



SGMNT35460

60V, TO Package, Single N-Channel, MOSFET

FEATURES

- Low On-State Resistance
- Low QG and Capacitance Losses
- Halogen-Free/RoHS Compliant

PRODUCT SUMMARY

$R_{DS(on)}$ (TYP) $V_{GS} = 10V$	$R_{DS(on)}$ (MAX) $V_{GS} = 10V$	I_D (MAX) $T_C = +25^\circ C$
2.8m Ω	3.5m Ω	130A

ABSOLUTE MAXIMUM RATINGS

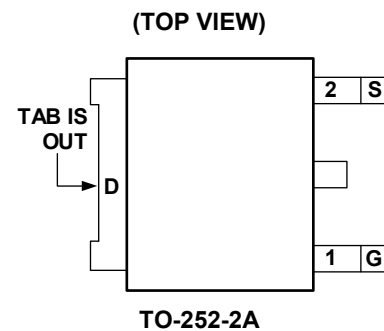
PARAMETER		SYMBOL	VALUE	UNITS
Drain-to-Source Voltage		V _{DS}	60	V
Gate-to-Source Voltage		V _{GS}	±20	V
Drain Current ⁽¹⁾	T _C = +25°C	I _D	130	A
	T _C = +100°C		82	
	T _A = +25°C		22	
	T _A = +70°C		18	
Drain Current (Pulse) ⁽²⁾		I _{DM}	400	A
Total Dissipation	T _C = +25°C	P _D	113	W
	T _C = +100°C		45	
	T _A = +25°C		2.5	
	T _A = +70°C		1.6	
Avalanche Current ⁽³⁾		I _{AS}	80	A
Avalanche Energy ⁽³⁾		E _{AS}	320	mJ
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.

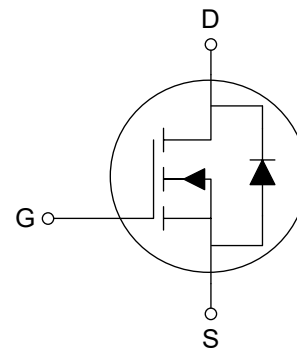
NOTES:

1. The current will be limited by package, PCB, thermal design and operating temperature.
2. $t_{PLUSE} < 10\mu s$.
3. Parts are 100% tested at $V_{GS} = 10V$, $I_L = 56.5A$, and $E_{AS} = 160mJ$.

PIN CONFIGURATION



EQUIVALENT CIRCUIT



APPLICATIONS

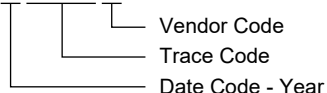
Multimedia/Infotainment Bus Protection
Transmission control
Ultra-High Performance Power Switching

PACKAGE/ORDERING INFORMATION

MODEL	PACKAGE DESCRIPTION	SPECIFIED TEMPERATURE RANGE	ORDERING NUMBER	PACKAGE MARKING	PACKING OPTION
SGMNT35460	TO-252-2A	-55°C to +150°C	SGMNT35460TOC2G/TR	SGM1M6 OC2 XXXXXX	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

PARAMETER	SYMBOL	TYP	UNITS
Junction-to-Case Thermal Resistance	$R_{\theta JC}$	1.1	°C/W
Junction-to-Ambient Thermal Resistance ⁽¹⁾	$R_{\theta JA}$	50	°C/W

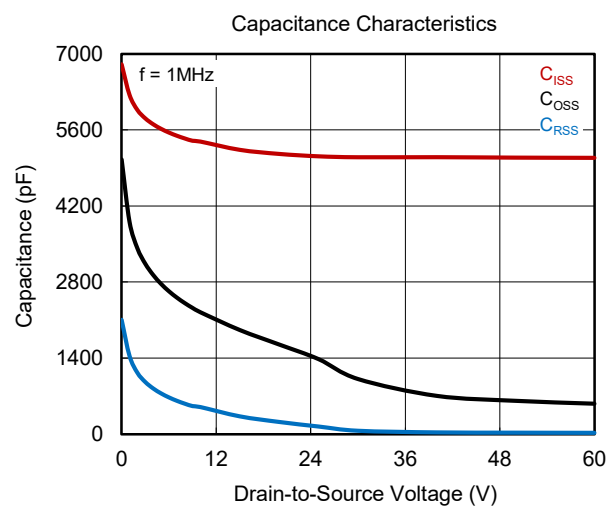
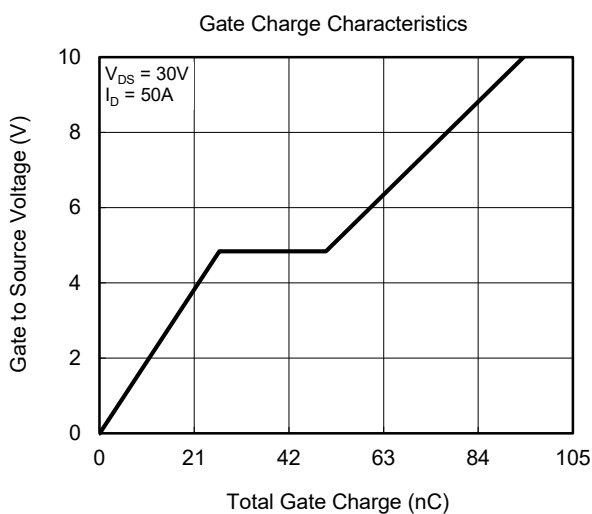
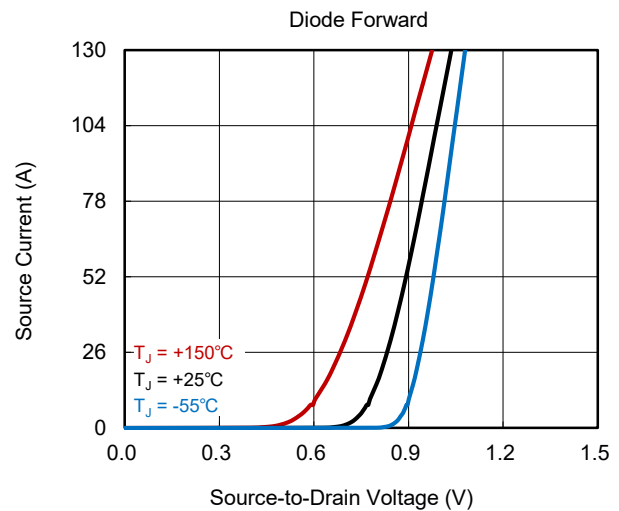
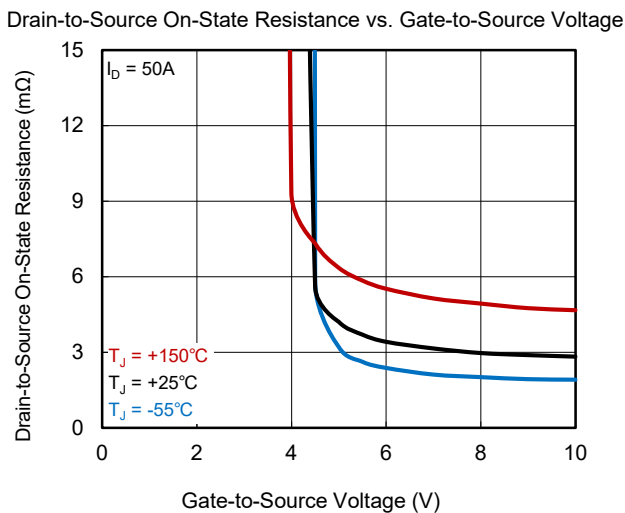
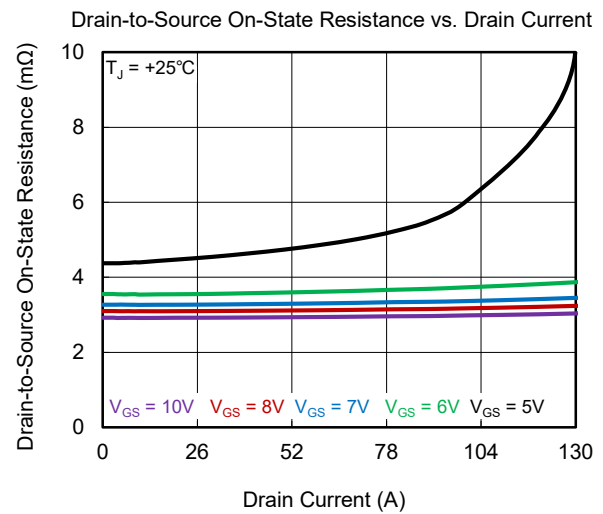
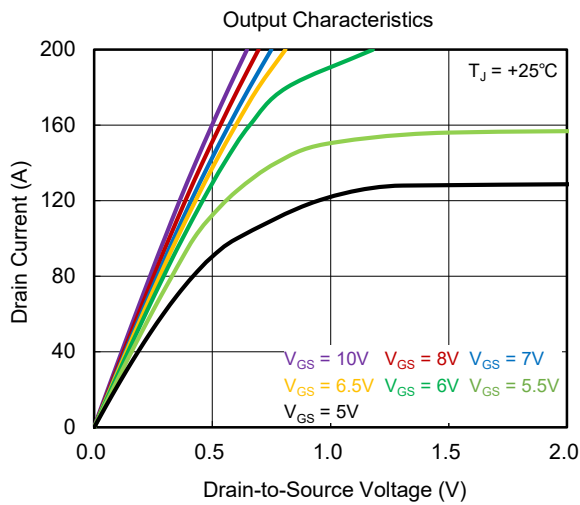
NOTE: 1. $R_{\theta JA}$ is determined with the device mounted on one square inch of copper pad, 2oz copper on FR4 board.

ELECTRICAL CHARACTERISTICS

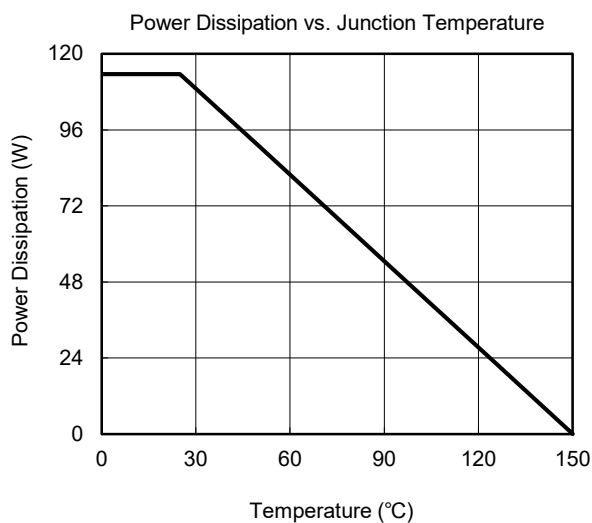
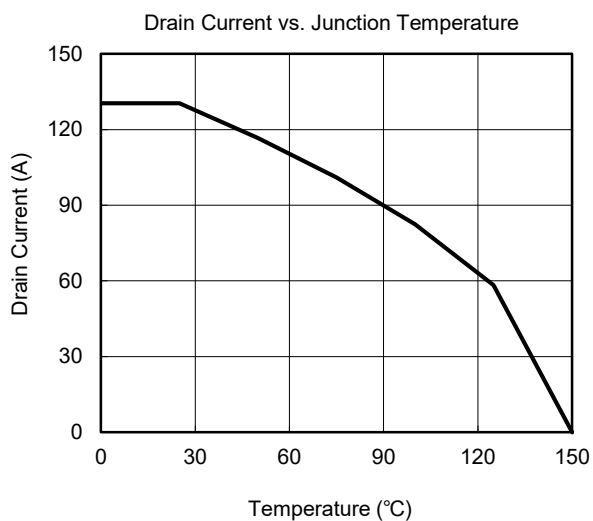
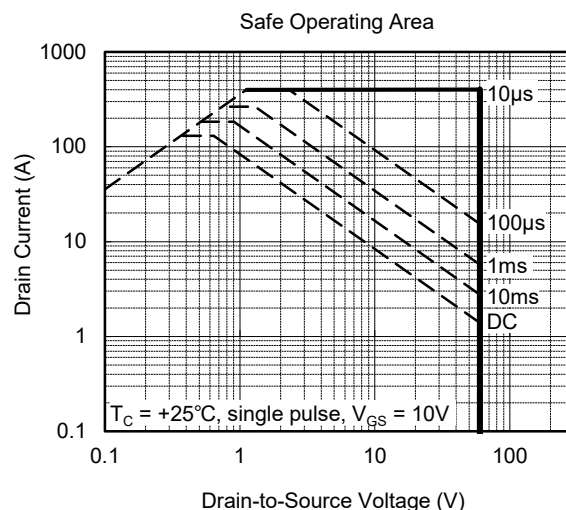
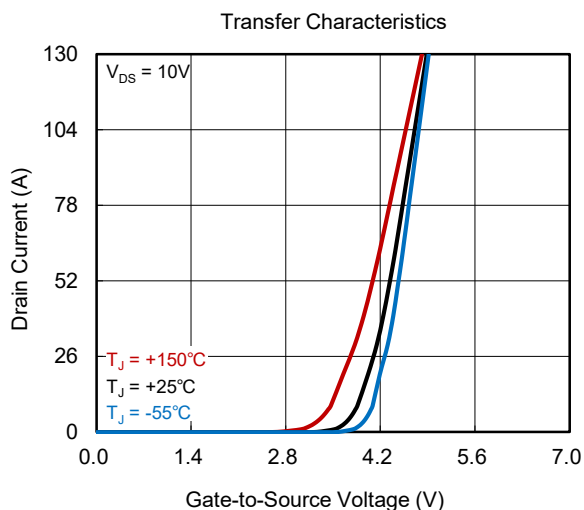
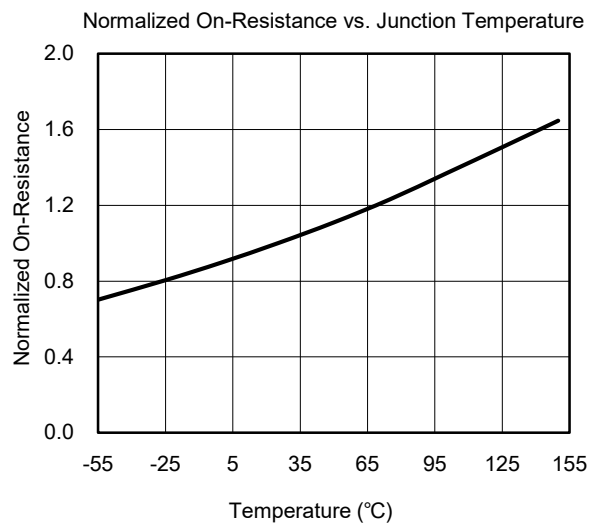
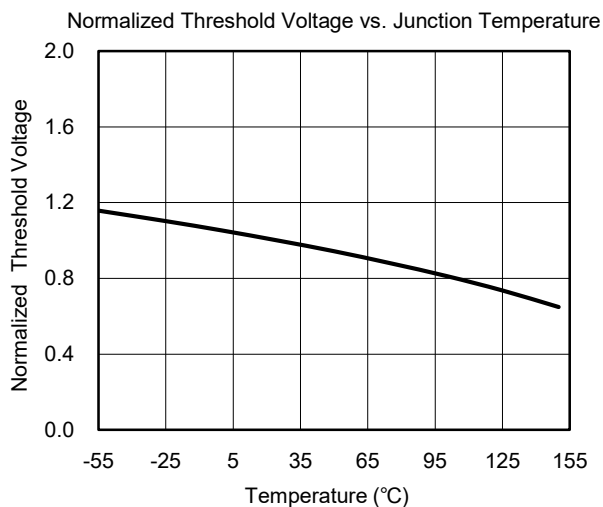
(T_A = +25°C, unless otherwise noted.)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Static OFF Characteristics						
Drain-to-Source Breakdown Voltage	V _{BR_DSS}	V _{GS} = 0V, I _D = 250μA	60			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{GS} = 0V, V _{DS} = 48V			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	2	2.8	4	V
Drain-to-Source On-State Resistance	R _{DS(ON)}	V _{GS} = 10V, I _D = 50A		2.8	3.5	mΩ
Forward Transconductance	g _{fs}	V _{DS} = 5V, I _D = 30A		48		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 = 50A		0.95	1.4	V
Reverse Recovery Time	t _{RR}	V _{GS} = 0V, I _S = 50A, di/dt = 100A/μs		68		ns
Reverse Recovery Charge	Q _{RR}			122		nC
Dynamic Characteristics						
Input Capacitance	C _{ISS}	V _{GS} = 0V, V _{DS} = 30V, f = 1MHz		5065		pF
Output Capacitance	C _{OSS}			1056		
Reverse Transfer Capacitance	C _{RSS}			66		
Total Gate Charge	Q _G	V _{GS} = 10V, V _{DS} = 30V, I _D = 50A		94		nC
Gate-to-Source Charge	Q _{GS}			26		
Gate-to-Drain Charge	Q _{GD}			23		
Switch Characteristics						
Turn-On Delay Time	t _{D_ON}	V _{GS} = 10V, V _{DS} = 30V, I _D = 50A, R _G = 3Ω		19		ns
Rise Time	t _r			72		
Turn-Off Delay Time	t _{D_OFF}			48		
Fall Time	t _f			63		

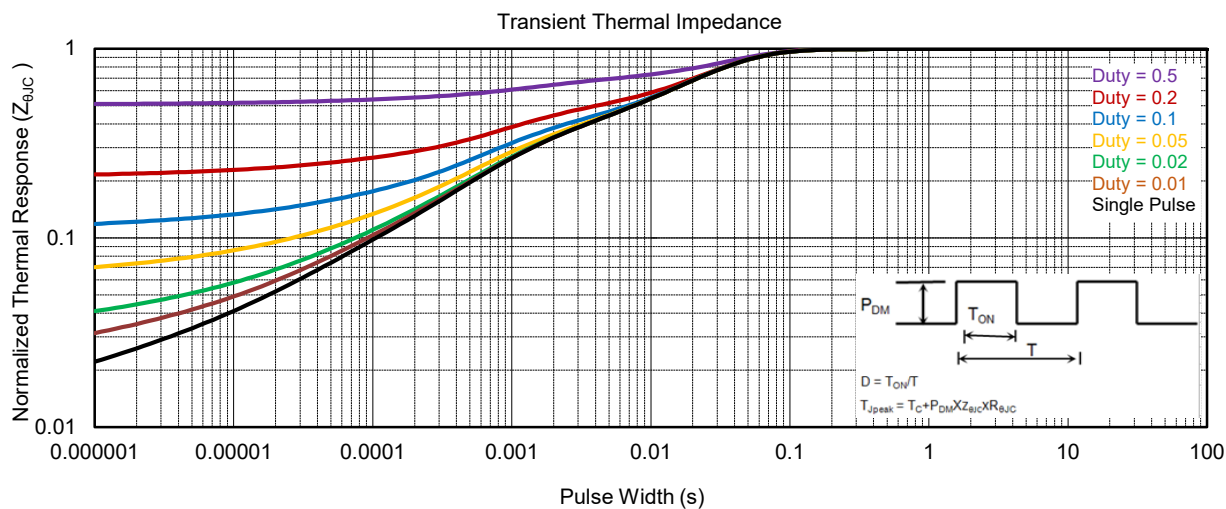
TYPICAL PERFORMANCE CHARACTERISTICS



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.

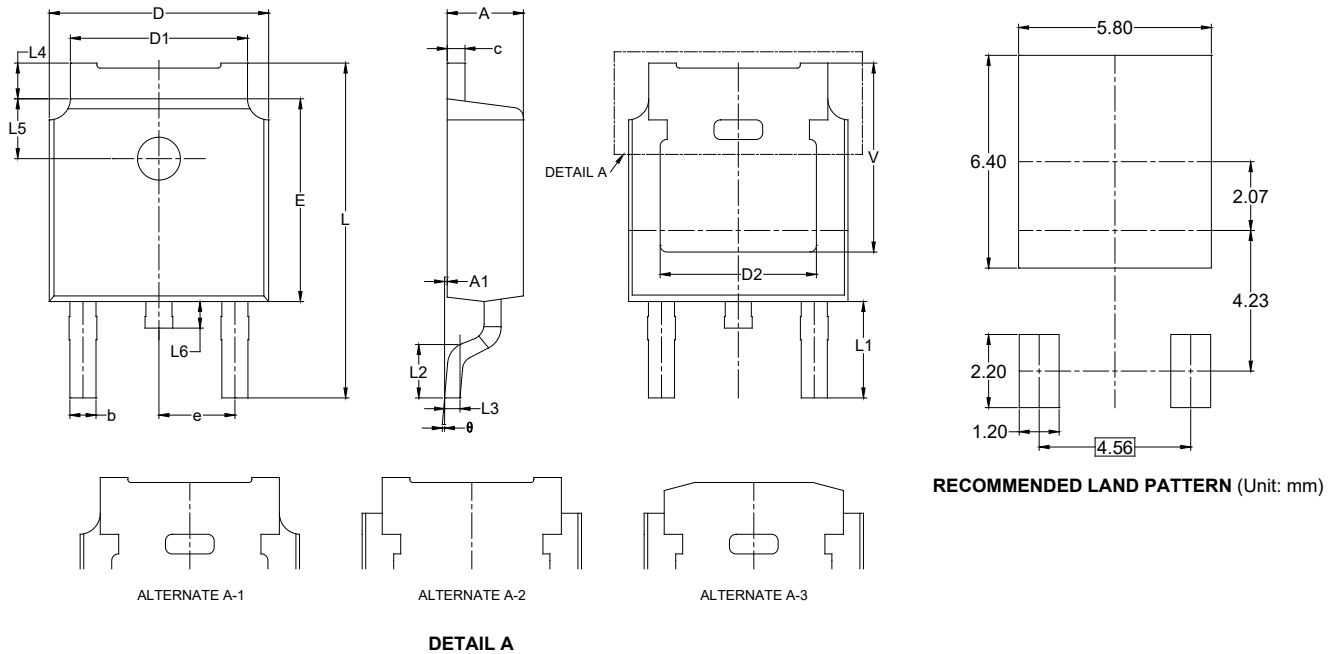
Changes from Original to REV.A (AUGUST 2025)

Page

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

PACKAGE OUTLINE DIMENSIONS

TO-252-2A



Symbol	Dimensions In Millimeters		
	MIN	NOM	MAX
A	2.184	-	2.388
A1	0.000	-	0.127
b	0.635	-	0.889
c	0.457	-	0.889
D	6.350	-	6.731
D1	4.953	-	5.461
D2	4.318	-	5.500
E	5.969	-	6.223
e	2.286 BSC		
L	9.398	-	10.414
L1	2.900 REF		
L2	1.397	-	1.778
L3	0.508 BSC		
L4	0.889	-	1.270
L5	1.800 REF		
L6	0.600	-	1.106
V	5.150	-	5.650
θ	0°	-	10°

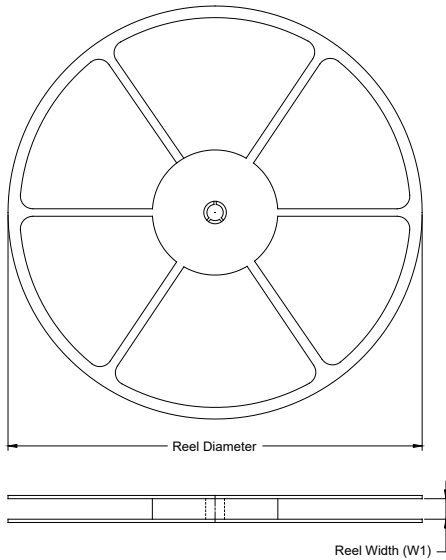
NOTES:

1. This drawing is subject to change without notice.
2. The dimensions do not include mold flashes, protrusions or gate burrs.
3. Reference JEDEC TO-252.

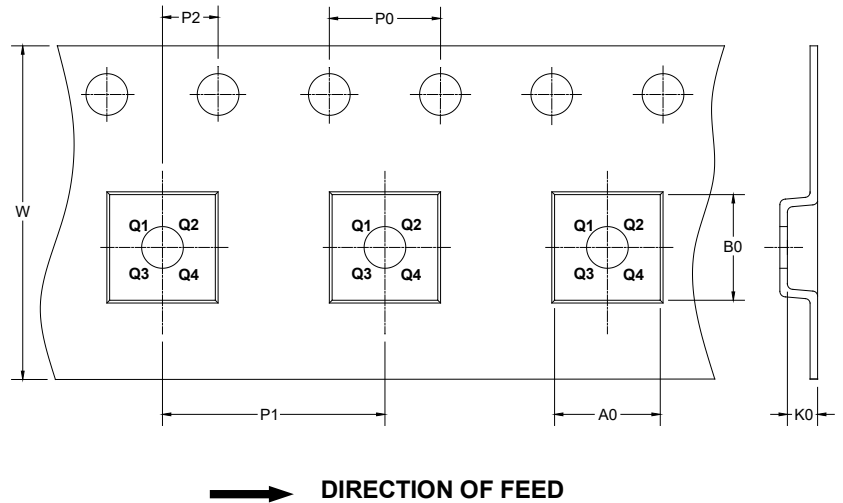
PACKAGE INFORMATION

TAPE AND REEL INFORMATION

REEL DIMENSIONS

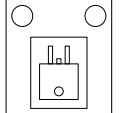


TAPE DIMENSIONS



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

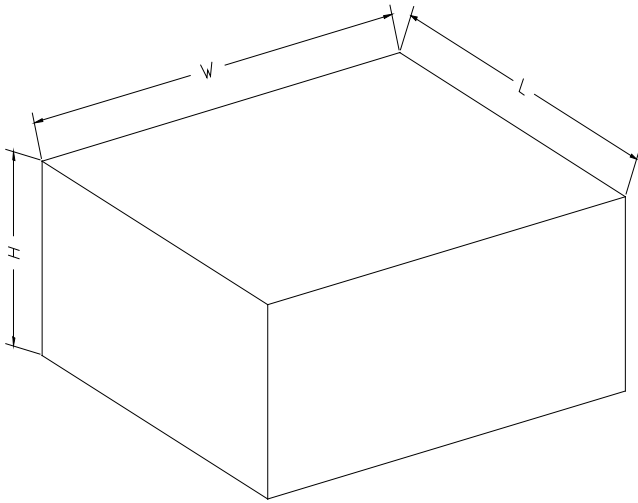
KEY PARAMETER LIST OF TAPE AND REEL

Package Type	Reel Diameter	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P0 (mm)	P1 (mm)	P2 (mm)	W (mm)	Pin1 Quadrant
TO-252-2A	13"	16.4	6.90	10.50	2.70	4.0	8.0	2.0	16.0	

DP0001

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