SZCJ

Shenzhen Changji Semiconductor Co., LTD.

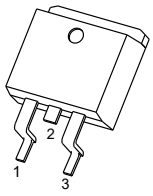
JSCJ

TO-263-2L Plastic-Encapsulate MOSFETS

CJB120SN08H N-Channel Power MOSFET

$V_{(BR)DSS}$	$R_{DS(on)}$TYP	I_D
85V	5.1mΩ@10V	120A

TO-263-2L



1. GATE
2. DRAIN
3. SOURCE

DESCRIPTION

The CJB120SN08H 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.

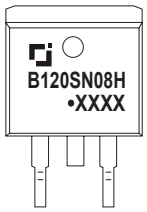
FEATURES

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

APPLICATIONS

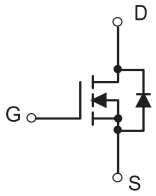
- High efficiency power supply
- Secondary synchronus rectifier

MARKING



B120SN08H = Device code.
Solid dot = Green molding compound device, if none, the normal device.
XXXX = Code.

EQUIVALENT CIRCUIT



ABSOLUTE MAXIMUM RATINGS (T_J=25℃ unless otherwise specified)

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	85	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_C =25℃	I_D	120	A
	T_C =100℃		76	
Pulsed Drain Current		I_{DM}①②	480	A
Continuous Drain Current	T_A =25℃	I_D	14.5	A
	T_A =75℃		11.2	
Avalanche Current		I_{AS}③	41	A
Single Pulsed Avalanche Energy		E_{AS}③	420	mJ
Power Dissipation		P_D①	227	W
Operating Junction and Storage Temperature Range		T_J,T_{stg}	-55~+150	℃

Thermal Characteristics

Parameter	Symbol	Value		Unit
		Typ	Max	
Thermal Resistance from Junction to Case	$R_{\theta JC}$	0.37	0.55	℃/W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$⑤	36	50	℃/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 =1mA		85	-	-	V
Zero gate voltage drain current	I_{DSS}	V_{DS} =80V, V_{GS} =0V	T_J =25℃	-	-	1.0	μA
			T_J =125℃	-	-	100	
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 =250μA		2	2.8	4	V
Static drain-source on-sate resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =50A			5.1	6.1	mΩ
Dynamic characteristics							
Input capacitance	C_{iss}	V_{DS} =40V,V_{GS} =0V, f =100kHz		-	2453	-	pF
Output capacitance	C_{oss}			-	597	-	
Reverse transfer capacitance	C_{rss}			-	10	-	
Gate resistance	R_g	f =1MHz		-	3	-	Ω
Switching characteristics							
Total gate charge	Q_g	V_{GS}=4.5V, V_{DS}=40V, I_D=50A		-	19.5	-	nC
Total gate charge	Q_g	V_{GS}=10V, V_{DS}=40V, I_D=50A		-	38.6	-	
Gate-source charge	Q_{gs}			-	9.1	-	
Gate-drain charge	Q_{gd}			-	9.2	-	
Turn-on delay time	$t_{d(on)}$	V_{DS}=40V, VGS=10V, R_L=2.63Ω , Rg=10Ω		-	54	-	ns
Turn-on rise time	t_r			-	54	-	
Turn-off delay time	$t_{d(off)}$			-	228	-	
Turn-off fall time	t_f			-	108	-	
Drain-Source Diode Characteristics							
Drain-source diode forward voltage	V_{SD} ④	V_{GS} =0V, I_S=20A		-	-	1.4	V
Continuous drain-source diode forward current	I_S ①			-	-	120	A
Pulsed drain-source diode forward current	I_{SM} ①②			-	-	480	A
Reverse recovery time	trr	di_S/dt = 500A/μs, I_S = 20A, V_{DD} = 30V		-	74	-	ns
Reverse recovery charge	Qrr			-	380	-	nC

Notes:

1.T_C=25°℃.

2.Limited only by maximum temperature allowed.

3.V_{DD}=40V,V_{GS}=10V, L=0.5mH, Rg=25Ω Starting T_J= 25℃.

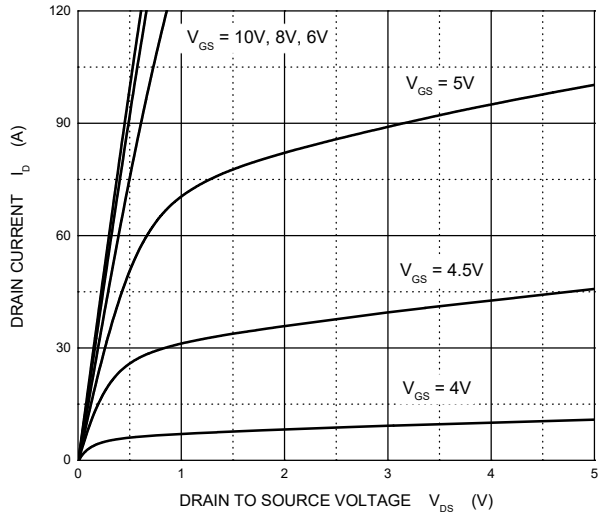
4.Pulse Test : Pulse Width≤380μs, duty cycle ≤2%.

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

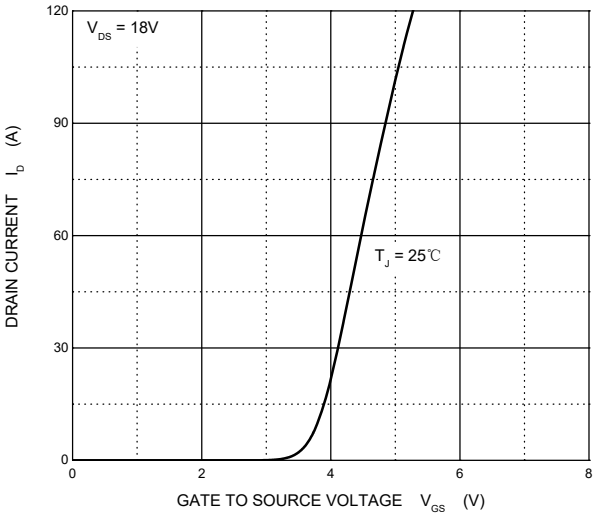
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Typical Characteristics (T_J = 25℃, unless otherwise specified)

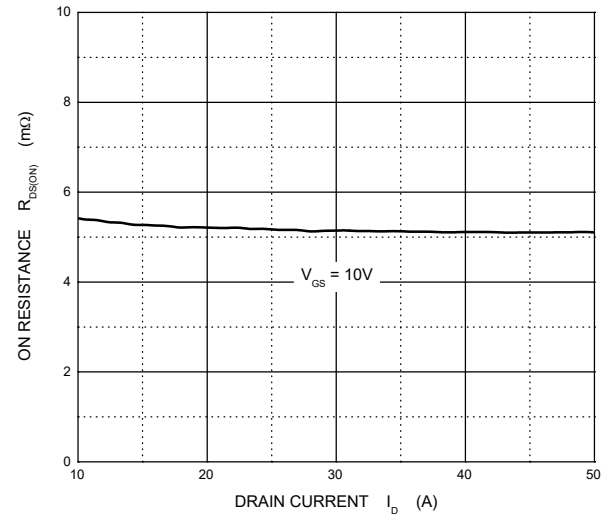
Output Characteristics



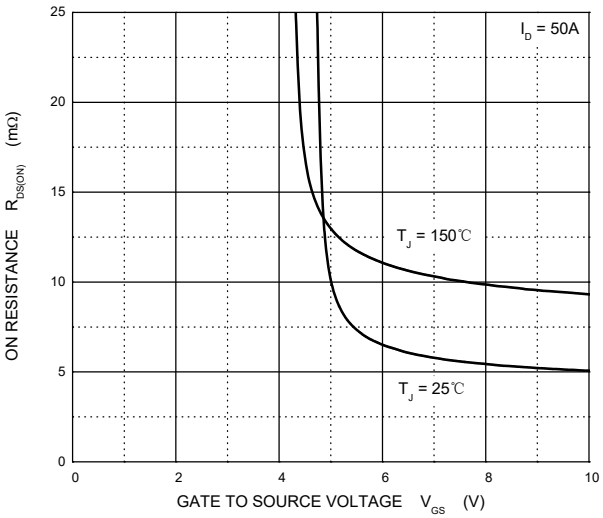
Transfer Characteristics



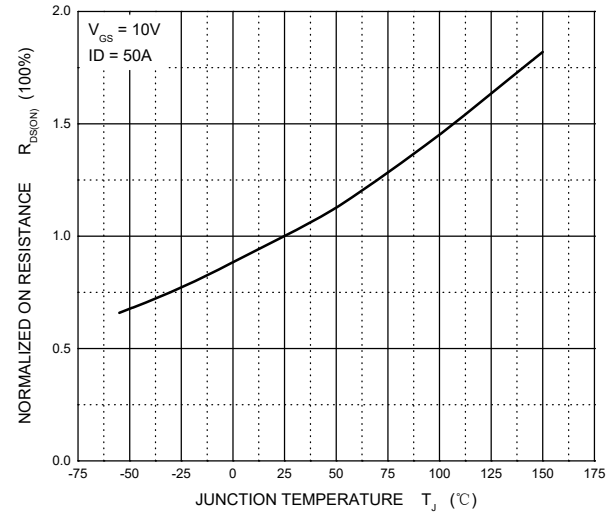
On Resistance vs. Drain Current



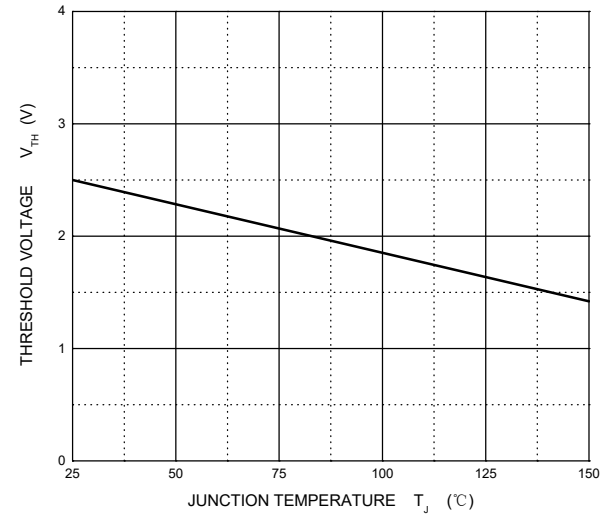
On Resistance vs. Gate-Source Bias



On Resistance vs. Junction Temperature



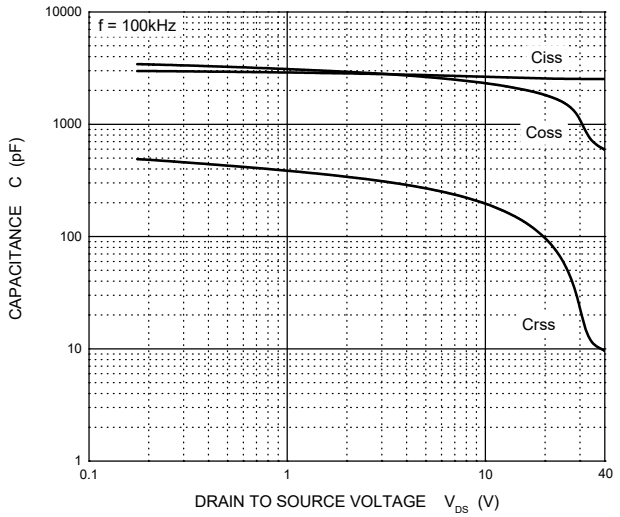
Gate-Source Threshold Voltage



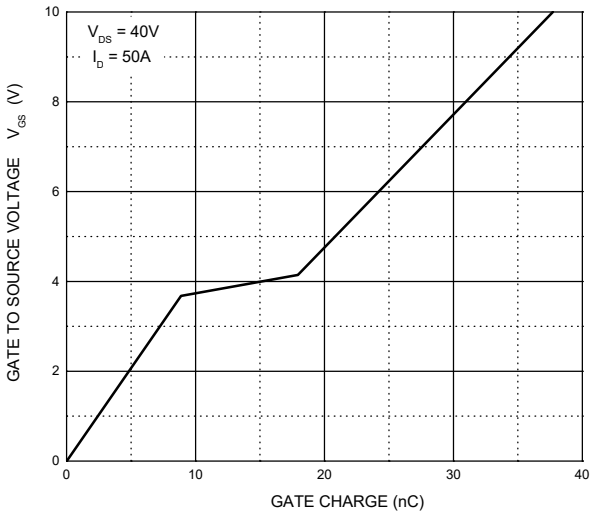
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Typical Characteristics (T_J = 25℃, unless otherwise specified)

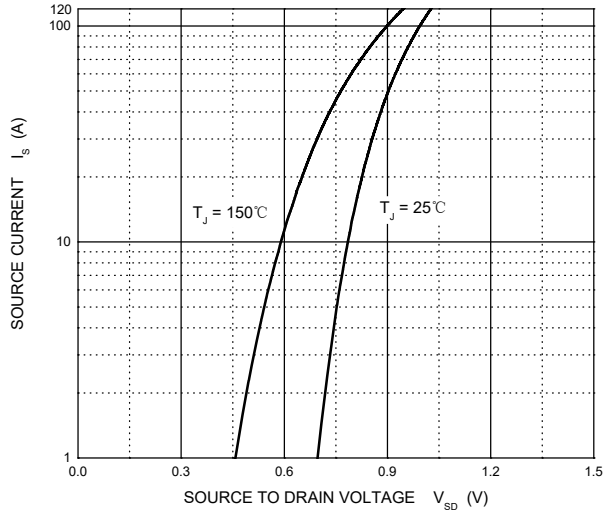
Typical Capacitances



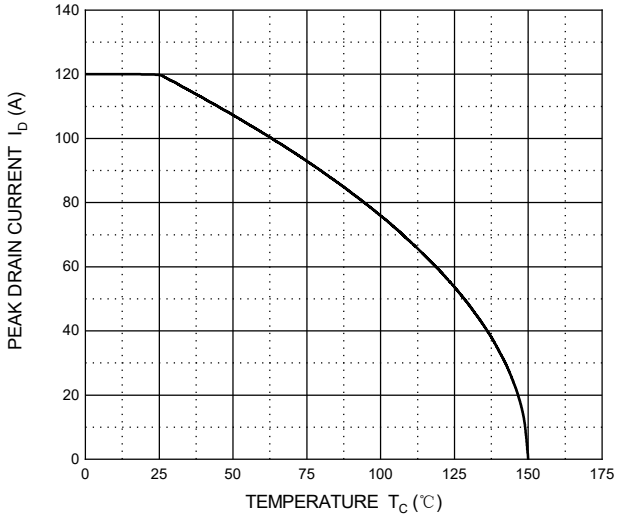
Gate Charge



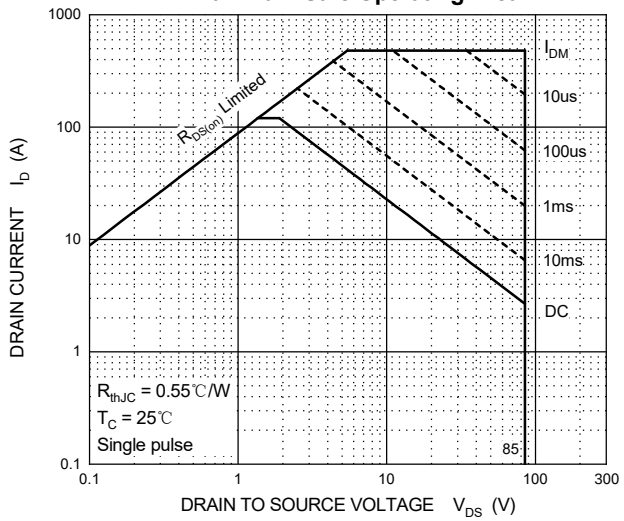
Source-Drain Diode Forward Characteristics



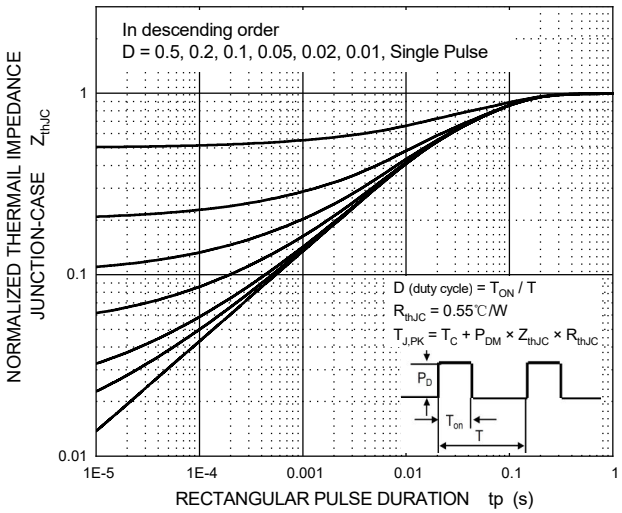
ID vs. TC



Maximum Safe Operating Area

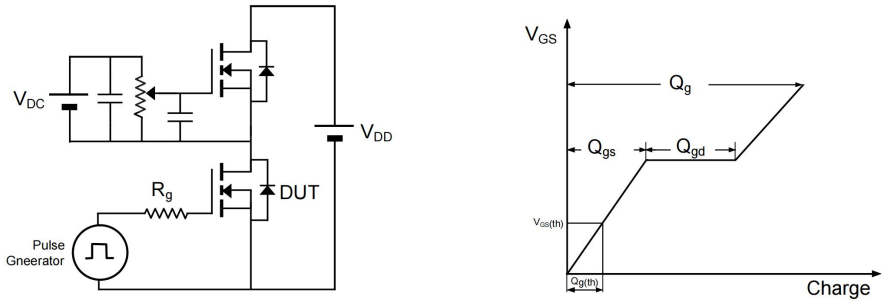


Transient Thermal Impedance, Junction-Case

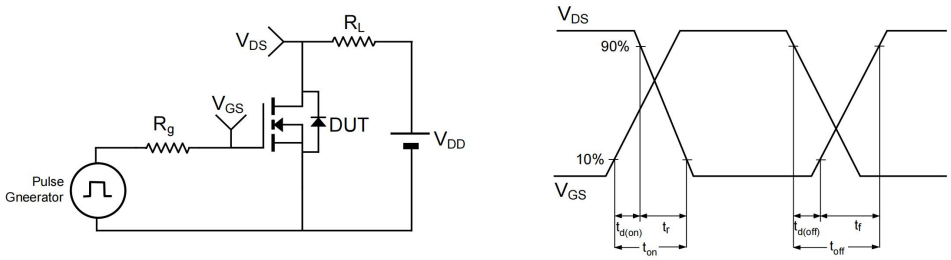


TEST CIRCUIT AND WAVEFOMRS

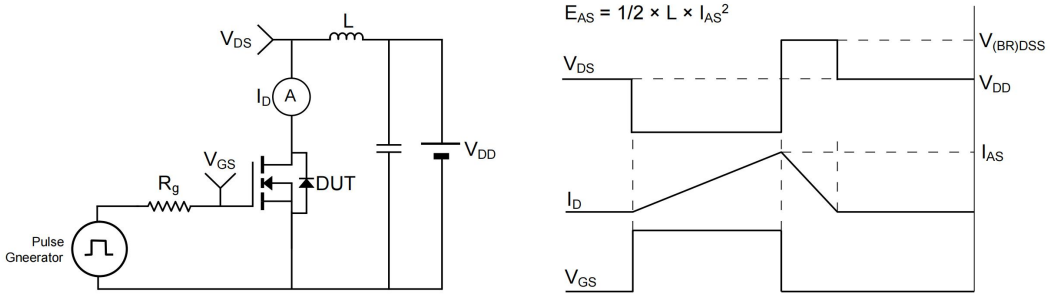
Gate Charge



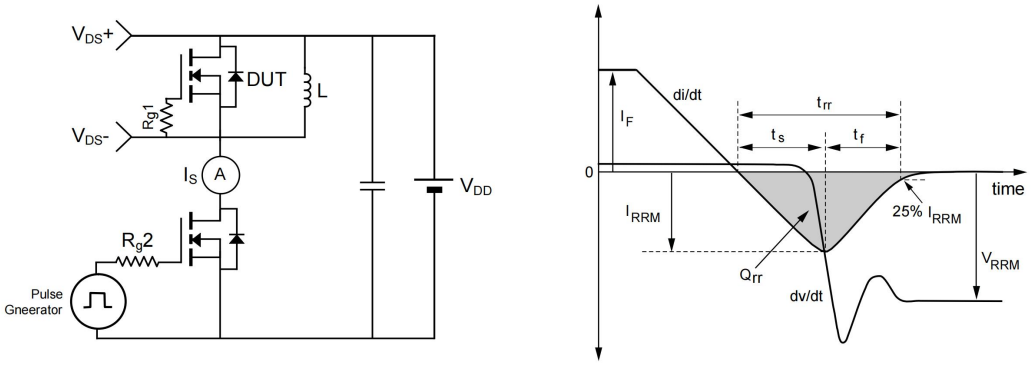
Resistive Load Switching Time



Un-clamped Inductive Load Switching

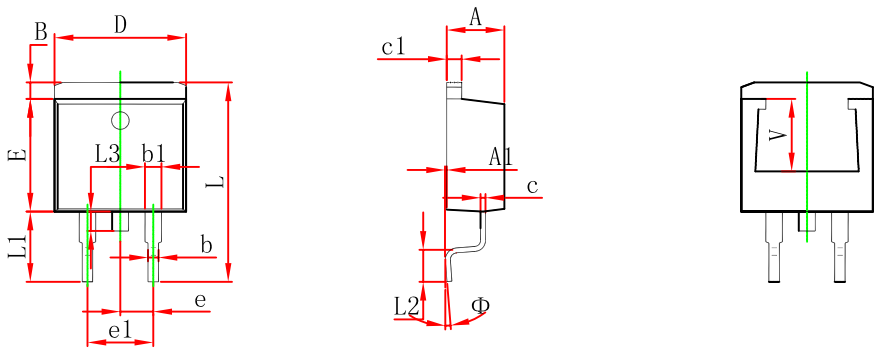


Drain-Source Body Diode Reverse Recovery



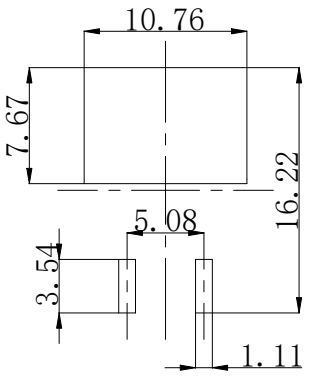
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TO-263-2L Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.470	4.670	0.176	0.184
A1	0.000	0.150	0.000	0.006
B	1.120	1.420	0.044	0.056
b	0.710	0.910	0.028	0.036
b1	1.170	1.370	0.046	0.054
c	0.310	0.530	0.012	0.021
c1	1.170	1.370	0.046	0.054
D	10.010	10.310	0.394	0.406
E	8.500	8.900	0.335	0.350
e	2.540 TYP.		0.100 TYP.	
e1	4.980	5.180	0.196	0.204
L	14.940	15.500	0.588	0.610
L1	4.950	5.450	0.195	0.215
L2	2.340	2.740	0.092	0.108
L3	1.300	1.700	0.051	0.067
Φ	0°	8°	0°	8°
V	5.600 REF.		0.220REF.	

TO-263-2L Suggested Pad Layout



Controlling dimension：in millimeters.

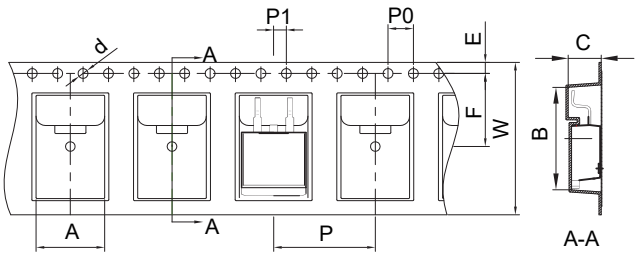
NOTICE

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TO-263-2L Tape and Reel

TO-263-2L Embossed Carrier Tabe

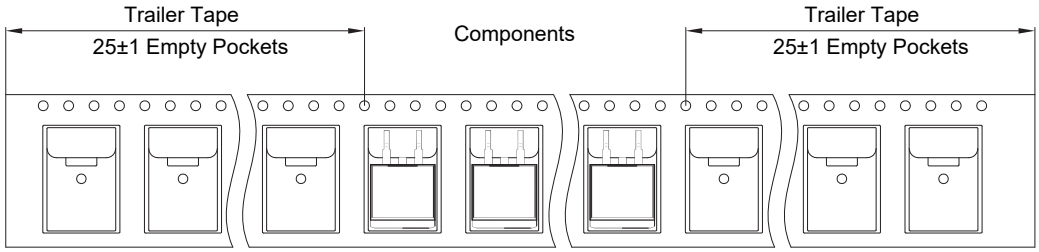


Packaging Description:

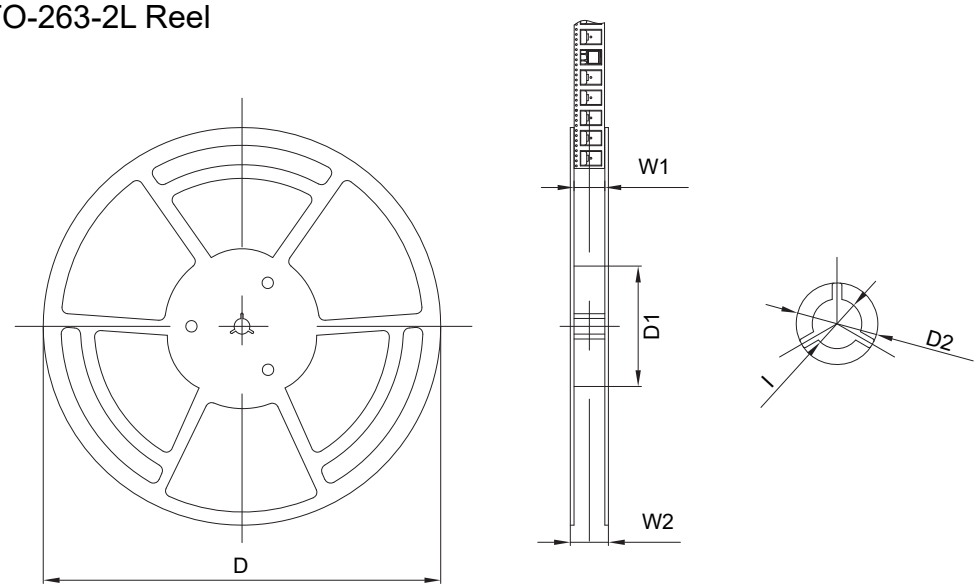
TO-263-2L parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Hear Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts 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