

### FEATURES

- E-mode transistor-Normally off Power Switch
- Footprint (8×8mm<sup>2</sup>) for Compact Design
- Zero Reverse Recovery Loss
- Ultra High Switching Frequency
- RoHS Compliant and Halogen Free

### ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	VALUE	UNITS
Drain-to-Source Voltage	$V_{DS}$	650	V
Drain-to-Source Voltage Transient <sup>(1)</sup>	$V_{DS-TRANSIENT}$	800	V
Gate-to-Source Voltage <sup>(2)</sup>	$V_{GS}$	-10 to 7	V
Drain Current	$I_D$	$T_C = +25^\circ\text{C}$	25
		$T_C = +100^\circ\text{C}$	16
		$T_A = +25^\circ\text{C}$	3
		$T_A = +70^\circ\text{C}$	2.5
Drain Current (Pulse) <sup>(3)</sup>	$I_{DM}$	60	A
Total Dissipation	$P_D$	$T_C = +25^\circ\text{C}$	156
		$T_C = +100^\circ\text{C}$	62
		$T_A = +25^\circ\text{C}$	2.5
		$T_A = +70^\circ\text{C}$	1.6
Junction Temperature	$T_J$	+150	°C
Storage Temperature Range	$T_{STG}$	-55 to +150	°C
Lead Temperature (Soldering, 10s)		+260	°C

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.

#### NOTES:

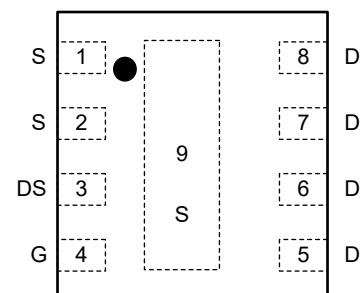
1.  $t_{PULSE} < 1\mu\text{s}$ .
2. To achieve the best  $R_{DS(on)}$  performance, the recommended gate driving voltage range ( $V_{GS}$ ) is 0V to 6V. E-HEMT does not need negative gate bias to turn off. Negative gate bias (typically  $V_{GS} = -3\text{V}$ ) can ensure safe operation and is not affected by the gate voltage spike, but it may increase the reverse conduction loss if it is improperly driven.
3.  $t_{PULSE} < 10\mu\text{s}$ .

### PRODUCT SUMMARY

$R_{DS(on)}$ (TYP) $V_{GS} = 6\text{V}$	$R_{DS(on)}$ (MAX) $V_{GS} = 6\text{V}$	$I_D$ (MAX) $T_C = +25^\circ\text{C}$
75mΩ	110mΩ	25A

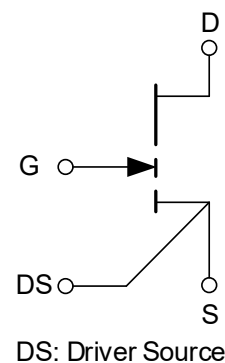
### PIN CONFIGURATION

(TOP VIEW)



TDFN-8×8-8L(G)

### EQUIVALENT CIRCUIT



### APPLICATIONS

- Fast Battery Charging
- DC/DC Converters
- Flyback Converter
- High Efficiency Power Conversion

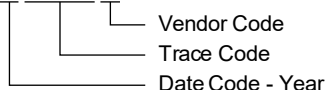
**PACKAGE/ORDERING INFORMATION**

MODEL	PACKAGE DESCRIPTION	SPECIFIED TEMPERATURE RANGE	ORDERING NUMBER	PACKAGE MARKING	PACKING OPTION
SGMGH10265G	TDFN-8x8-8L(G)	-55°C to +150°C	SGMGH10265GTTGR8G/TR	SGMGH10265G TTGR8 XXXXX	Tape and Reel, 2500

**MARKING INFORMATION**

NOTE: XXXXX = Date Code, Trace Code and Vendor Code.

**XXXXX**



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.

**DISCLAIMER**

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

**THERMAL RESISTANCE MAXIMUM RATINGS**

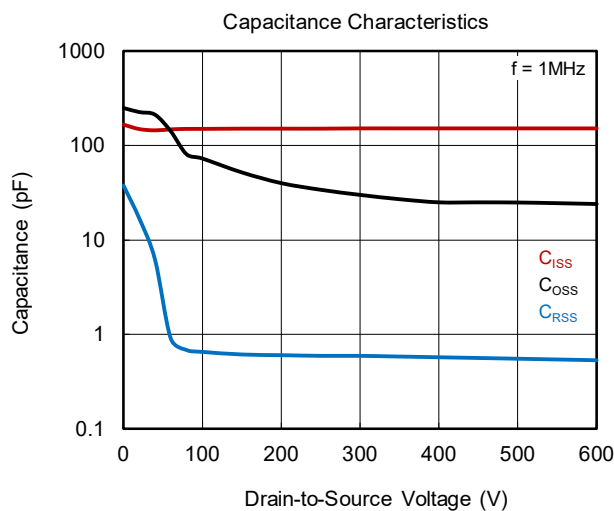
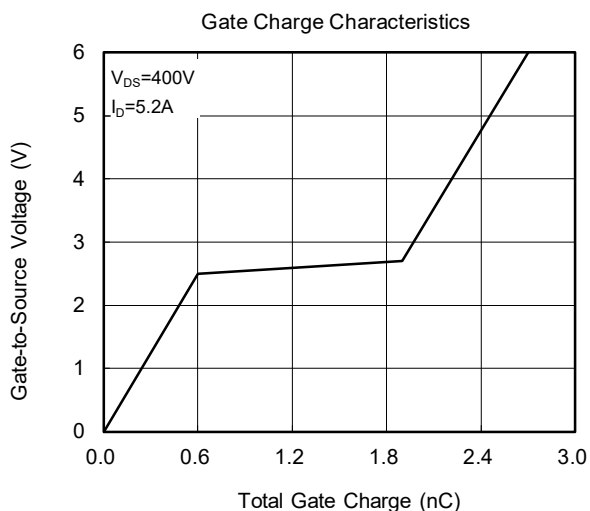
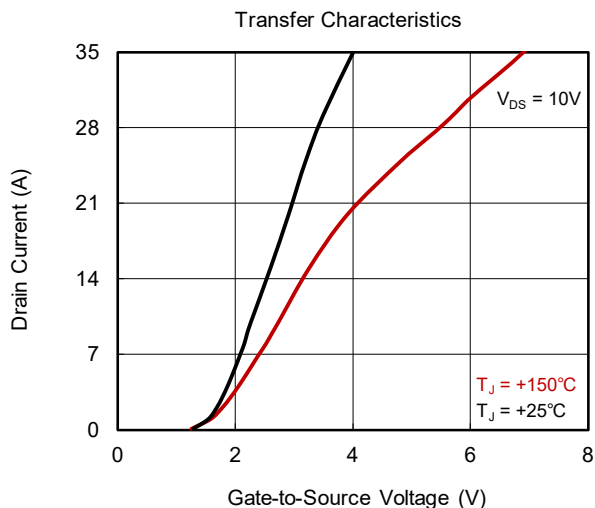
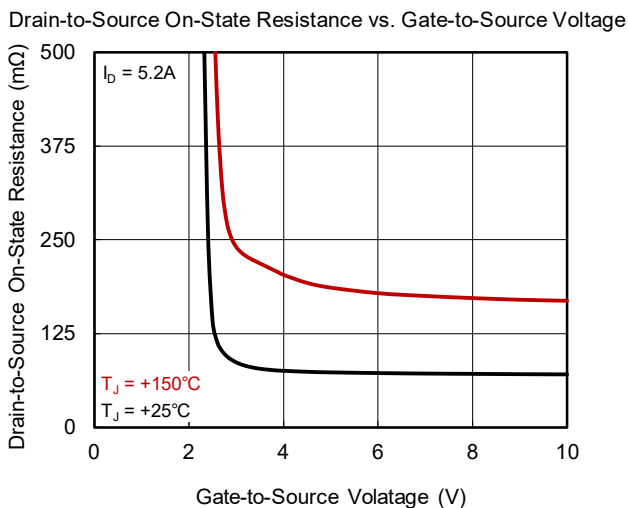
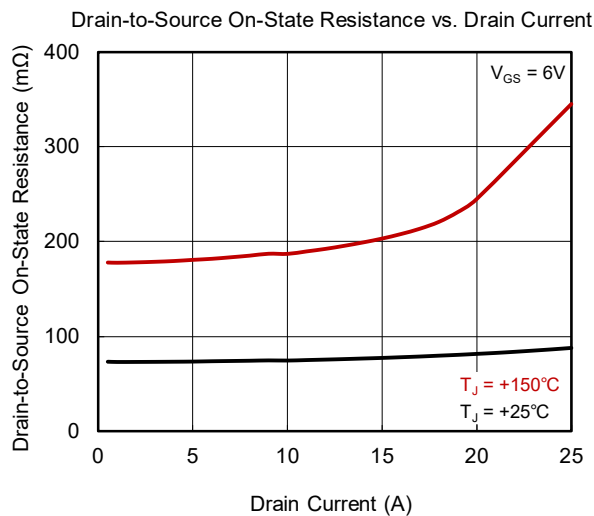
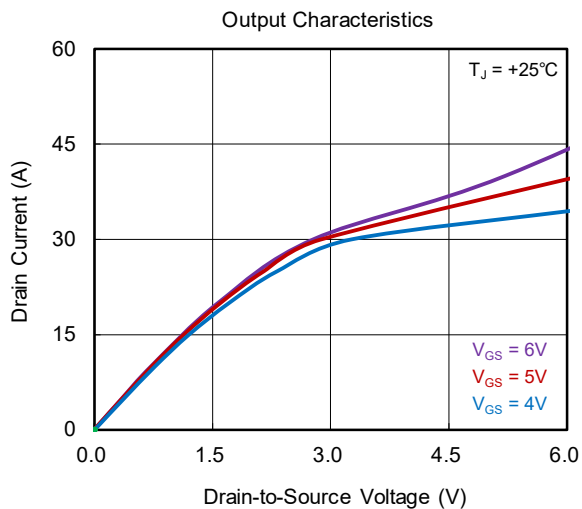
PARAMETER	SYMBOL	VALUE	UNITS
Junction-to-Case Thermal Resistance	R <sub>θJC</sub>	0.8	°C/W
Junction-to-Ambient Thermal Resistance	R <sub>θJA</sub>	50	°C/W

**ELECTRICAL CHARACTERISTICS**(T<sub>A</sub> = +25°C, unless otherwise noted.)

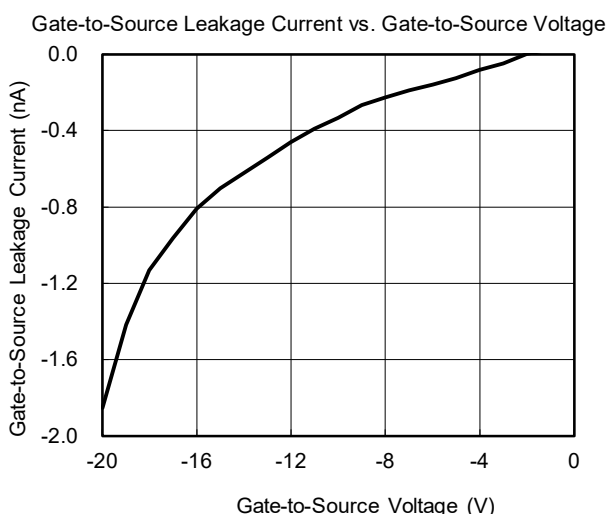
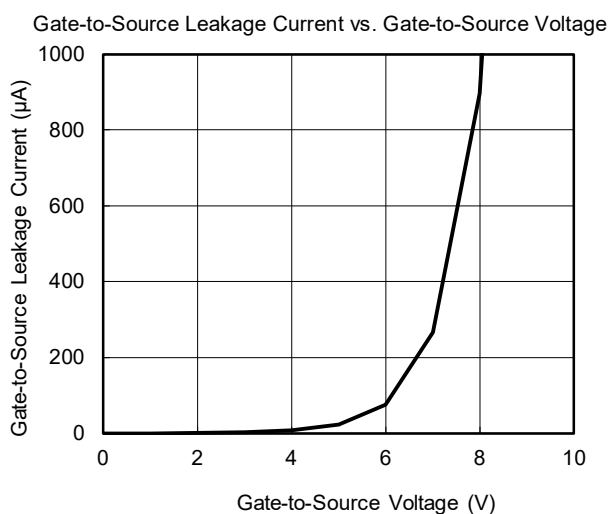
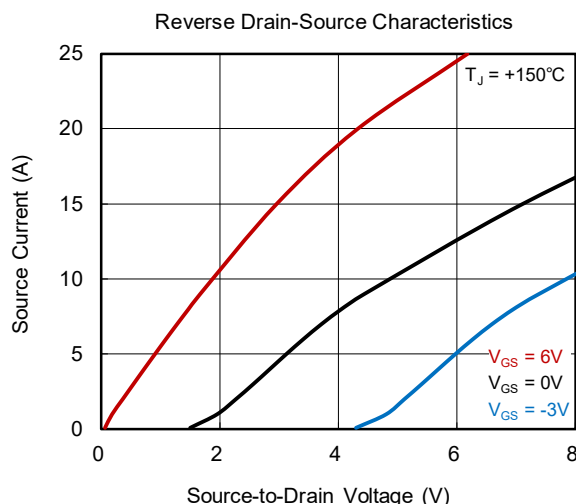
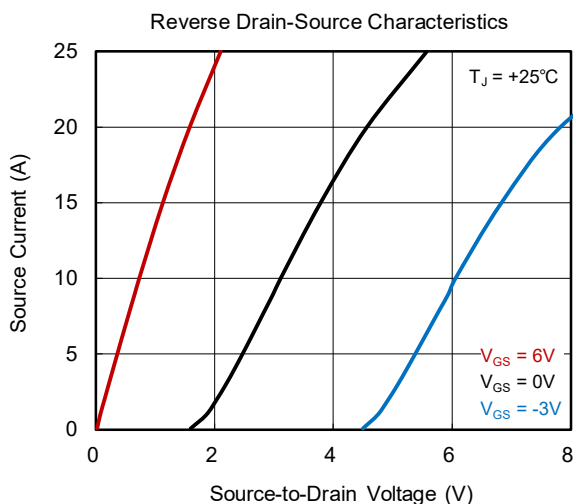
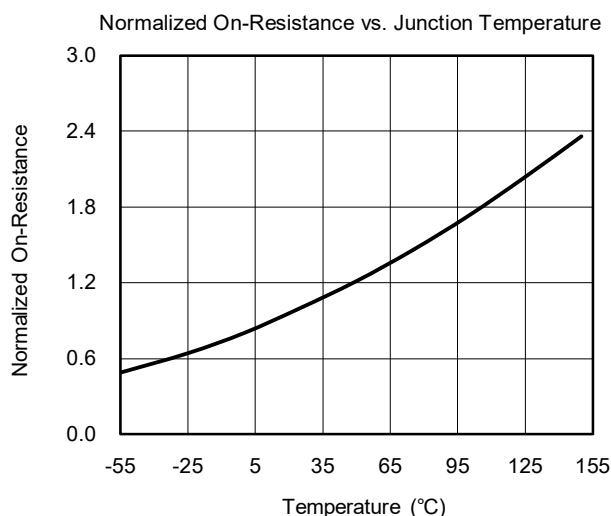
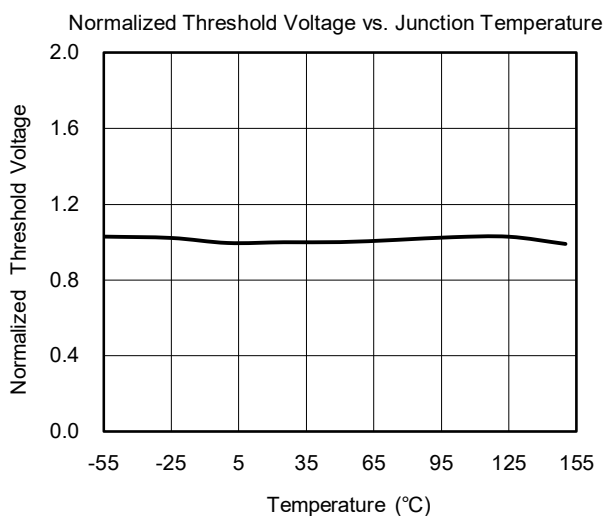
PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
<b>Static OFF Characteristics</b>						
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>GS</sub> = 0V, V <sub>DS</sub> = 650V	T <sub>J</sub> = +25°C		58	μA
			T <sub>J</sub> = +150°C		30	
Gate-to-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> = 6V, V <sub>DS</sub> = 0V		70		μA
<b>Static ON Characteristics</b>						
Gate-to-Source Threshold Voltage	V <sub>GS_TH</sub>	V <sub>GS</sub> = V <sub>DS</sub> , I <sub>D</sub> = 13mA	1	1.7	2.5	V
Drain-to-Source On-State Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> = 6V, I <sub>D</sub> = 5.2A	T <sub>J</sub> = +25°C	75	110	mΩ
			T <sub>J</sub> = +150°C		180	
Gate Resistance	R <sub>G</sub>	f = 5MHz		1.3		Ω
<b>Dynamic Characteristics</b>						
Input Capacitance	C <sub>ISS</sub>	V <sub>GS</sub> = 0V, V <sub>DS</sub> = 400V, f = 100kHz		121		pF
Output Capacitance	C <sub>OSS</sub>			34		
Reverse Transfer Capacitance	C <sub>RSS</sub>			0.4		
Output Capacitance Stored Energy	E <sub>OSS</sub>			4.5		μJ
Effective Output Capacitance, Energy Related	C <sub>O_ER</sub>	V <sub>GS</sub> = 0V, V <sub>DS</sub> = 0V to 400V		53.1		pF
Effective Output Capacitance, Time Related	C <sub>O_TR</sub>			84.6		pF
Output Charge	Q <sub>OSS</sub>			35.9		nC
Total Gate Charge	Q <sub>G</sub>		V <sub>GS</sub> = 0V to 6V, V <sub>DS</sub> = 400V, I <sub>D</sub> = 5.2A		2.7	
Gate-to-Source Charge	Q <sub>GS</sub>			0.6		
Gate-to-Drain Charge	Q <sub>GD</sub>			1.3		
Gate Plateau Voltage	V <sub>Plat</sub>			2.6		V
<b>Switch Characteristics</b>						
Turn-On Delay Time	t <sub>D_ON</sub>	V <sub>GS</sub> = 6V, V <sub>DS</sub> = 400V, I <sub>D</sub> = 5.2A		9.2		ns
Rise Time	t <sub>R</sub>			7.4		
Turn-Off Delay Time	t <sub>D_OFF</sub>			14.9		
Fall Time	t <sub>F</sub>			11.8		

NOTE: Enhanced HEMTs has no intrinsic body diode (V<sub>FSD</sub>) and the reverse recovery charge is zero. These devices can naturally turn on in reverse and show different characteristics according to the gate voltage. Please refer to Reverse Drain-Source Characteristics figure.

TYPICAL PERFORMANCE CHARACTERISTICS



TYPICAL PERFORMANCE CHARACTERISTICS (continued)



**REVISION HISTORY**

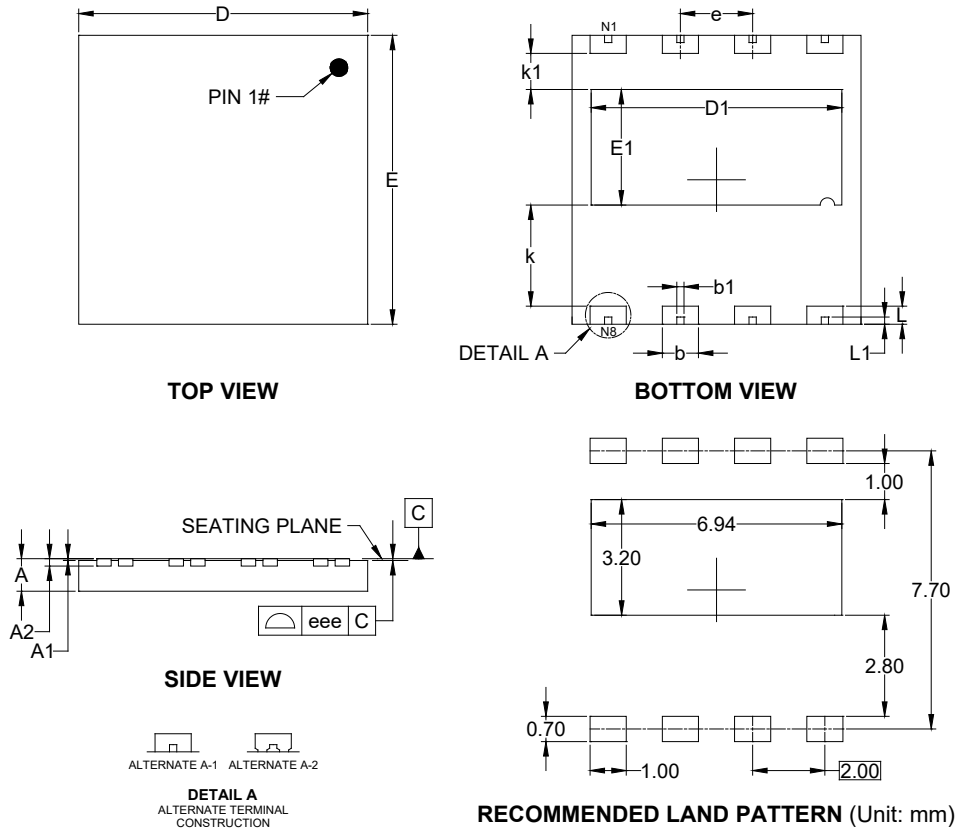
NOTE: Page numbers for previous revisions may differ from page numbers in the current version.

<b>Changes from Original (DECEMBER 2024) to REV.A</b>	<b>Page</b>
Changed from product preview to production data.....	All

---

PACKAGE OUTLINE DIMENSIONS

TDFN-8x8-8L(G)



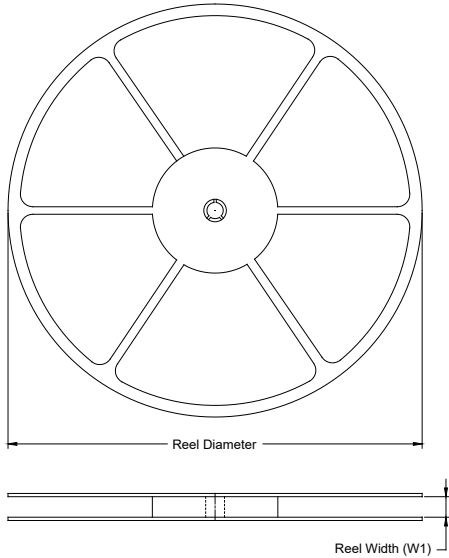
Symbol	Dimensions In Millimeters		
	MIN	NOM	MAX
A	0.800	-	1.000
A1	0.000	-	0.050
A2	0.203 REF		
b	0.950	-	1.050
b1	0.200 REF		
D	7.900	-	8.100
E	7.900	-	8.100
D1	6.840	-	7.040
E1	3.100	-	3.300
e	2.000 BSC		
k	2.800 REF		
k1	1.000 REF		
L	0.400	-	0.600
L1	0.200 REF		
eee	0.080		

NOTE: This drawing is subject to change without notice.

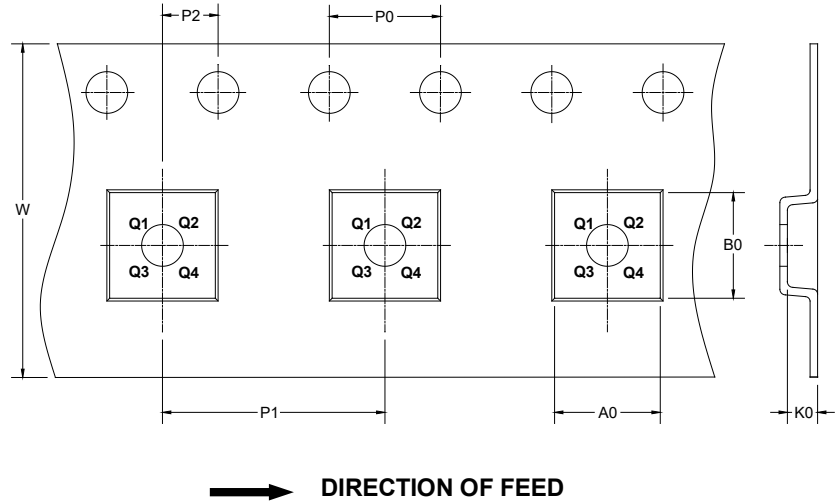
# PACKAGE INFORMATION

## 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

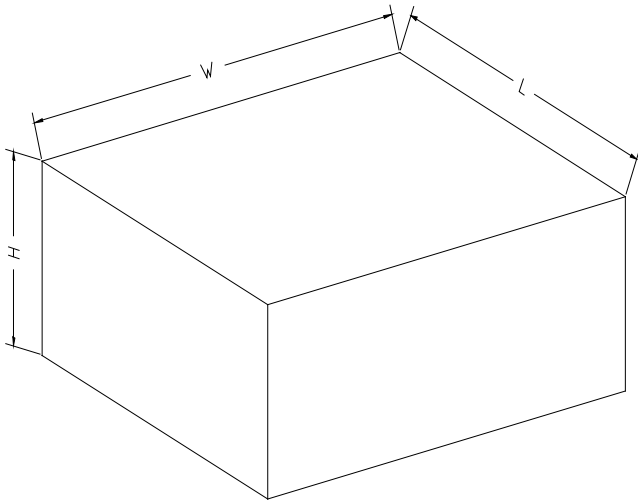
Package Type	Reel Diameter	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P0 (mm)	P1 (mm)	P2 (mm)	W (mm)	Pin1 Quadrant
TDFN-8x8-8L(G)	13"	16.4	8.30	8.30	1.10	4.0	12.0	2.0	16.0	Q2

DD0001



# 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
13"	386	280	370	5

DD0002