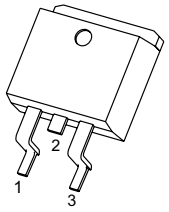
JIANGSU CHANGJIANG ELECTRONICS TECHNOLOGY CO., LTD

TO-263-2L Plastic-Encapsulate MOSFETS

CJB85N80 N-Channel Power MOSFET

$V_{(BR)DSS}$	$R_{DS(on)}$MAX	I_D
85V	8.5mΩ @10V	80A

TO-263-2L



1. GATE
2. DRAIN
3. SOURCE

DESCRIPTION

The CJB85N80 uses advanced trench technology and design to provide excellent $R_{DS(on)}$ with low gate charge. Good stability and uniformity with high E_{AS} .This device is suitable for use in PWM, load switching and general purpose applications.

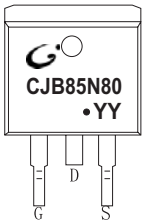
FEATURE

- Advanced trench process technology
- Special designed for convertors and power controls
- High density cell design for ultra low $R_{DS(on)}$
- Fully characterized avalanche voltage and current
- Fast switching
- Good stability and uniformity with high E_{AS}
- Excellent package for good heat dissipation
- Special process technology for high ESD capability

APPLICATION

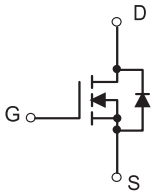
- Power switching application
- Hard switched and high frequency circuits
- Uninterruptible power supply

MARKING



CJB85N80= Device code
Solid dot = Green molding compound device, if none, the normal device
YY=Date Code

EQUIVALENT CIRCUIT



Maximum ratings (T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source voltage	V_{DS}	85	V
Gate-Source Voltage	V_{GS}	±20	
Continuous Drain Current	I_D	80	A
Pulsed Drain Current (note 1)	I_{DM}	320	
Power Dissipation (note 2 , T_a=25℃)	P_D	2	W
Maximum Power Dissipation (note 3 , T_c=25℃)		170	W
Single Pulsed Avalanche Energy (note 4)	E_{AS}	620	mJ
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	62.5	℃/W
Junction Temperature	T_j	150	℃
Storage Temperature	T_{stg}	-55 ~+150	

Notes 1. Repetitive Rating: Pulse width limited by maximum junction temperature

2. This test is performed with no heat sink at T_a=25℃.

3. This test is performed with infinite heat sink at T_c=25℃.

4. E_{AS} condition: T_j=25℃,V_{DD}=40V,V_{GS}=10V,L=0.5mH,R_g=25Ω.

Electrical characteristics (T_a=25℃ unless otherwise noted)

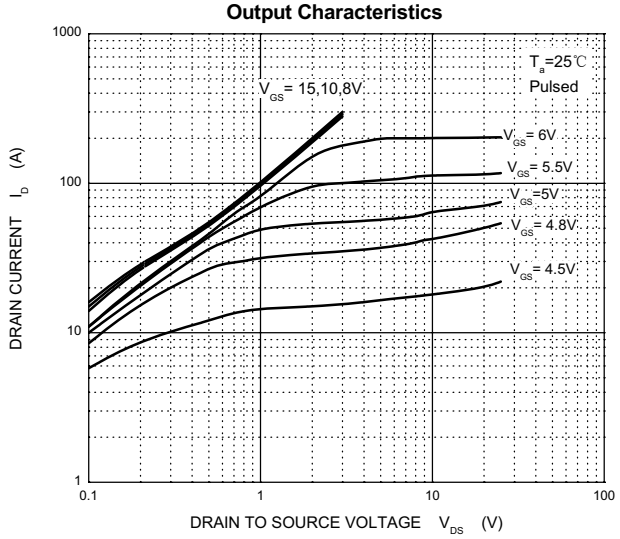
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static characteristics						
Drain-source breakdown voltage	BV_{DSS}	V_{GS} = 0, I_D =250μA	85			V
Gate-threshold voltage (note 1)	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	2.0	3.0	4.0	
Zero gate voltage drain current	I_{DSS}	V_{DS} =85V, V_{GS} =0			1	μA
Gate-body leakage current	I_{GSS}	V_{DS} =0, V_{GS} =±20V			±100	nA
Drain-source on-state resistance (note 1)	$R_{DS(on)}$	V_{GS} =10V, I_D =40A		6.8	8.5	mΩ
Forward transconductance (note 1)	g_{FS}	V_{DS} =10V, I_D =40A		60		S
Dynamic characteristics (note 2)						
Input capacitance	C_{iss}	V_{DS} =25V,V_{GS} =0,f =1MHz		4400		pF
Output capacitance	C_{oss}			340		
Reverse transfer capacitance	C_{rss}			260		
Switching characteristics (note 2)						
Turn-on delay time	$t_{d(on)}$	V_{DD}=30V, I_D=2A,R_L=15Ω, V_{GS}=10V,R_G=2.5Ω		18		ns
Rise time	t_r			12		
Turn-off delay time	$t_{d(off)}$			56		
Fall Time	t_f			15		
Total gate charge	Q_g	V_{DS} =30V,V_{GS} =10V,I_D =30A		100		nC
Gate-source charge	Q_{gs}			20		
Gate-drain charge	Q_{gd}			30		
Source-Drain Diode characteristics						
Diode forward current	I_S				80	A
Diode pulsed forward current	I_{SM}				320	A
Diode Forward voltage (note 1)	V_{SD}	V_{GS} =0, I_S=40A			1.2	V
Diode reverse recovery time (note 2)	t_{rr}	I_F=75A,di/dt=100A/μs			36	ns
Diode reverse recovery charge (note 2)	Q_{rr}				56	nC

Notes: 1. Pulse Test: Pulse Width≤300μs, duty cycle ≤2%.

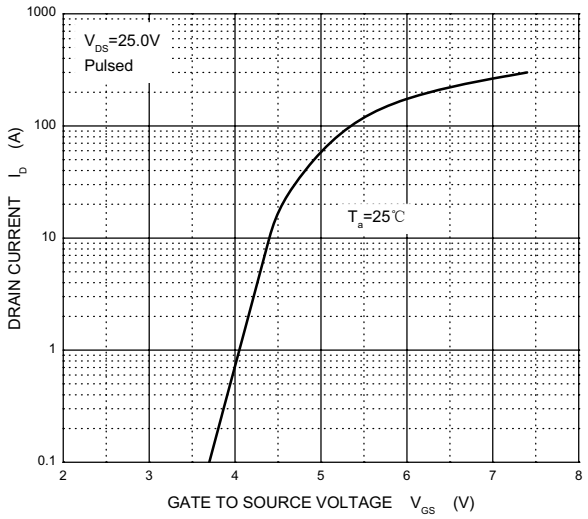
2. These parameters have no way to verify.

Typical Characteristics

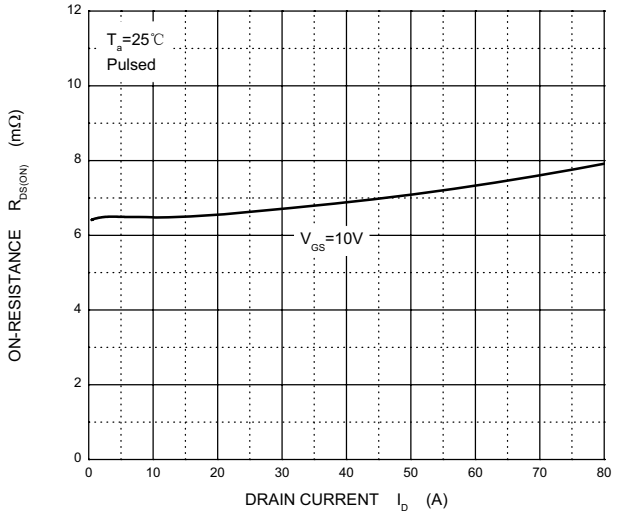
Output Characteristics



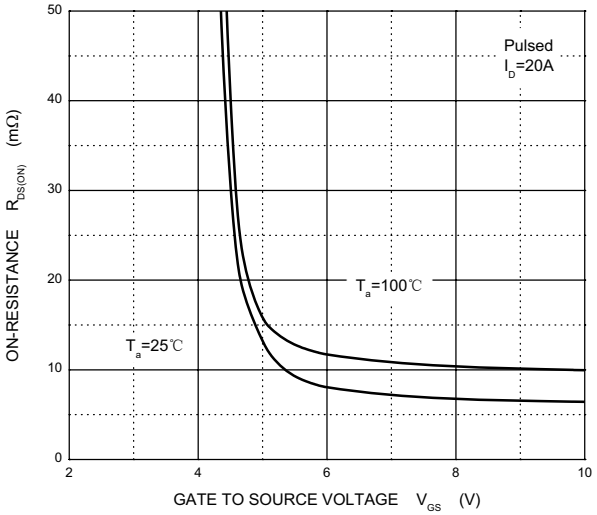
Transfer Characteristics



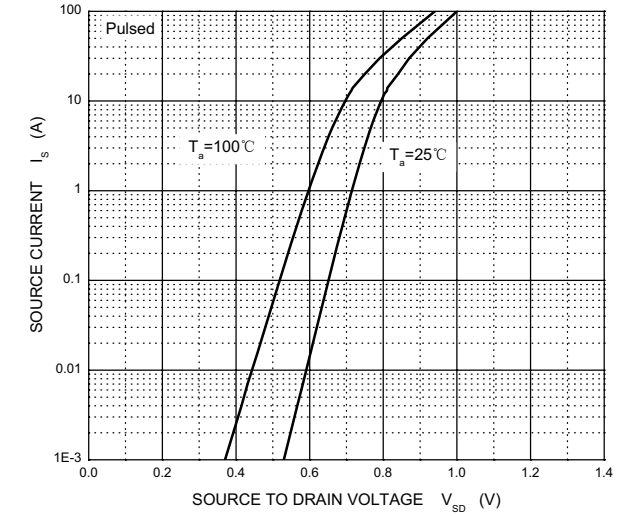
$R_{DS(ON)}$ —— I_D



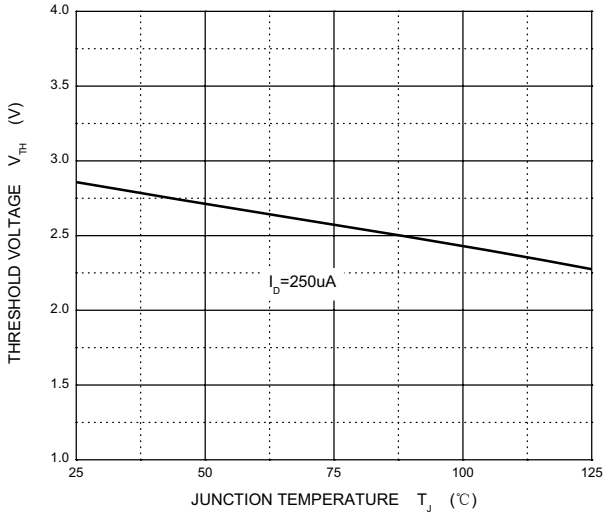
$R_{DS(ON)}$ —— V_{GS}



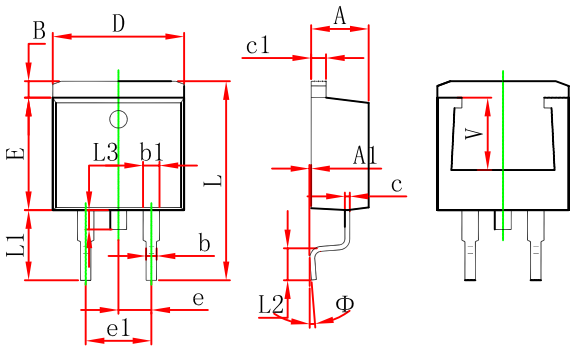
I_S —— V_{SD}



Threshold Voltage

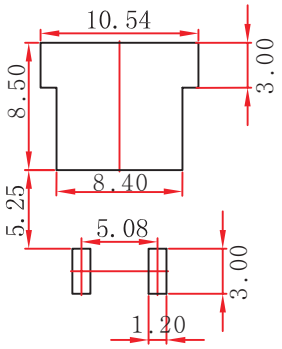


TO-263-2L Package Outline Dimensions



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.	

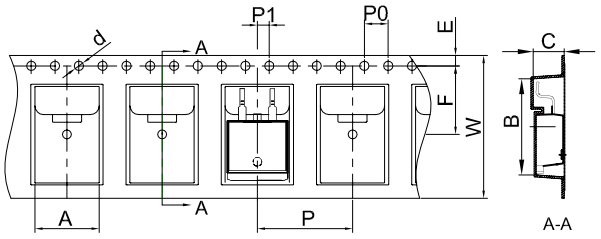
TO-263-2L Suggested Pad Layout



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

TO-263-2L Tape and Reel

TO-263-2L Embossed Carrier Tape

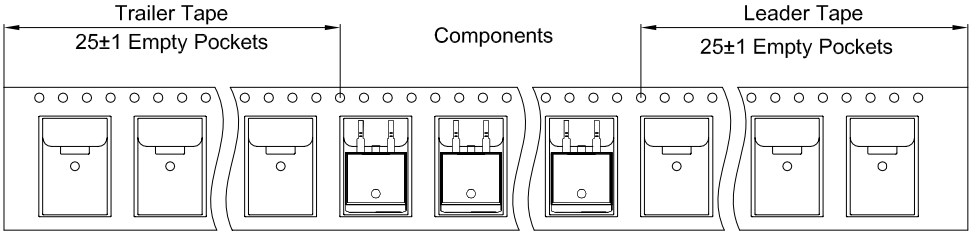


Packaging Description:

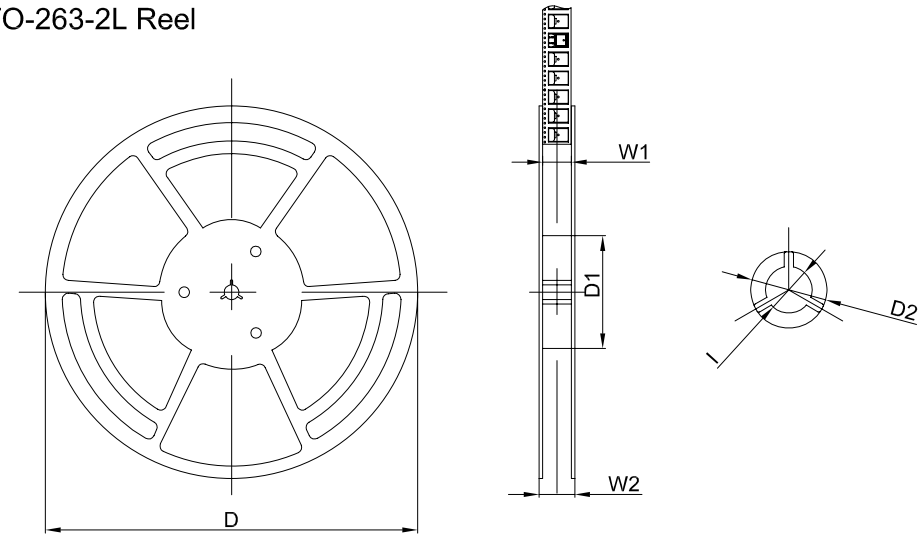
TO-263-2L parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts 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-263-2L	10.80	16.13	5.21	Ø1.55	1.75	11.50	4.00	16.00	2.00	24.00
(Tolerance)	+/-0.1	+/-0.1	+/-0.1	+/-0.1	+/-0.1	+/-0.1	+/-0.1	+/-0.1	+/-0.1	+0.3/-0.1

TO-263-2L Tape Leader and Trailer



TO-263-2L Reel



Dimensions are in millimeter						
Reel Option	D	D1	D2	W1	W2	I
13"Dia	Ø330.00	100.00	Ø21.00	24.4	30.4	Ø13.00
Tolerance	+/-2	+/-1	+/-1	+/-1	+/-1	+/-1

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
800 pcs	13 inch	800 pcs	340×336×36	8,000 pcs	400×353×365	