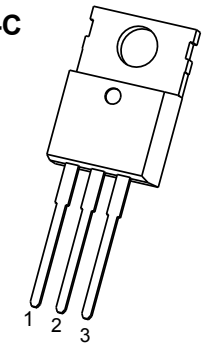
JIANGSU CHANGJIANG ELECTRONICS TECHNOLOGY CO., LTD

TO-220-3L-C Plastic-Encapsulate MOSFETS

CJP85N80 N-Channel Power MOSFET

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

TO-220-3L-C



1. GATE
2. DRAIN
3. SOURCE

DESCRIPTION

The CJP85N80 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.

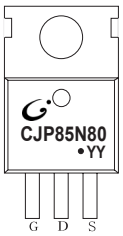
FEATURE

- 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

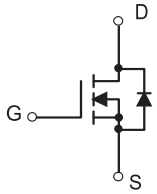
- Power switching application
- Hard switched and high frequency circuits
- Uninterruptible power supply

MARKING



CJP85N80= Device code
Solid dot = Green molding compound device, if none, the normal device
YY = Code

EQUIV ALENT 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)

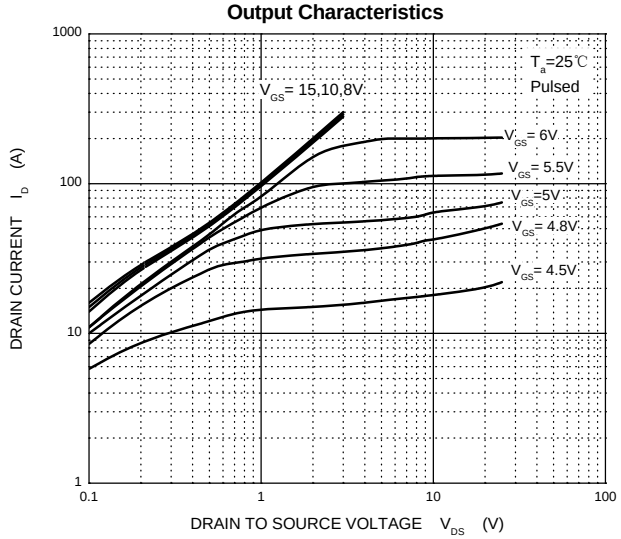
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static characteristics						
Drain-source breakdown voltage	BV_{DSS}	V_{GS} = 0, I_D =250μA	85			V
Gate-threshold voltage (note 1)	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	2.0	3.0	4.0	
Zero gate voltage drain current	I_{DSS}	V_{DS} =85V, V_{GS} =0			1	μA
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%.

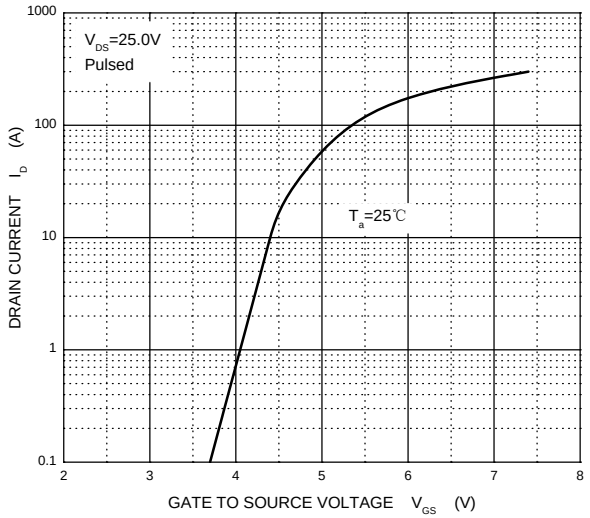
2. These parameters have no way to verify.

Typical Characteristics

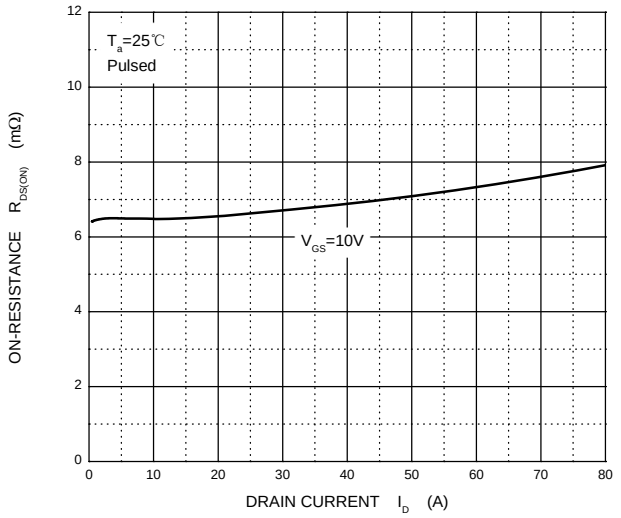
Output Characteristics



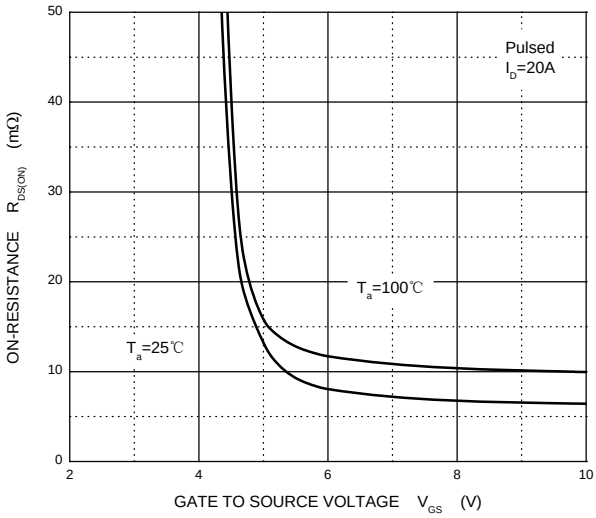
Transfer Characteristics



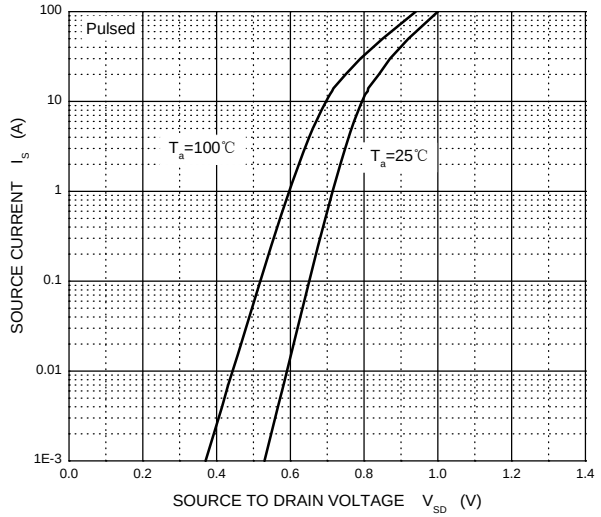
$R_{DS(ON)}$ —— I_D



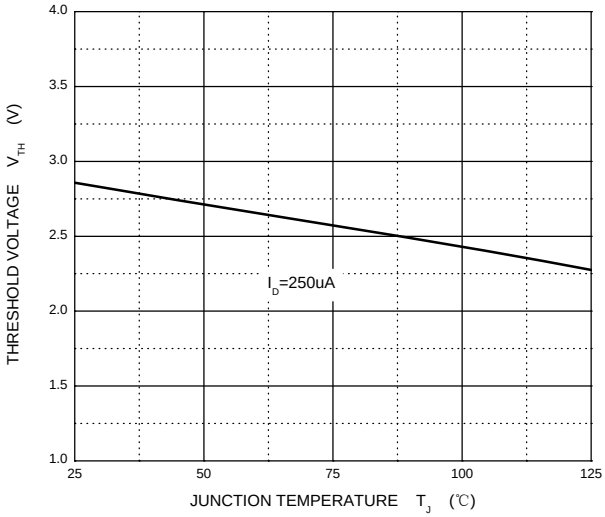
$R_{DS(ON)}$—— V_{GS}



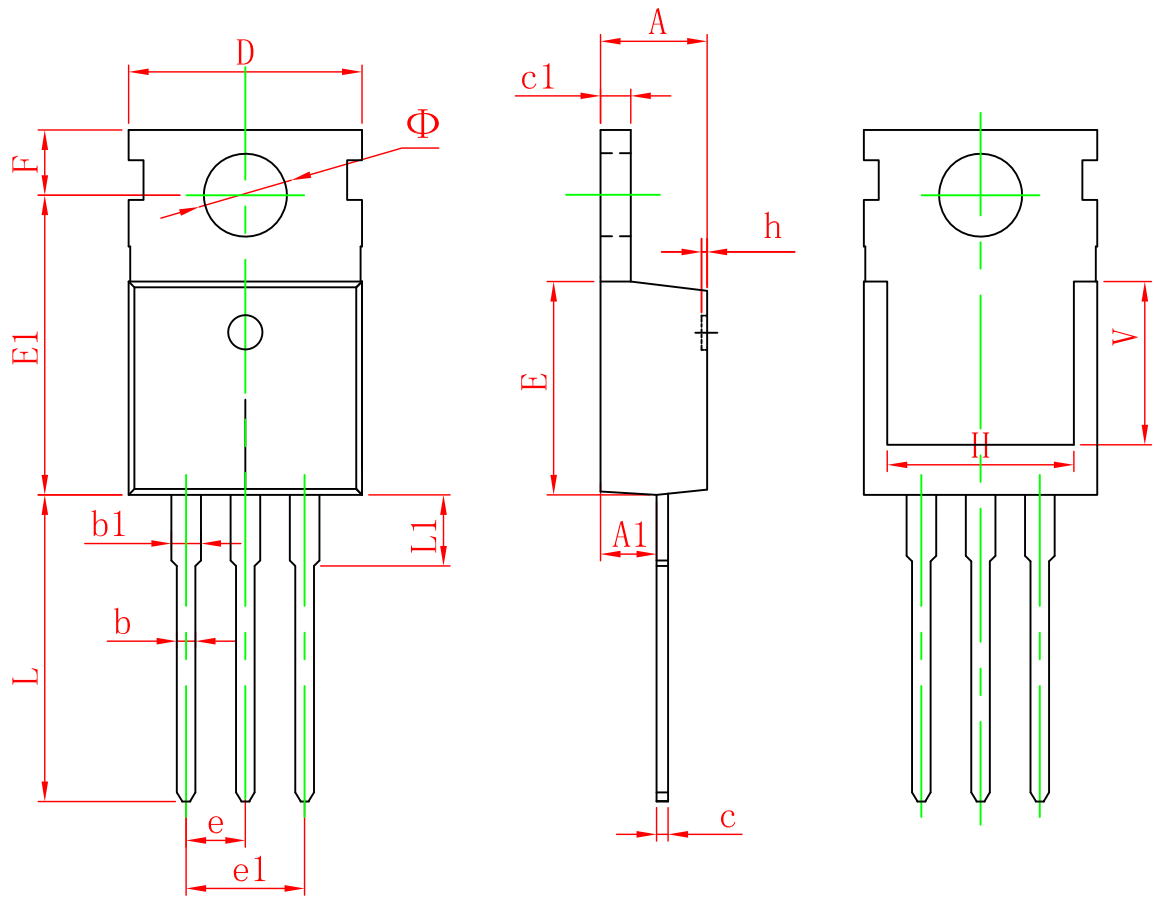
I_S —— V_{SD}



Threshold Voltage



TO-220-3L-C Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.400	4.600	0.173	0.181
A1	2.250	2.550	0.089	0.100
b	0.710	0.910	0.028	0.036
b1	1.170	1.370	0.046	0.054
c	0.330	0.650	0.013	0.026
c1	1.200	1.400	0.047	0.055
D	9.910	10.250	0.390	0.404
E	8.950	9.750	0.352	0.384
E1	12.650	12.950	0.498	0.510
e	2.540 TYP.		0.100 TYP.	
e1	4.980	5.180	0.196	0.204
F	2.650	2.950	0.104	0.116
H	7.900	8.100	0.311	0.319
h	0.000	0.300	0.000	0.012
L	12.900	13.400	0.508	0.528
L1	2.850	3.250	0.112	0.128
V	7.500 REF.		0.295 REF.	
Φ	3.400	3.800	0.134	0.150