

FEATURES

- Low On-State Resistance
- Low Total Gate Charge and Capacitance Losses
- Small Footprint for Compact Design
- RoHS Compliant and Halogen Free

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	VALUE	UNITS
Drain-to-Source Voltage	V_{DS}	40	V
Gate-to-Source Voltage	V_{GS}	± 20	V
Drain Current ⁽¹⁾	I_D	$T_C = +25^\circ\text{C}$	30
		$T_C = +100^\circ\text{C}$	19
		$T_A = +25^\circ\text{C}$	8
		$T_A = +70^\circ\text{C}$	6
Drain Current (Pulse) ⁽²⁾	I_{DM}	75	A
Total Dissipation	P_D	$T_C = +25^\circ\text{C}$	29
		$T_C = +100^\circ\text{C}$	11
		$T_A = +25^\circ\text{C}$	2.1
		$T_A = +70^\circ\text{C}$	1.3
Avalanche Current ⁽³⁾	I_{AS}	19.5	A
Avalanche Energy ⁽³⁾	E_{AS}	19	mJ
Junction Temperature	T_J	+150	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 to +150	$^\circ\text{C}$
Lead Temperature (Soldering, 10s)		+260	$^\circ\text{C}$

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.

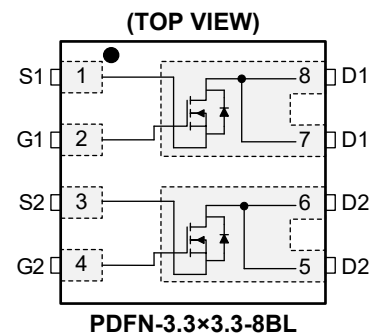
NOTES:

1. The current will be limited by package, PCB, thermal design and operating temperature.
2. $t_{PULSE} < 10\mu\text{s}$.
3. Parts are 100% tested at $V_{GS} = 10\text{V}$, $I_L = 13.7\text{A}$, and $E_{AS} = 9.5\text{mJ}$.

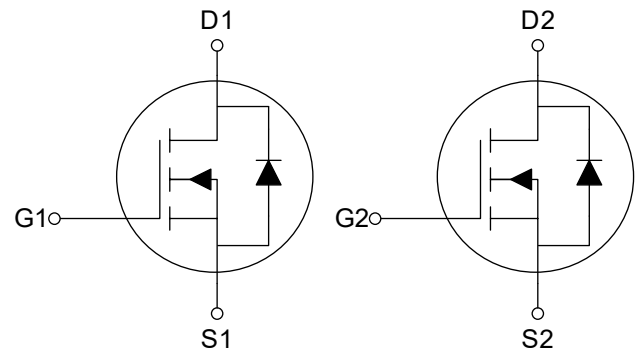
PRODUCT SUMMARY

$R_{DS(on)}$ (TYP) $V_{GS} = 10\text{V}$	$R_{DS(on)}$ (MAX) $V_{GS} = 10\text{V}$	I_D (MAX) $T_C = +25^\circ\text{C}$
12m Ω	15m Ω	30A

PIN CONFIGURATION



EQUIVALENT CIRCUIT



APPLICATIONS

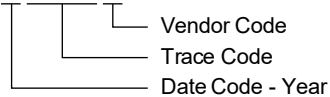
- VBUS OVP Switch
- AMOLED Controller Application
- Battery Charging and Discharging Switch
- DC/DC Converters

PACKAGE/ORDERING INFORMATION

MODEL	PACKAGE DESCRIPTION	SPECIFIED TEMPERATURE RANGE	ORDERING NUMBER	PACKAGE MARKING	PACKING OPTION
SGMDQ12340	PDFN-3.3×3.3-8BL	-55°C to +150°C	SGMDQ12340TPDB8G/TR	SGM1IQ TPDB8 XXXXXX	Tape and Reel, 5000

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

PARAMETER	SYMBOL	TYP	UNITS
Junction-to-Case Thermal Resistance	$R_{\theta JC}$	4.2	°C/W
Junction-to-Ambient Thermal Resistance ⁽¹⁾	$R_{\theta JA}$	57.5	°C/W

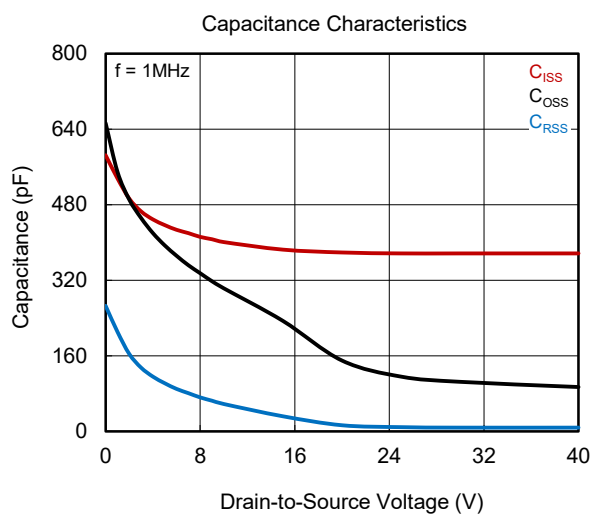
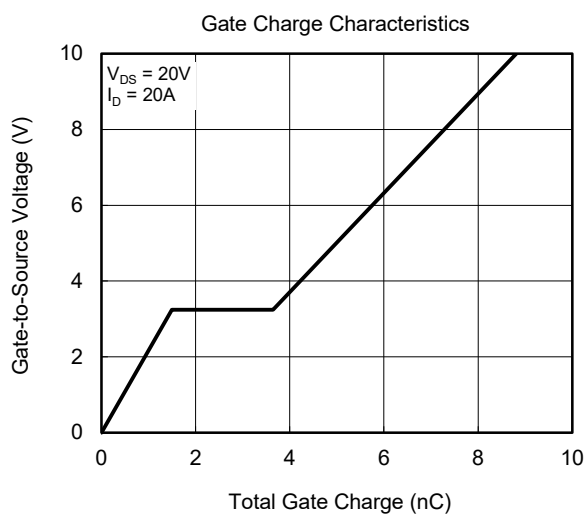
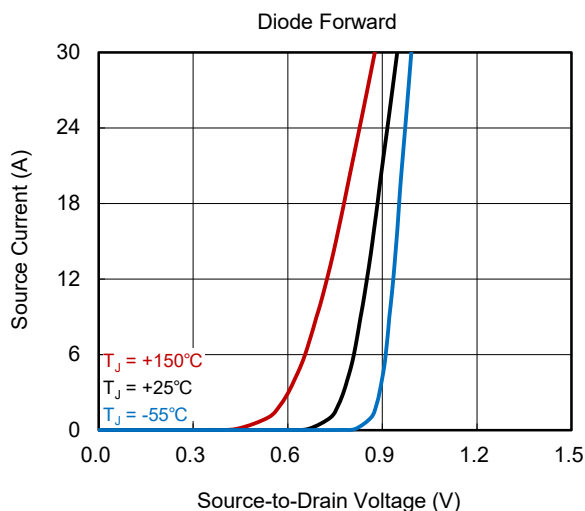
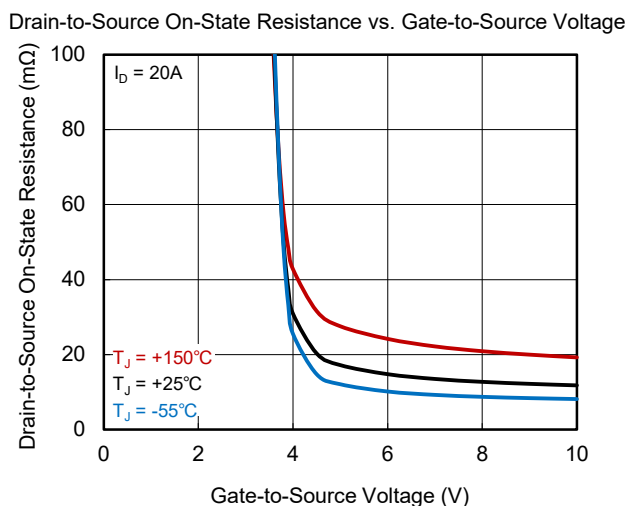
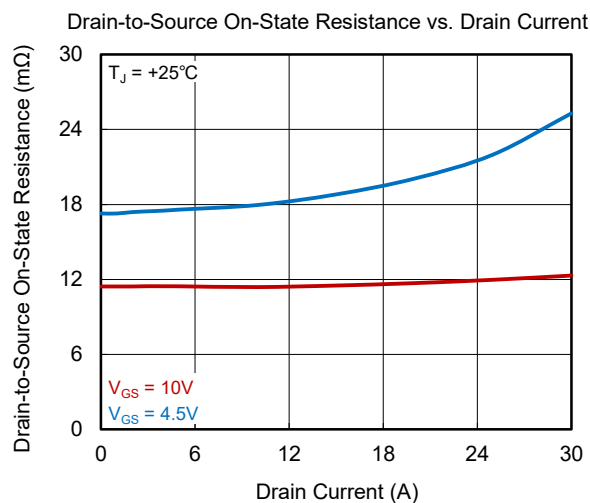
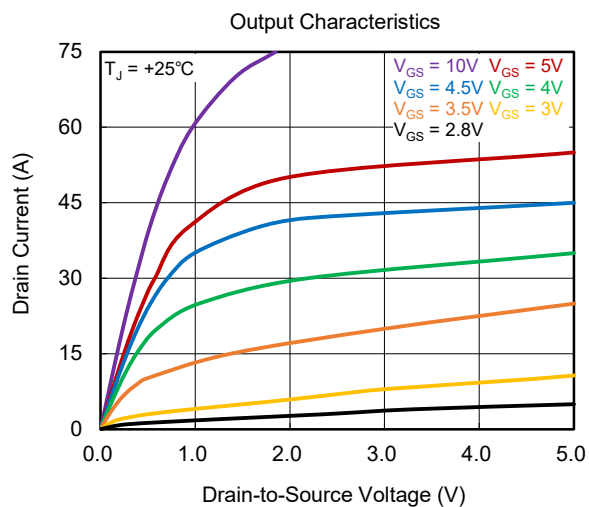
NOTE: 1. $R_{\theta JA}$ is determined with the device mounted on one square inch of copper pad, 2oz copper on FR4 board.

ELECTRICAL CHARACTERISTICS

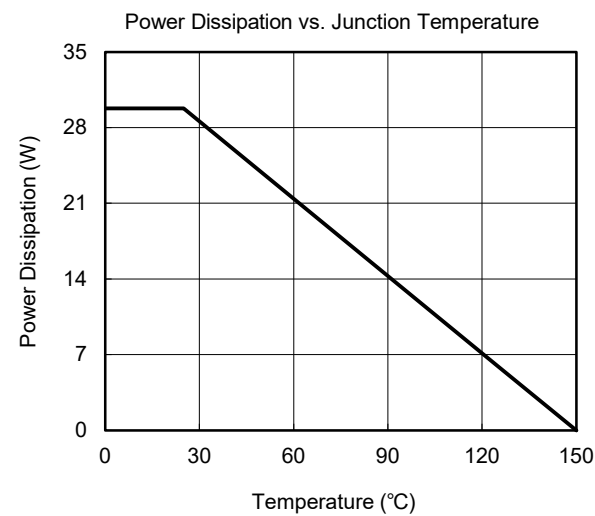
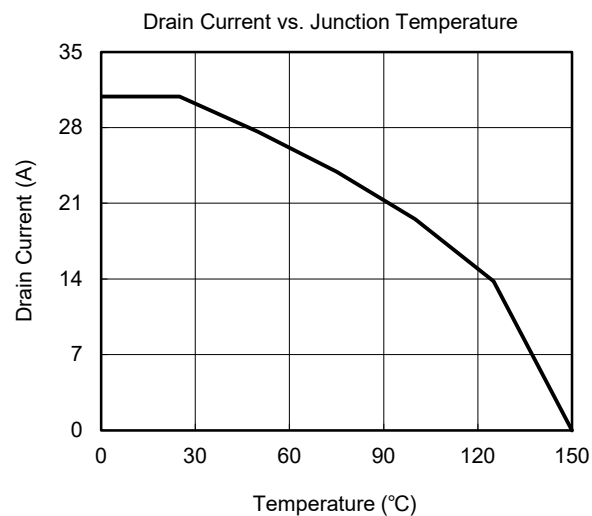
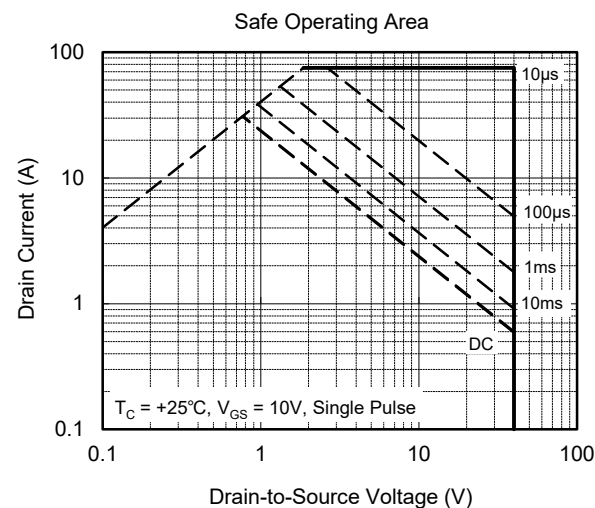
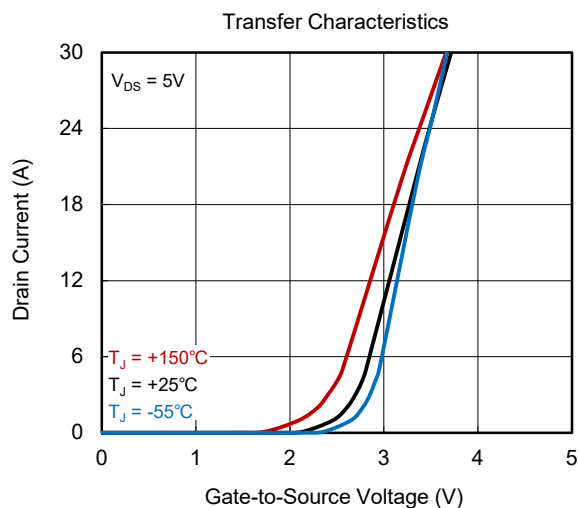
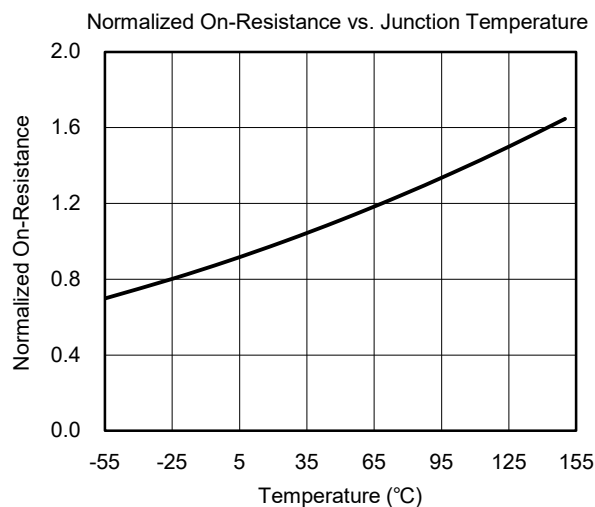
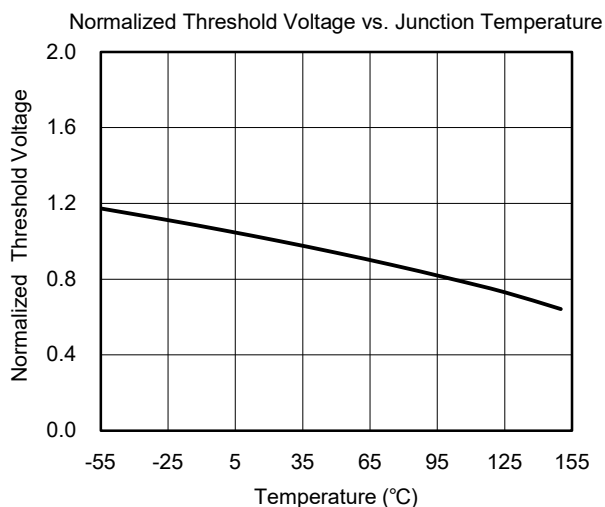
(T_A = +25°C, unless otherwise noted.)

PARAMETER	SYMBOL	CONDITIONS		MIN	TYP	MAX	UNITS
Static OFF Characteristics							
Drain-to-Source Breakdown Voltage	V _{BR_DSS}	V _{GS} = 0V, I _D = 250μA		40			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{GS} = 0V, V _{DS} = 32V				1	μA
Gate-to-Source Leakage Current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V				±100	nA
Static ON Characteristics							
Gate-to-Source Threshold Voltage	V _{GS_TH}	V _{GS} = V _{DS} , I _D = 250μA		1.2	1.6	2.2	V
Drain-to-Source On-State Resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 20A			12	15	mΩ
		V _{GS} = 4.5V, I _D = 15A			19	25	
Forward Transconductance	g _{FS}	V _{DS} = 5V, I _D = 15A			9		S
Gate Resistance	R _G	V _{GS} = 0V, V _{DS} = 0V, f = 1MHz			1		Ω
Diode Characteristics							
Diode Forward Voltage	V _{F_SD}	V _{GS} = 0V, I _S = 1A			0.7	1.2	V
Reverse Recovery Time	t _{RR}	V _{GS} = 0V, I _S = 20A, di/dt = 100A/μs			16		ns
Reverse Recovery Charge	Q _{RR}				5		nC
Dynamic Characteristics							
Input Capacitance	C _{ISS}	V _{GS} = 0V, V _{DS} = 20V, f = 1MHz			375		pF
Output Capacitance	C _{OSS}				153		
Reverse Transfer Capacitance	C _{RSS}				12		
Total Gate Charge	Q _G	V _{DS} = 20V, I _D = 20A	V _{GS} = 10V		8.8		nC
			V _{GS} = 4.5V		4.4		
Gate-to-Source Charge	Q _{GS}	V _{GS} = 4.5V, V _{DS} = 20V, I _D = 20A			2		
Gate-to-Drain Charge	Q _{GD}				2.3		
Switch Characteristics							
Turn-On Delay Time	t _{D_ON}	V _{GS} = 10V, V _{DS} = 20V, I _D = 20A, R _G = 3Ω			3.6		ns
Rise Time	t _R				33.5		
Turn-Off Delay Time	t _{D_OFF}				8.7		
Fall Time	t _F				7.8		

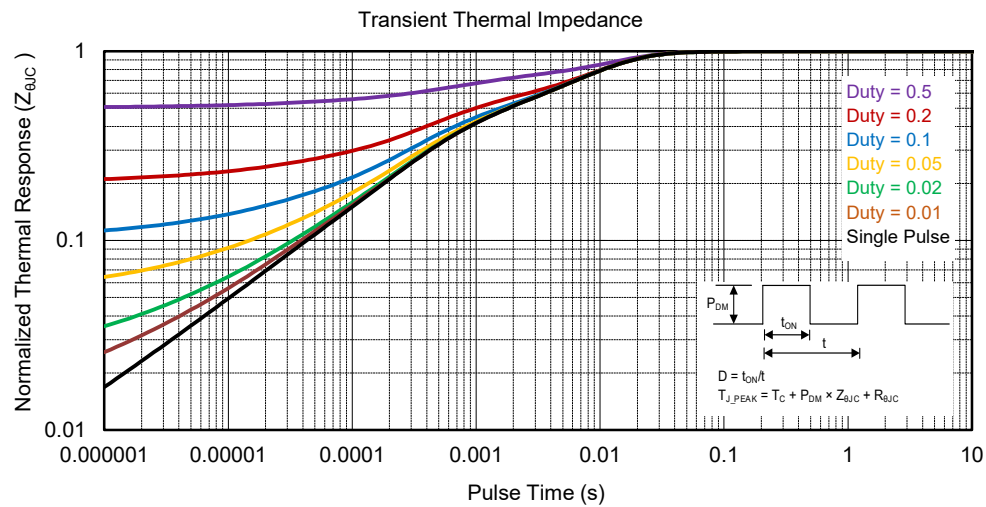
TYPICAL PERFORMANCE CHARACTERISTICS



TYPICAL PERFORMANCE CHARACTERISTICS (continued)



TYPICAL PERFORMANCE CHARACTERISTICS (continued)



REVISION HISTORY

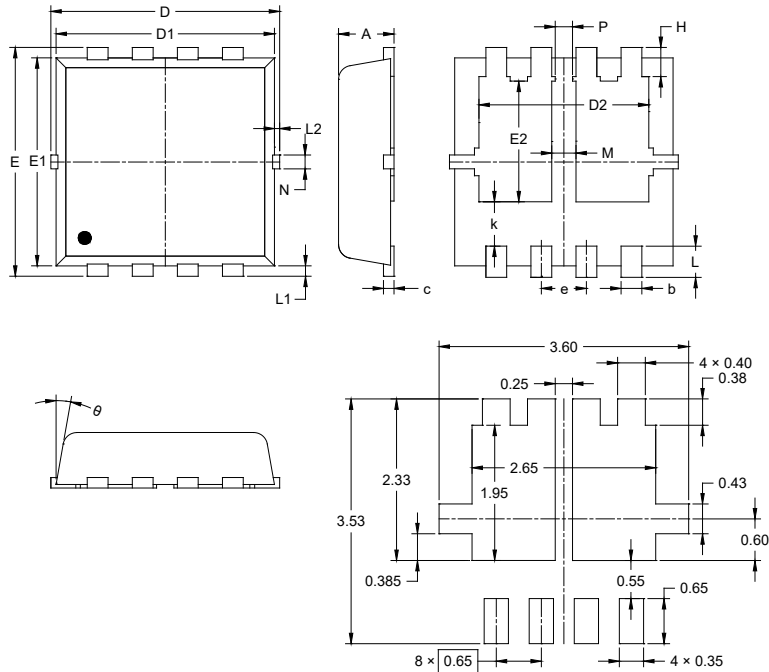
NOTE: Page numbers for previous revisions may differ from page numbers in the current version.

Changes from Original to REV.A (NOVEMBER 2025)

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

PACKAGE OUTLINE DIMENSIONS

PDFN-3.3×3.3-8BL



RECOMMENDED LAND PATTERN (Unit: mm)

Symbol	Dimensions In Millimeters		
	MIN	NOM	MAX
A	0.700	-	0.900
b	0.250	-	0.390
c	0.140	-	0.200
D	3.200	-	3.450
D1	3.050	-	3.250
D2	2.300	-	2.600
e	0.650 BSC		
E	3.200	-	3.400
E1	2.950	-	3.150
E2	1.600	-	1.900
H	0.270	-	0.570
k	0.500	-	0.800
L	0.300	-	0.600
L1	0.050	-	0.250
L2	-	-	0.150
M	0.300	-	0.530
N	0.200 REF		
P	0.150	-	0.350
θ	8°	-	14°

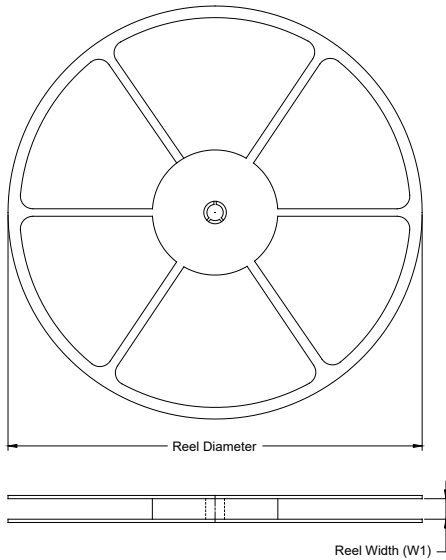
NOTES:

1. This drawing is subject to change without notice.
2. The dimensions do not include mold flashes, protrusions or gate burrs.

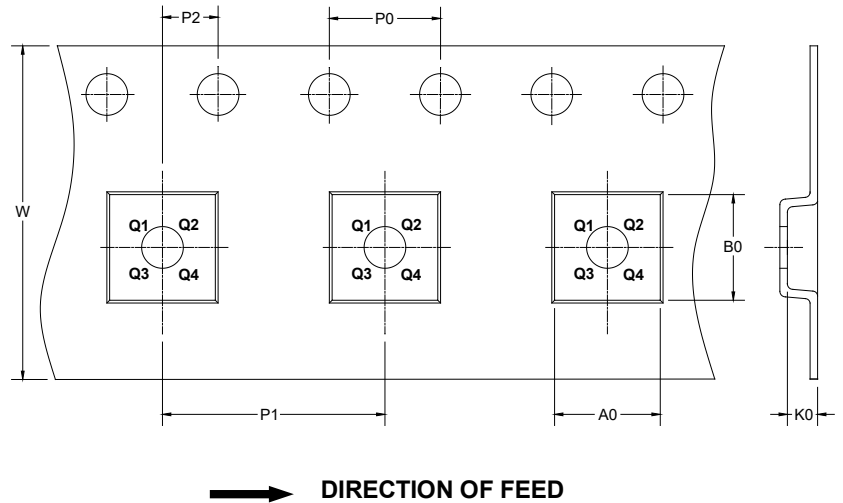
PACKAGE INFORMATION

TAPE AND REEL INFORMATION

REEL DIMENSIONS



TAPE DIMENSIONS



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

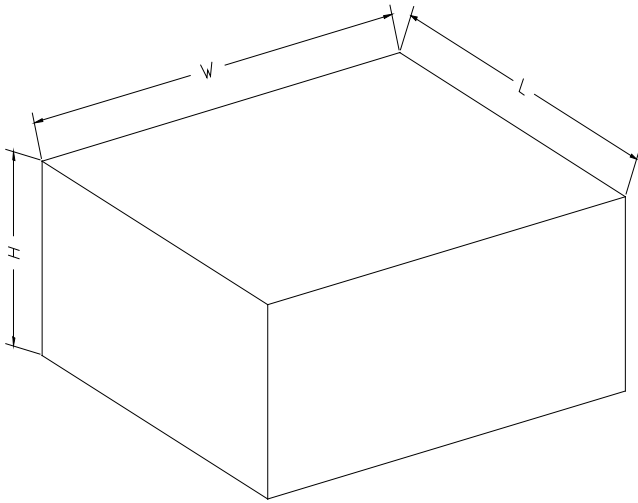
KEY PARAMETER LIST OF TAPE AND REEL

Package Type	Reel Diameter	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P0 (mm)	P1 (mm)	P2 (mm)	W (mm)	Pin1 Quadrant
PDFN-3.3×3.3-8BL	13"	12.4	3.60	3.60	1.10	4.0	8.0	2.0	12.0	Q1

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

DP0002