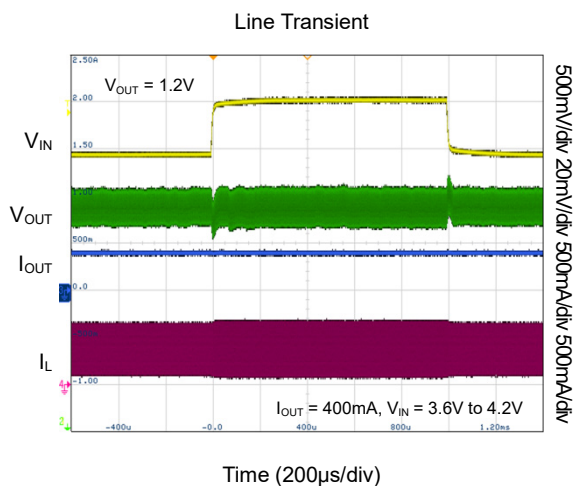
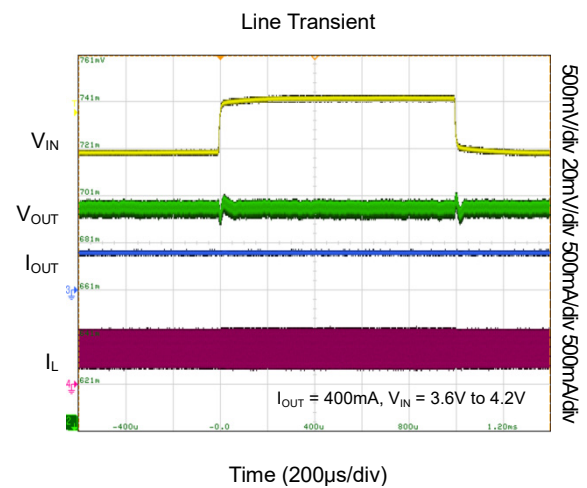
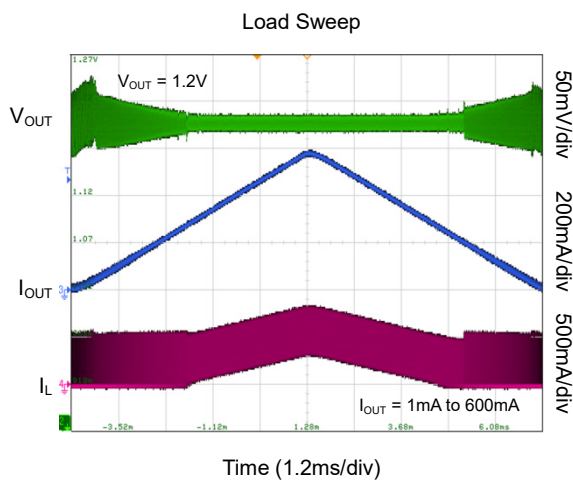
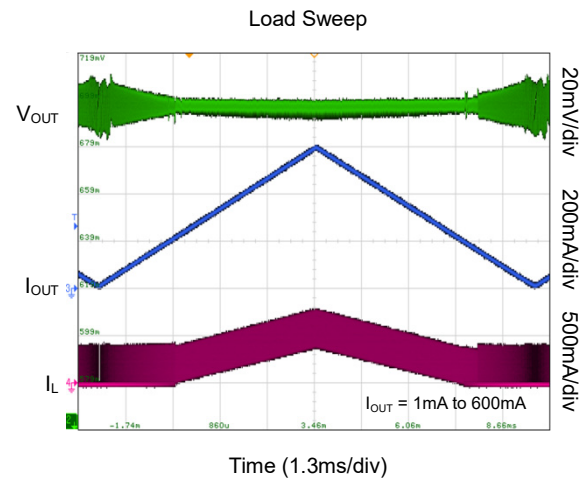
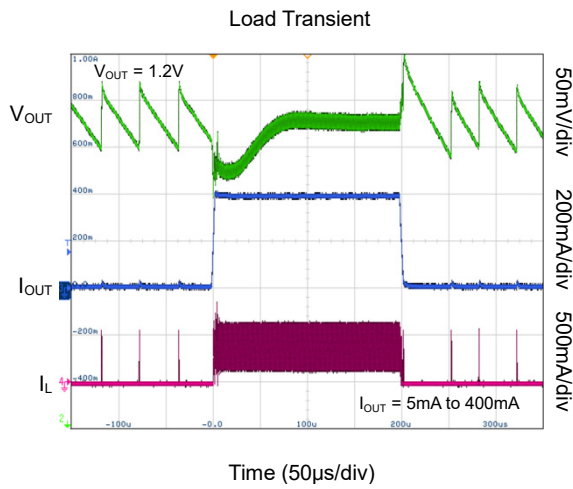
TYPICAL PERFORMANCE CHARACTERISTICS (continued)

T_A = +25°C, unless otherwise noted.

TYPICAL PERFORMANCE CHARACTERISTICS (continued)

 $T_A = +25^\circ\text{C}$, $V_{OUT} = 0.7\text{V}$, unless otherwise noted.

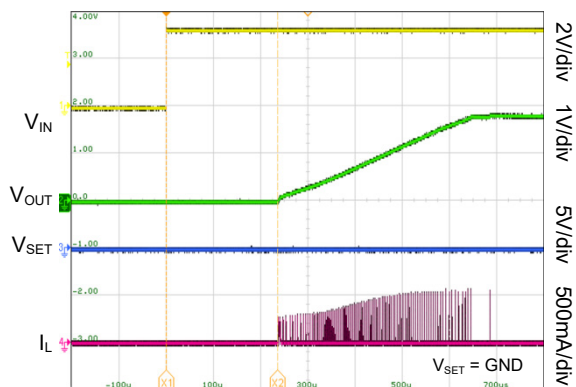
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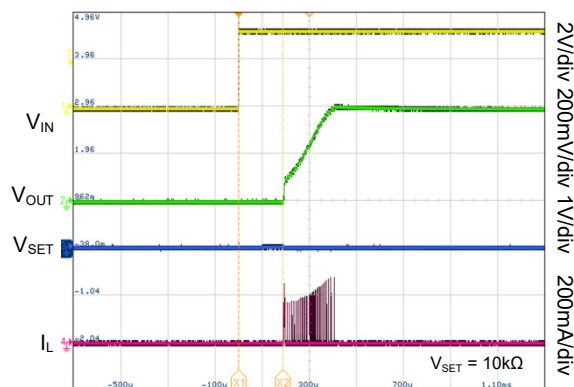
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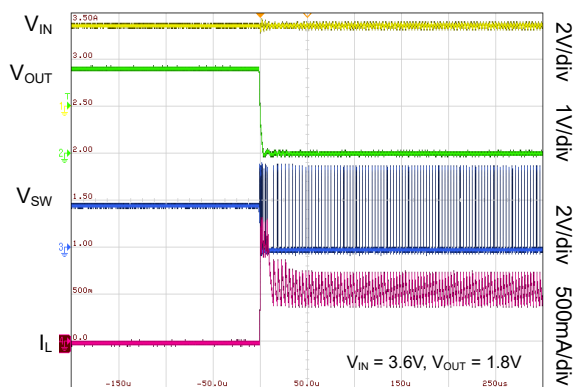
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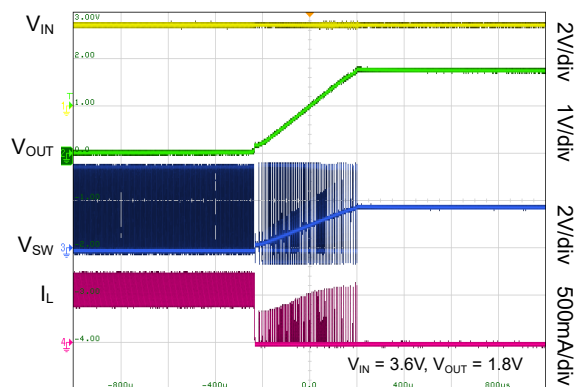
Start-up Delay Time



Output Hot-Short



Recovery from Output Hot-Short



FUNCTIONAL BLOCK DIAGRAM

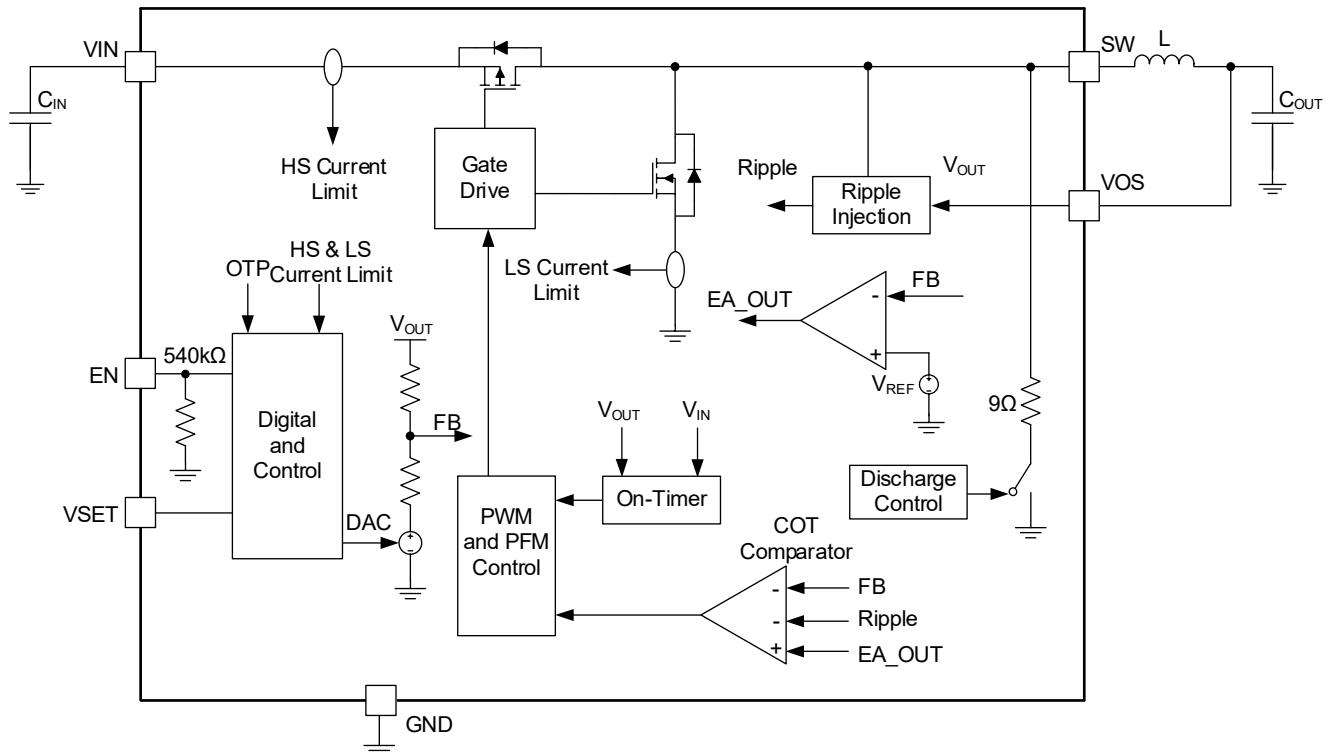


Figure 2. Block Diagram

DETAILED DESCRIPTION

Overview

The SGM6039 is an ultra-low quiescent current, 600mA load current synchronous Buck converter optimized for IoT applications. The device just needs 4 external components to realize the design in addition to the WLCSP and SOT package. The SGM6039 supports an input voltage down to 1.85V, which extends the input source's operation range as well as supports input voltage transient due to battery's internal resistance.

The SGM6039 incorporates the constant-on-time (COT) control architecture to achieve excellent load and line transient performance, and low output voltage ripple at light load power-save mode (PSM). The device supports the use of low ESR ceramic capacitor, just one single 10μF output capacitor is needed to achieve a stable operation across the entire load range and input voltage range. At heavy load, the device enters CCM and operates with constant switching frequency of 1.3MHz (TYP) to achieve low output voltage ripple.

Feature Description

Under-Voltage Lockout (UVLO)

The SGM6039 implements input under-voltage lockout (UVLO) with hysteresis to prevent sudden change of input voltage. The UVLO rising threshold is 1.77V (TYP). After device starts up, the device is able to operate down to 1.75V (MAX) of input voltage.

Enable and Shutdown

Pulling the EN pin to logic low puts the device in shutdown mode, and the output discharge path is also enabled to discharge the output. The EN pin has an internal 540kΩ (TYP) resistor to pull the EN pin to ground for EN floating scenario to avoid false trigger of the device. Pulling the EN pin to logic high enables the device, and the internal EN pin's pull-down resistor is

disabled. When the input voltage falls below the input UVLO falling threshold, the output discharge path is also enabled, please refer to Table 1 below for complete control logic.

Table 1. Enable and Input UVLO Control Logics

EN Pin	Input UVLO	Device State	Output State
0	X	Shutdown	Output Discharge Active
1	1	Shutdown	Output Discharge Active
1	0	Active	Output Enabled

Soft-Start

Pulling the EN pin to logic high enables the internal circuits. The duration of the internal circuits' start-up is $t_{\text{STARTUP_DELAY}}$. Once $t_{\text{STARTUP_DELAY}}$ expires, the device issues switching pulses to ramp up the output voltage which follows the internal soft-start circuitry within the soft-start time (t_{SS}).

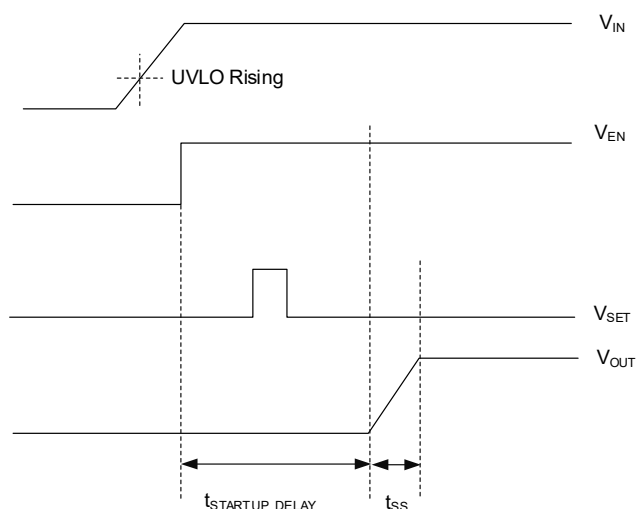


Figure 3. Device Start-up

DETAILED DESCRIPTION (continued)**Output Voltage Programming**

The output voltage of SGM6039 is programmed via a single resistor connected between the VSET pin and ground. Upon start-up, an internal current source applies a current to the resistor connected on the VSET pin during the $t_{\text{STARTUP_DELAY}}$. The internal ADC reads the voltage and feedbacks this information to the internal circuit. The internal feedback divider network sets the proper output voltage based on the information. The current source is turned off after the $t_{\text{STARTUP_DELAY}}$ to reduce current consumption. In addition to reading the resistor connected on VSET pin, pulling the VSET pin to logic high. Logic low also can program different output voltages.

To ensure a proper read of the resistor connected on the VSET pin, additional current path or capacitance greater than 30pF total from VSET to GND should be avoided. The resistor connected to VSET pin is designed to meet the standard resistance value from E96 table, and $\pm 1\%$ accuracy resistor is recommended. Use Table 2 below to select the appropriate resistors for different output voltages.

Switch Current Limit/Short-Circuit Protection

The SGM6039 implements current limit function via the high-side and low-side power MOSFETs and the current through the power MOSFETs is monitored in every switching cycle. During an over-current scenario, the current through the high-side FET triggers the $I_{\text{OC_HS}}$ of 1.1A (TYP), the high-side FET is turned off immediately and the low-side FET is turned on to ramp down the inductor current. When the low-side FET's current drops below the $I_{\text{OC_LS}}$ of 1.0A (TYP), the low-side FET is turned off and the high-side FET is turned on.

During short-circuit state, where the output voltage falls below 180mV, the high-side and low-side current limit is fold-backed to 60% to prevent excessive heat dissipation on the device. When the output voltage rises above 230mV, the high-side and low-side current limit recover to 1.1A and 1A respectively.

Table 2. Output Voltage Setting

V _{SET}	Output Voltage Setting (V)					R _{SET} (k Ω)
	SGM6039A/D-1.8V	SGM6039A/D-1.9V	SGM6039A/D-3.0V	SGM6039B/E	SGM6039C/F	
1	0.4	0.4	0.4	0.8	1.8	10.0
2	0.425	0.425	0.425	0.85	1.9	12.1
3	0.45	0.45	0.45	0.9	2	15.4
4	0.475	0.475	0.475	0.95	2.1	18.7
5	0.5	0.5	0.5	1	2.2	23.7
6	0.525	0.525	0.525	1.05	2.3	28.7
7	0.55	0.55	0.55	1.1	2.4	36.5
8	0.575	0.575	0.575	1.15	2.5	44.2
9	0.6	0.6	0.6	1.2	2.6	56.2
10	0.625	0.625	0.625	1.25	2.7	68.1
11	0.65	0.65	0.65	1.3	2.8	86.6
12	0.675	0.675	0.675	1.35	2.9	105.0
13	0.7	0.7	0.7	1.4	3.0	133.0
14	0.725	0.725	0.725	1.45	3.1	162.0
15	0.75	0.75	0.75	1.5	3.2	205.0
16	0.775	0.775	0.775	1.55	3.3	249.0 or larger
17	0.8	0.8	0.8	1.6	3.4	V _{IN}
18	1.8	1.9	3	1.8	3.6	GND

DETAILED DESCRIPTION (continued)**Thermal Shutdown**

Thermal shutdown function is implemented in the SGM6039 to prevent the device from overheating. The internal temperature sensor monitors the junction temperature, when the junction temperature exceeds 160°C (TYP), the device enters thermal shutdown, and the device stops switching. When the junction temperature drops by 20 °C, the device resumes operation, where a soft-start sequence is initiated to ramp the output voltage up during the thermal shutdown recovery. The thermal shutdown is disabled in power-save mode.

Output Voltage Discharge

The SGM6039 implements output voltage discharge function to ensure that the output voltage ramps down to close to 0V in a controlled manner during shutdown state. There is a discharge resistor of 9Ω (TYP) connected from SW pin to ground. Please refer to Table 1 for discharge logic.

Device Functional Modes**Power-Save Mode Operation**

The SGM6039 implements power-save mode at light load to maximize the efficiency. At light load, the device issues a single switching pulse by turning on the high-side FET to ramp up the inductor current. This energy is used to supply the load as well as replenish the charge in the output capacitor. The device then

enters a sleep period that waits for the output voltage to drop below the programmed output voltage. A new switching pulse is issued. The frequency to issue the switching pulse in power-save mode depends on the load current, and the frequency increases linearly as the load current increases. During the sleep period, the power consumption of the entire device reduces to 245nA (TYP), which maximizes the efficiency during light load operation.

At medium and heavy loads, the SGM6039 operates in PWM mode, and the switching frequency is 1.3MHz (TYP) in PWM mode. The device automatically switches between power-save mode (PSM) and PWM mode based on the load current, and when the inductor current becomes discontinuous, the device switches to PSM.

100% Mode Operation

The duty cycle of the Buck converter approaches to 100% as the input voltage is getting close to the programmed output voltage. When the input voltage is equal to or below the programmed output voltage, the SGM6039 enters 100% mode by turning on the high-side power FET continuously to bypass the input voltage. The device remains in 100% mode as long as the output voltage is below the programmed output voltage set point.

APPLICATION INFORMATION

Typical Application

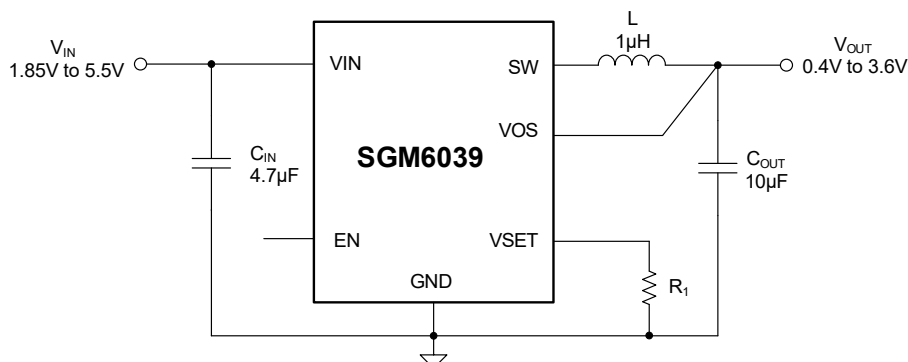


Figure 4. Typical Application Circuit

Design Requirements

Table 3 shows the list of components for the application circuit and the characteristic application curves.

Table 3. Components for Application Characteristic Curves

Reference	Description	Value	Size Code Inch [metric L × W × T] mm ³	Manufacturer
SGM6039	245nA I _Q Buck Converter		[1.05 × 0.8 × 0.4]	SGMICRO
C _{IN}	Ceramic Capacitor GRM155R60J475ME47D	4.7μF	0402 [1.0 × 0.5 × 0.5]	Murata
L	InductorDFE201610-1R0M	1μH	0806 [2.0 × 1.6 × 1.0]	Murata
C _{OUT}	Ceramic Capacitor GRM155R60J106ME15D	10μF	0402 [1.0 × 0.5 × 0.5]	Murata
R ₁	See Table 2	See Table 2	0402 [1.0 × 0.5 × 0.5]	

Layout Guidelines

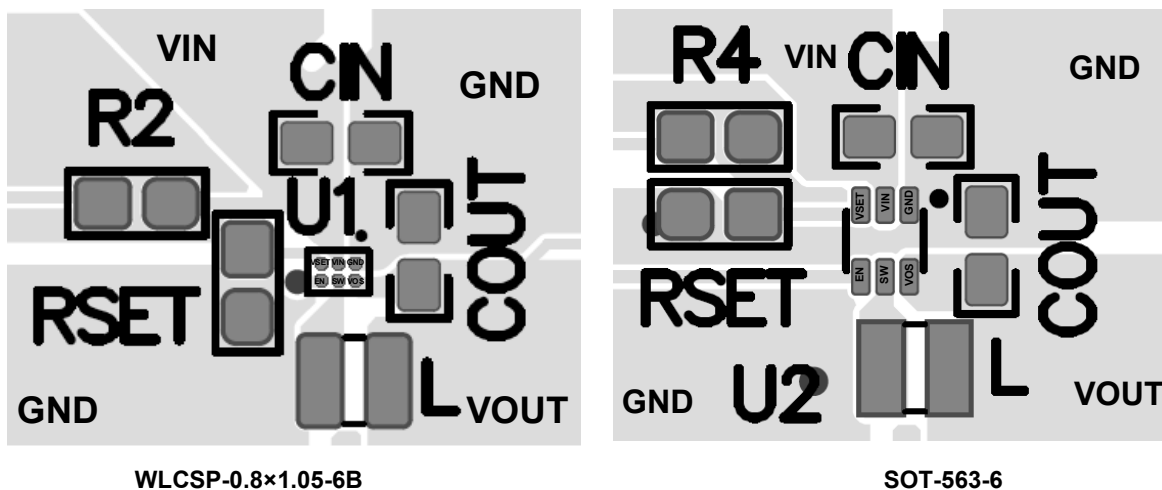


Figure 5. PCB Layout

REVISION HISTORY

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

Changes from Original to REV.A (NOVEMBER 2025)

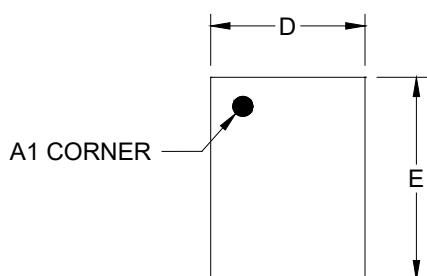
Page

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

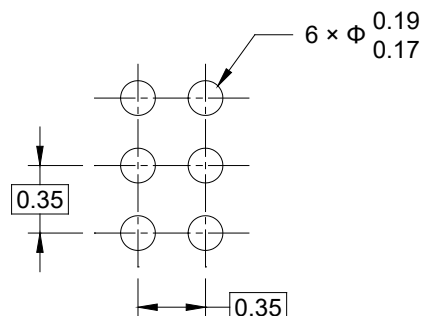
PACKAGE INFORMATION

PACKAGE OUTLINE DIMENSIONS

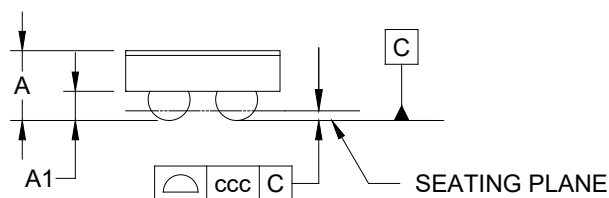
WLCSP-0.8×1.05-6B



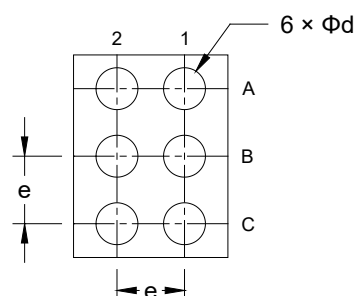
TOP VIEW



RECOMMENDED LAND PATTERN (Unit: mm)



SIDE VIEW



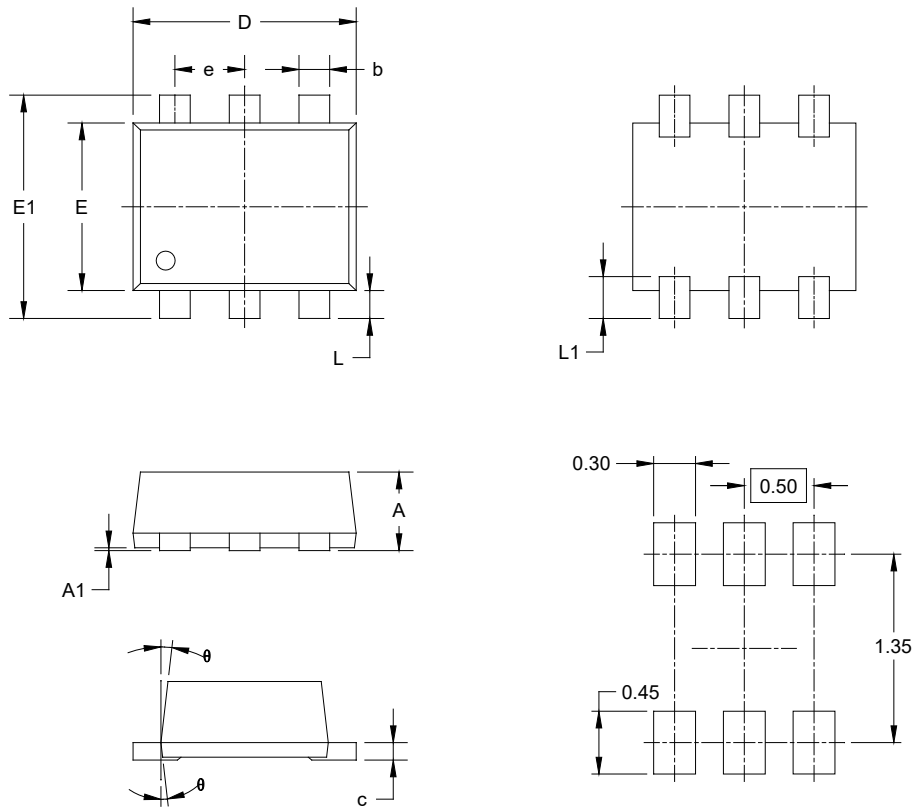
BOTTOM VIEW

Symbol	Dimensions In Millimeters		
	MIN	NOM	MAX
A	-	-	0.400
A1	0.131	-	0.171
D	0.770	-	0.830
E	1.020	-	1.080
d	0.187	-	0.247
e	0.350 BSC		
ccc	0.050		

NOTE: This drawing is subject to change without notice.

PACKAGE OUTLINE DIMENSIONS

SOT-563-6



RECOMMENDED LAND PATTERN (Unit: mm)

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MIN	MAX	MIN	MAX
A	0.525	0.600	0.021	0.024
A1	0.000	0.050	0.000	0.002
b	0.170	0.270	0.007	0.011
c	0.090	0.180	0.004	0.007
D	1.500	1.700	0.059	0.067
E	1.100	1.300	0.043	0.051
E1	1.500	1.700	0.059	0.067
e	0.450	0.550	0.018	0.022
L	0.100	0.300	0.004	0.012
L1	0.200	0.400	0.008	0.016
θ	9° REF		9° REF	

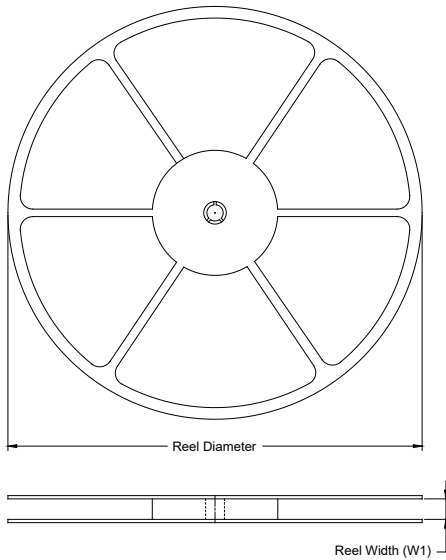
NOTES:

1. Body dimensions do not include mold flash or protrusion.
2. This drawing is subject to change without notice.

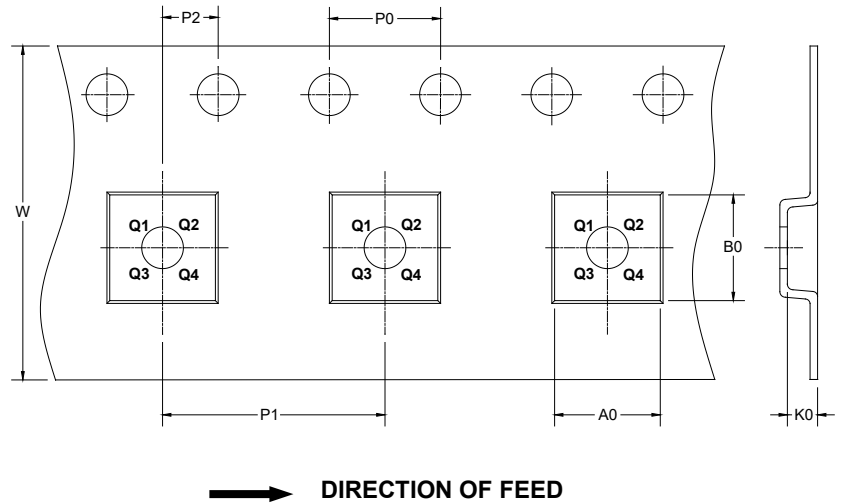
PACKAGE INFORMATION

TAPE AND REEL INFORMATION

REEL DIMENSIONS



TAPE DIMENSIONS



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

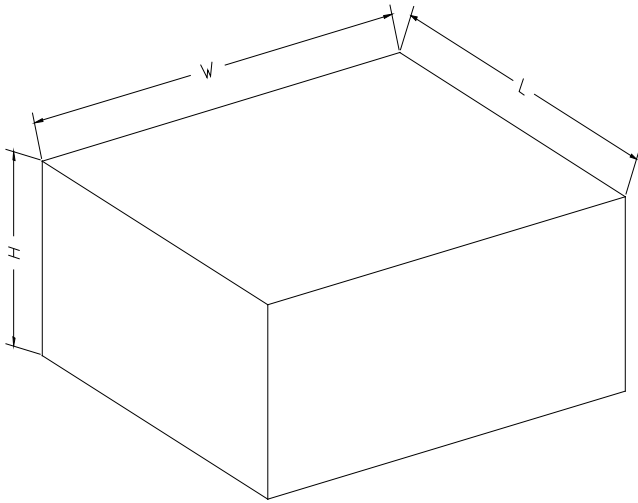
KEY PARAMETER LIST OF TAPE AND REEL

Package Type	Reel Diameter	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P0 (mm)	P1 (mm)	P2 (mm)	W (mm)	Pin1 Quadrant
WLCSP-0.8×1.05-6B	7"	9.5	0.90	1.16	0.47	4.0	4.0	2.0	8.0	Q1
SOT-563-6	7"	9.5	1.78	1.78	0.69	4.0	4.0	2.0	8.0	Q3

DD00001

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