SZCJ

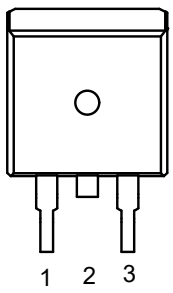
Shenzhen Changji Semiconductor Co., LTD.

TO-263-2L-B Plastic-Encapsulate MOSFETS

CJB3R5SN10MS N-Channel Power MOSFET

$V_{(BR)DSS}$	$R_{DS(on)}$TYP	I_D
100V	2.9mΩ@10V	200A

TO-263-2L-B



1. GATE
2. DRAIN
3. SOURCE

1 2 3

DESCRIPTION

The N-channel Power MOSFET uses shielded gate trench technology and design to provide excellent $R_{DS(ON)}$ with low gate charge.It can be used in a wide variety of applications.

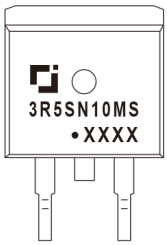
FEATURES

- Low $R_{DS(on)}$
- Low Gate Charge

APPLICATIONS

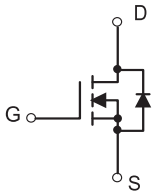
- High efficiency power supply
- Secondary synchronus rectifier

MARKING



3R5SN10MS = Device code.
Solid dot = Green molding compound device, if none, the normal device.
XXXX = Code.

EQUIVALENT CIRCUIT



MAXIMUM RATINGS (T_J=25℃ unless otherwise noted)

Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V_{DS}	100	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_C =25℃	I_D ①	200	A
	T_C =100℃		126	A
Pulsed Drain Current		I_{DM}①②	800	A
Continuous Drain Current	T_A =25℃	I_D ⑥	18	A
	T_A =75℃		14	A
Single Pulsed Avalanche Energy		E_{AS} ③	625	mJ
Power Dissipation		P_D ①	250	W
Operating Junction and Storage Temperature Range		T_J ,T_{stg}	-55~+150	℃

Thermal Characteristics

Parameter	Symbol	Typ	Max	Unit
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$ ⑥	39	59	℃/W
Thermal Resistance from Junction to Case	$R_{\theta JC}$ ①	0.33	0.5	℃/W

MOSFET ELECTRICAL CHARACTERISTICS

T_J=25℃ unless otherwise specified

Parameter	Symbol	Test Condition		Min	Typ	Max	Unit
Off characteristics							
Drain-source breakdown voltage	$V_{(BR)\ DSS}$	V_{GS} = 0V, I_D =250μA		100	-	-	V
Zero gate voltage drain current	I_{DSS}	V_{DS} =100V, V_{GS} =0V	T_J=25℃	-	-	1.0	μA
			T_J=125℃	-	-	100	μA
Gate-body leakage current	I_{GSS}	V_{DS} =0V, V_{GS} =±20V		-	-	±100	nA
On characteristics ④							
Gate-threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250uA		2.4	3.0	3.6	V
Static drain-source on-sate resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =50A		-	2.9	3.5	mΩ
Dynamic characteristics ⑤							
Input capacitance	C_{iss}	V_{DS} =50V,V_{GS} =0V, f =100KHz		-	7320	-	pF
Output capacitance	C_{oss}			-	940	-	
Reverse transfer capacitance	C_{rss}			-	50	-	
Gate resistance	R_g	f =1MHz		-	1.0	-	Ω
Switching characteristics ⑤							
Total gate charge	Q_g	V_{GS}=10V, V_{DS}=50V, I_D=50A		-	122	-	nC
Gate-source charge	Q_{gs}			-	32	-	
Gate-drain charge	Q_{gd}			-	35	-	
Turn-on delay time	$t_{d(on)}$	V_{DS}=50V,I_D=50A, V_{GS}=10V,R_G=6Ω		-	22	-	ns
Turn-on rise time	t_r			-	14	-	
Turn-off delay time	$t_{d(off)}$			-	36	-	
Turn-off fall time	t_f			-	10	-	
Drain-Source Diode Characteristics							
Drain-source diode forward voltage	V_{SD} ④	V_{GS} =0V, I_S=50A		-	-	1.2	V
Continuous drain-source diode forward current	I_S ①			-	-	200	A
Pulsed drain-source diode forward current	I_{SM} ①②			-	-	800	A
Reverse recovery time	trr	di_S/dt = 600A/μs, I_S = 50A, V_{DD} = 50V		-	40	-	ns
Reverse recovery charge	Qrr			-	478	-	nC

Notes:

1.T_C=25℃ Limited only by maximum temperature allowed.

2.P_W≤10μs, Duty cycle≤1%.

3.EAS condition: V_{DD}=50V,V_{GS}=10V, L=0.5mH, R_g=25Ω Starting T_J = 25℃.

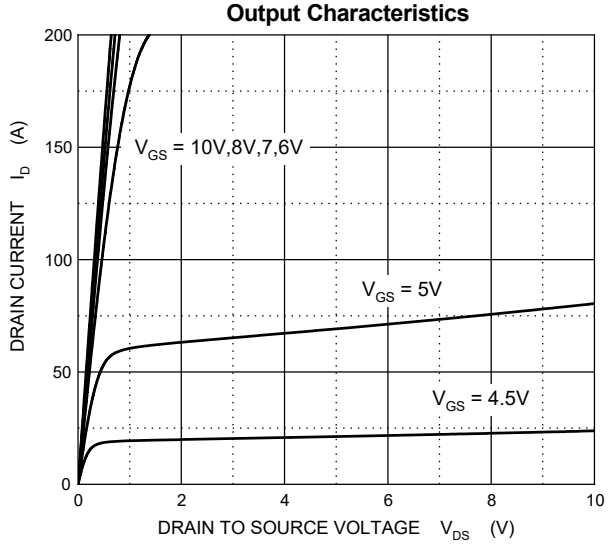
4.Pulse Test : Pulse Width≤300μs, duty cycle ≤2%.

5.Guaranteed by design, not subject to production.

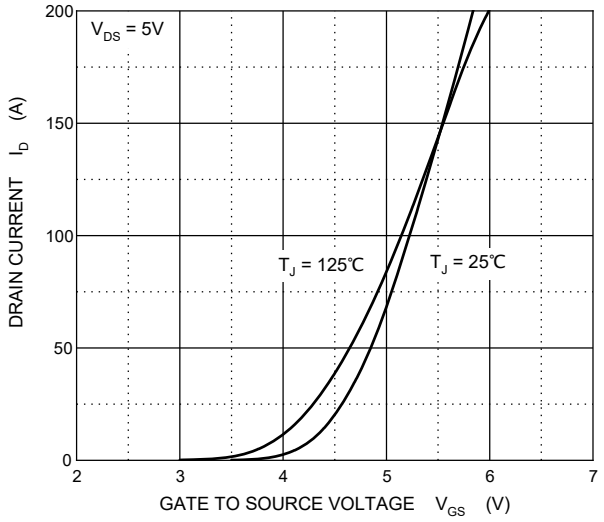
6.Device mounted on 1 in^2 FR-4 board with 2oz. double-sided Copper, in a still air environment with T_A=25℃.

Typical Characteristics (T_J = 25℃, unless otherwise specified)

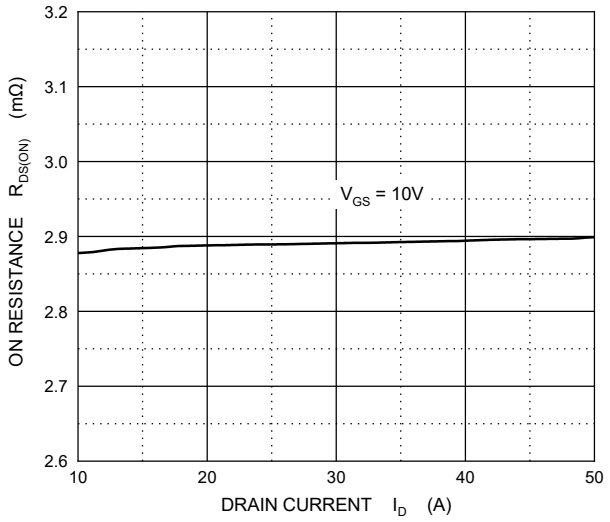
Output Characteristics



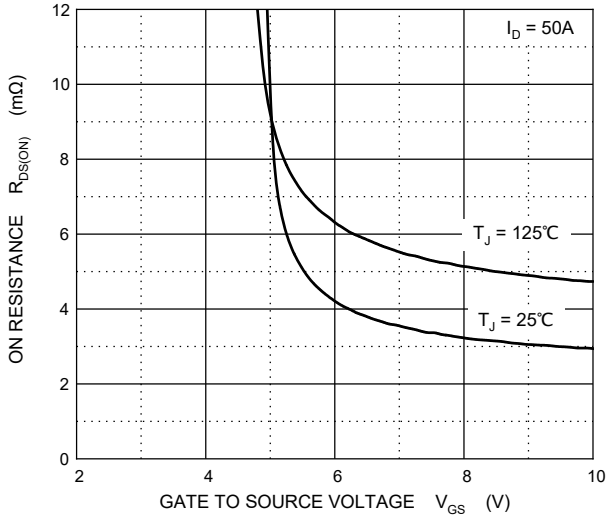
Transfer Characteristics



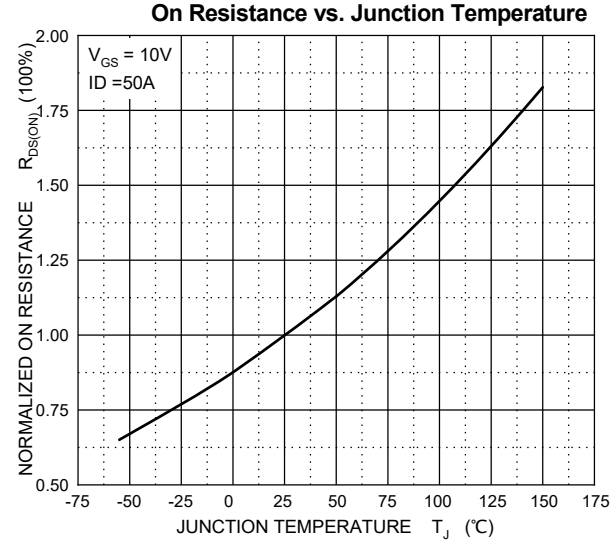
On Resistance vs. Drain Current



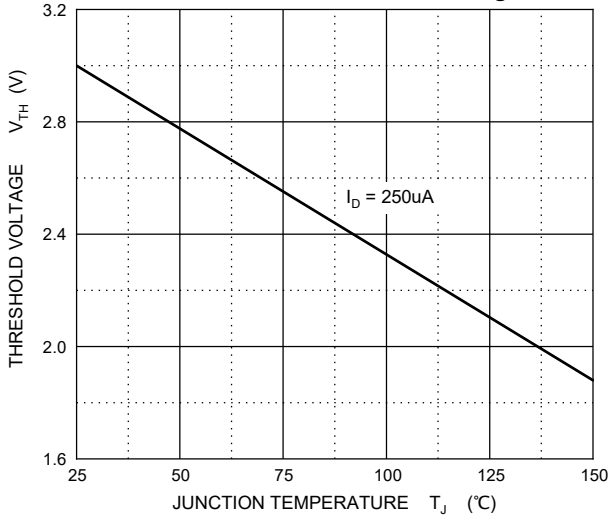
On Resistance vs. Gate-Source Bias



On Resistance vs. Junction Temperature

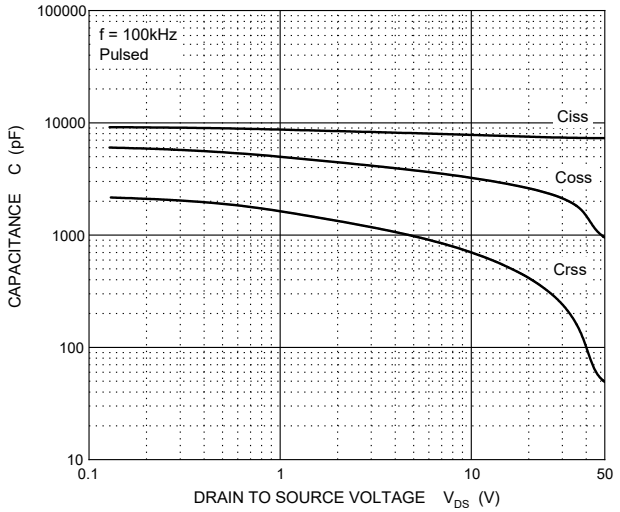


Gate-Source Threshold Voltage

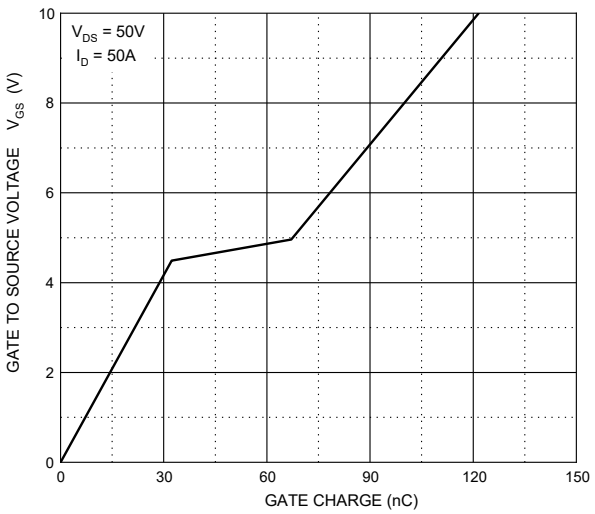


Typical Characteristics (T_J = 25℃, unless otherwise specified)

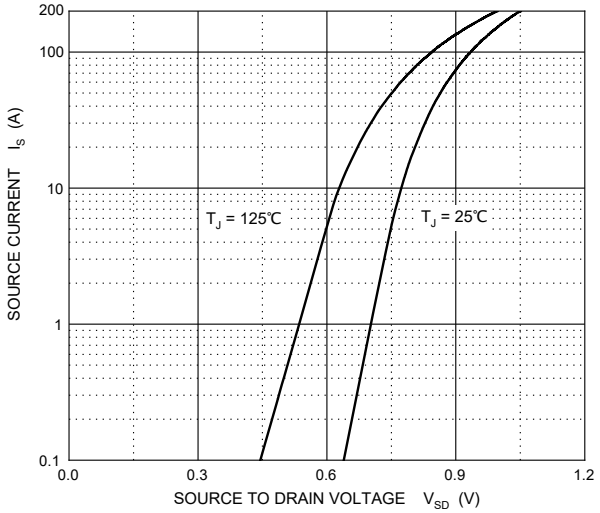
Typical Capacitances



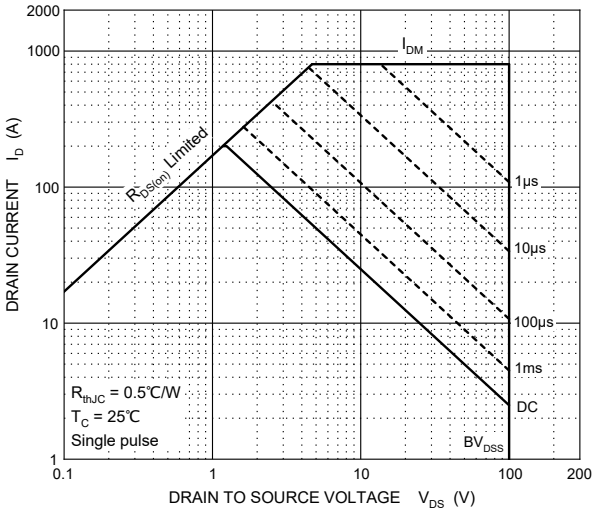
Gate Charge



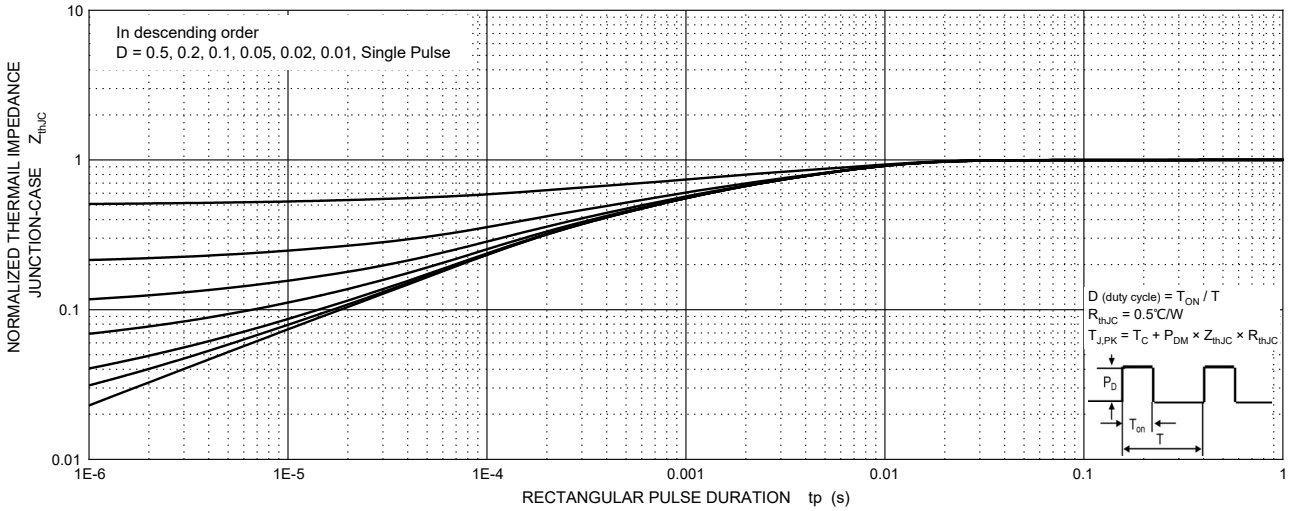
Source-Drain Diode Forward Characteristics



Maximum Safe Operating Area

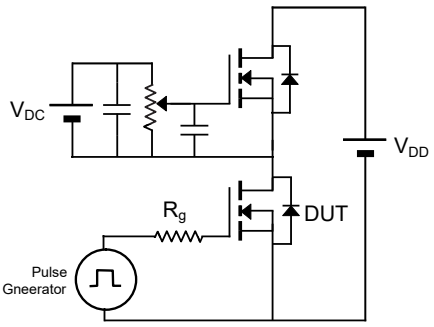


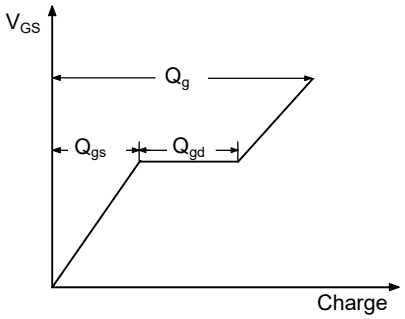
Transient Thermal Impedance, Junction-Case



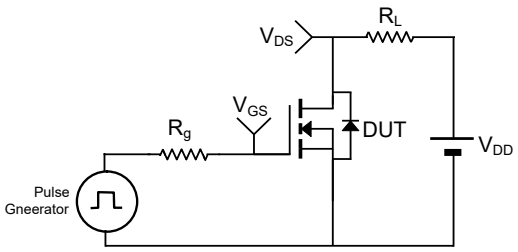
TEST CIRCUIT AND WAVEFOMRS

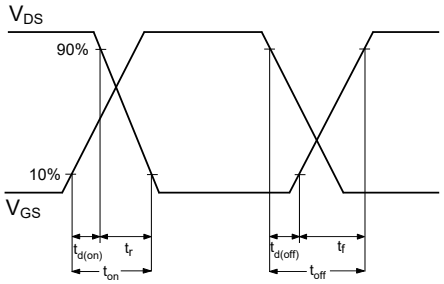
Gate Charge



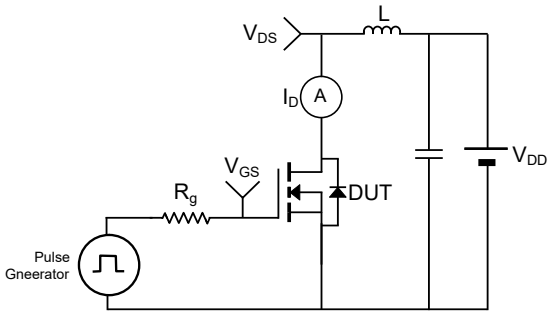


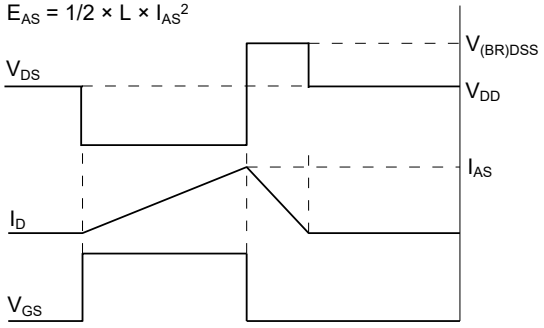
Resistive Load Switching Time



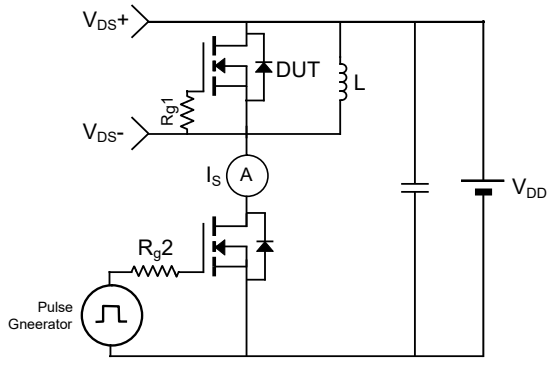


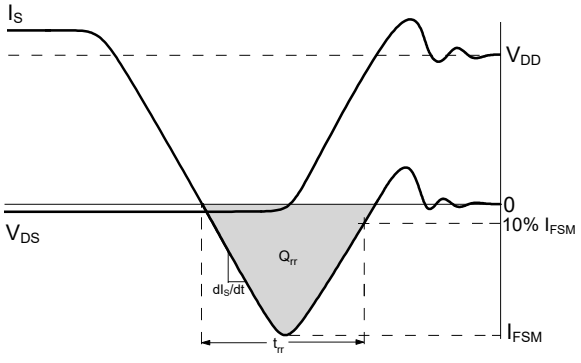
Un-clamped Inductive Load Switching



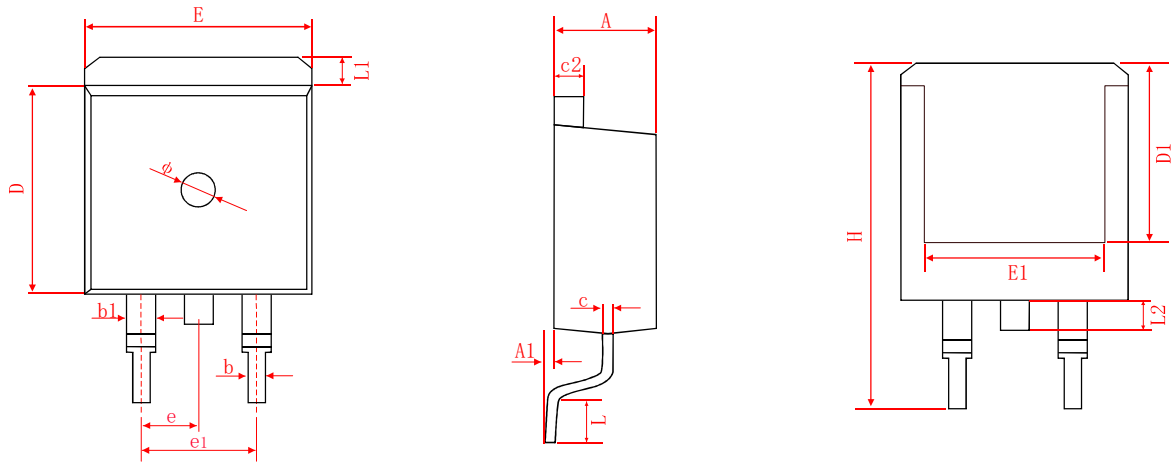


Drain-Source Body Diode Reverse Recovery



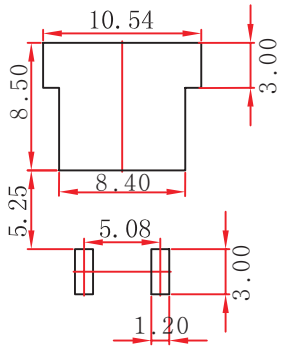


TO-263-2L-B Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	4.40	4.60	0.173	0.181
A1	0.00	0.20	0.000	0.008
b	0.70	0.90	0.028	0.035
b1	1.24	1.40	0.049	0.053
c	0.45	0.55	0.018	0.022
c2	1.25	1.35	0.049	0.053
D	9.10	9.30	0.358	0.366
D1	7.900 TYP.		0.311 TYP.	
e	2.540 TYP.		0.100 TYP.	
e1	5.080 TYP.		0.200 TYP.	
E	9.88	10.15	0.389	0.400
E1	7.85	8.15	0.309	0.321
H	15.00	15.30	0.591	0.602
L	2.10	2.36	0.083	0.093
L1	1.12	1.42	0.044	0.056
L2	1.10	1.50	0.043	0.059
Φ	1.500 TYP.		0.059 TYP.	

TO-263-2L Suggested Pad Layout



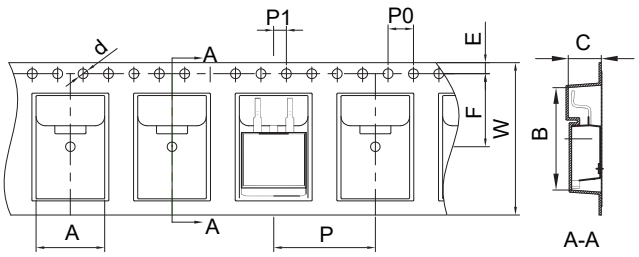
Note:
1.Controlling dimension: in millimeters.
2.General tolerance:±0.05 mm.
3.The pad layout is for reference purposes only.

NOTICE

SZCJ reserves the right to make modifications,enhan nts,improvements,corrections or other es without further notice to any product herein. SZCJ does not assume any liability arising out of the application or use of any product described h

TO-263-2L Tape and Reel

TO-263-2L Embossed Carrier Tabe

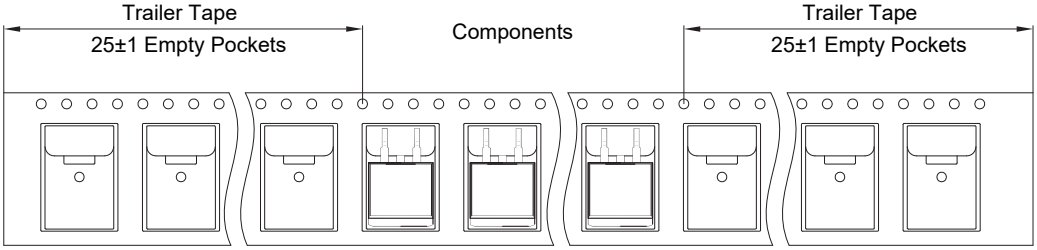


Packaging Description:

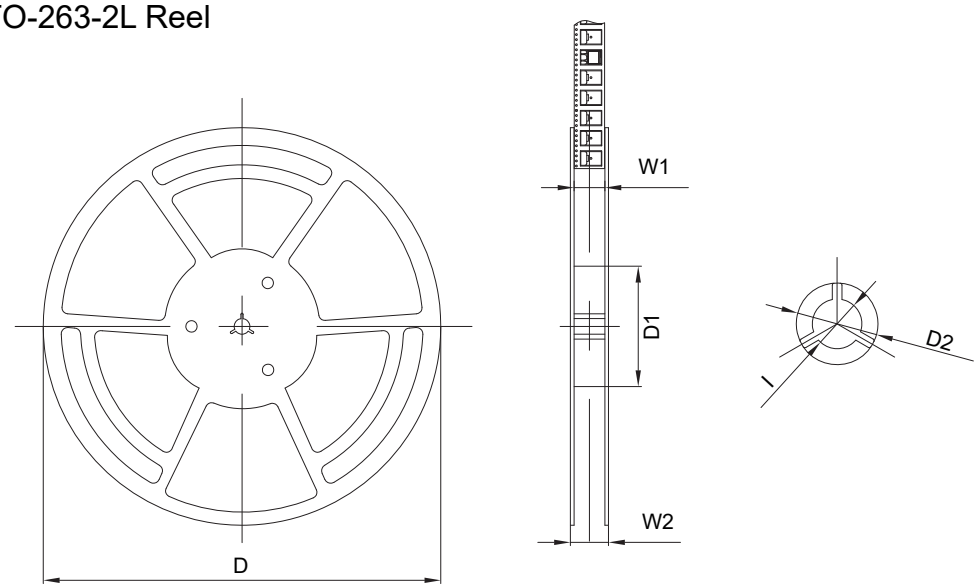
TO-263-2L parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Hear Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 800 units per 13″ or 33.0 cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
TO-263	10.80	16.13	5.21	Φ1.55	1.75	11.50	4.00	16.00	2.00	24.00

TO-263-2L Tape Leader and Trailer



TO-263-2L Reel



Dimensions are in millimeter						
Reel	D	D1	D2	W1	W2	I
13" Dia	330.00	100.00	Φ21.00	24.40	30.40	Φ13.00

Reel	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)
800 pcs	13 inch	1600 pcs	360×360×65	8000 pcs	378×358×382