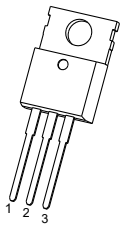
SZCJ Shenzhen Changji Semiconductor Co., LTD.

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

CJP180SN10 N-Channel Power MOSFET

$V_{(BR)DSS}$	$R_{DS(on)}$TYP	I_D
100V	2.5mΩ@10V	180A

TO-220-3L-C



1. GATE
2. DRAIN
3. SOURCE

DESCRIPTION

The CJP180SN10 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

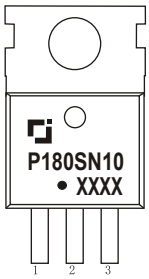
FEATURES

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

APPLICATIONS

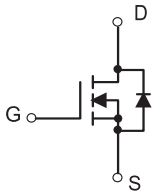
- High efficiency power supply
- Secondary synchronus rectifier

MARKING



P180SN10 = Device code
Solid dot = Green molding compound device
if none, the normal device
XXXX = Code

EQUIVALENT CIRCUIT



MAXIMUM RATINGS (T_a=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	I_D①	180	A
Pulsed Drain Current	I_{DM}②	540	A
Single Pulsed Avalanche Energy	E_{AS}③	1200	mJ
Power Dissipation	P_D①	154	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	62.5	℃/W
Thermal Resistance from Junction to Case	$R_{\theta JC}$①	0.81	℃/W
Operating Junction and Storage Temperature Range	T_J ,T_{stg}	-55 ~+150	℃

MOSFET ELECTRICAL CHARACTERISTICS

T_a=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 = 10mA		100			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_{GS}=±20, V_{DS}=0V				±100	nA
On characteristics ④							
Gate-threshold voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D =250uA		2.0	3.0	4.0	V
Static drain-source on-sate resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 20A			2.5	3.0	mΩ
Dynamic characteristics ⑤							
Input capacitance	C_{iss}	V_{DS}=50V,V_{GS}=0V, f=1MHz			6480	9800	pF
Output capacitance	C_{oss}				1560	2400	
Reverse transfer capacitance	C_{rss}				23	45	
Gate resistance	R_g	f = 1MHz			1.5		Ω
Switching characteristics ⑤							
Total gate charge	Q_g	V_{GS} = 10V, V_{DS} = 50V, I_D = 20A			110	220	nC
Gate-source charge	Q_{gs}				23	46	
Gate-drain charge	Q_{gd}				21	42	
Turn-on delay time	$t_{d(on)}$	V_{DS}=50V,I_D=5A V_{GS}=10V,R_{GEN}=10Ω			138		ns
Turn-on rise time	t_r				276		
Turn-off delay time	$t_{d(off)}$				720		
Turn-off fall time	t_f				500		
Drain-Source Diode Characteristics							
Drain-source diode forward voltage(note1)	V_{SD} ④	V_{GS} = 0V, I_S = 20A				1.2	V
Continuous drain-source diode forward current	I_S ①					180	A
Pulsed drain-source diode forward current	I_{SM} ②					540	A
Reverse recovery time	trr	di_F/dt = 100A/μs, I_F =50A, VDD = 100V, VGS = 0V			86		ns
Reverse recovery charge	Qrr				204.7		nC

Notes:

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

2.P_W≤10μs, Duty cycle≤1%.

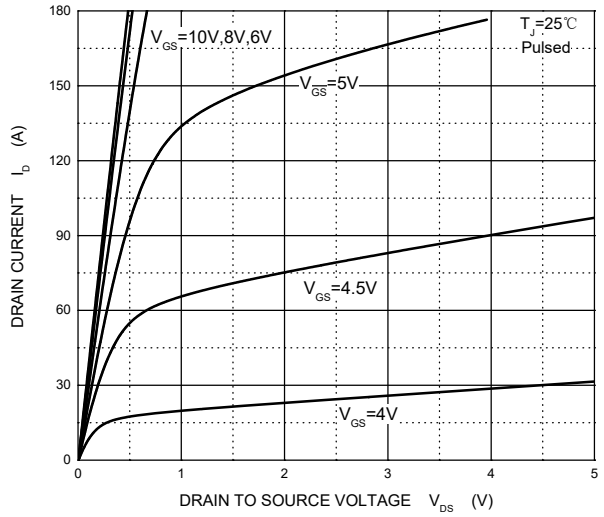
3.EAS condition: V_{DD}=50V,V_{GS}=10V, L=0.5mH, Rg=25Ω Starting T_J = 25°℃.

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

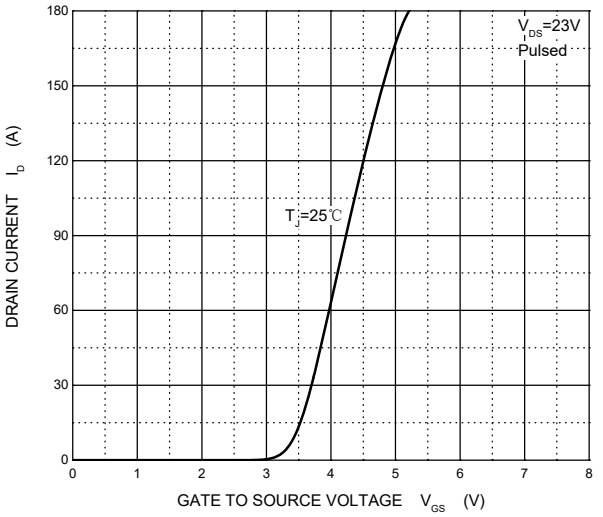
5.Guaranteed by design, not subject to production.

MOSFET ELECTRICAL CHARACTERISTICS

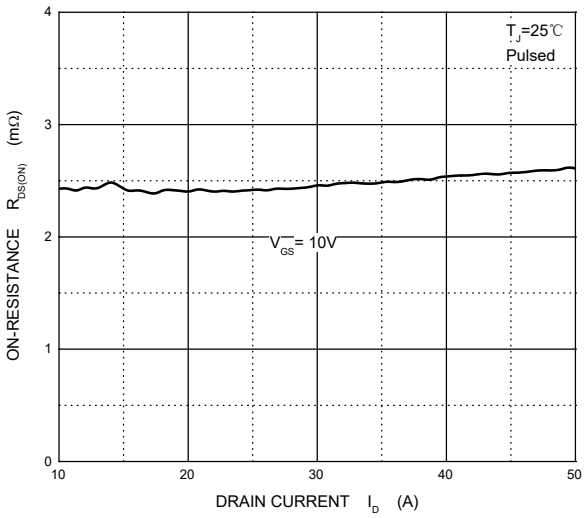
Output Characteristics



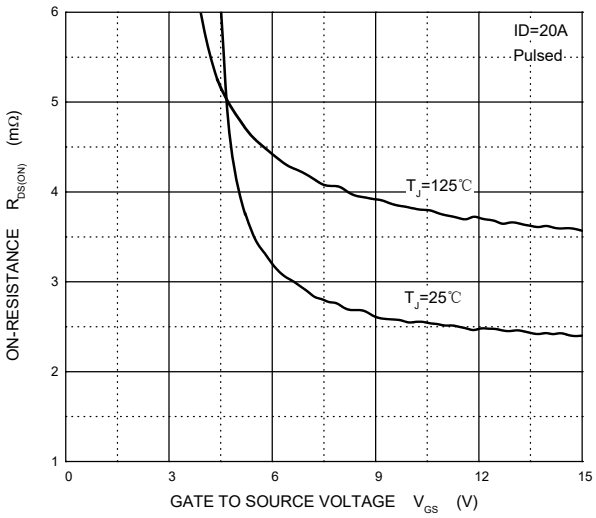
Transfer Characteristics



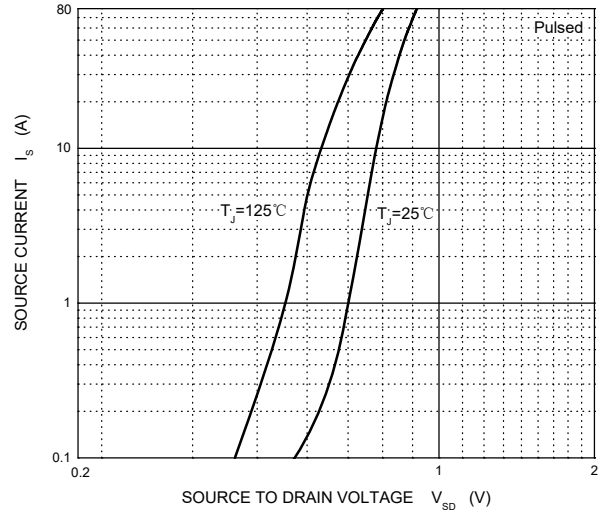
$R_{DS(ON)}$ —— I_D



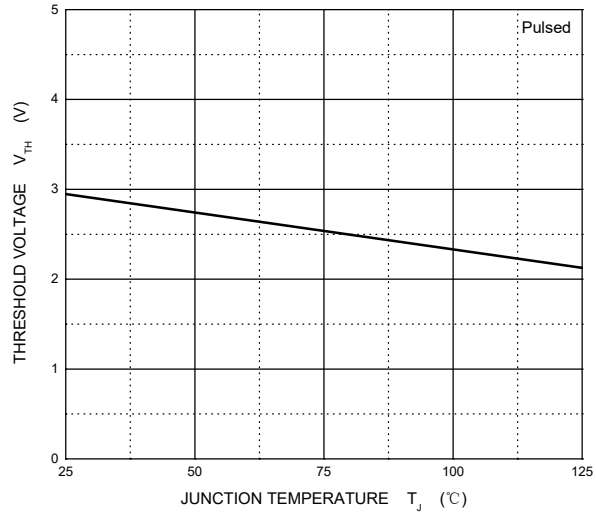
$R_{DS(ON)}$—— V_{GS}



I_S —— V_{SD}

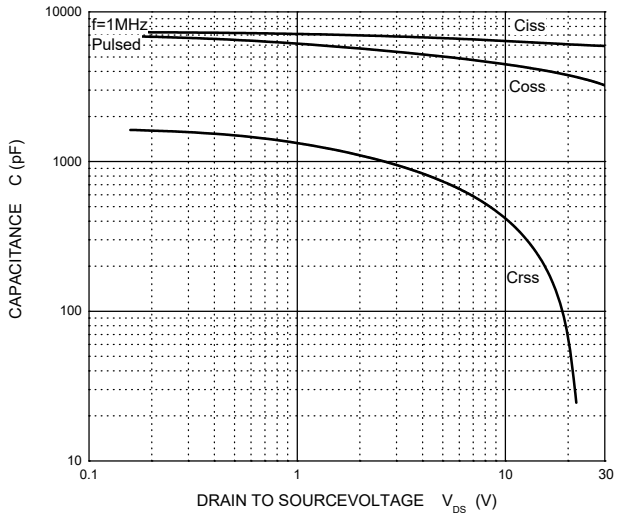


Threshold Voltage

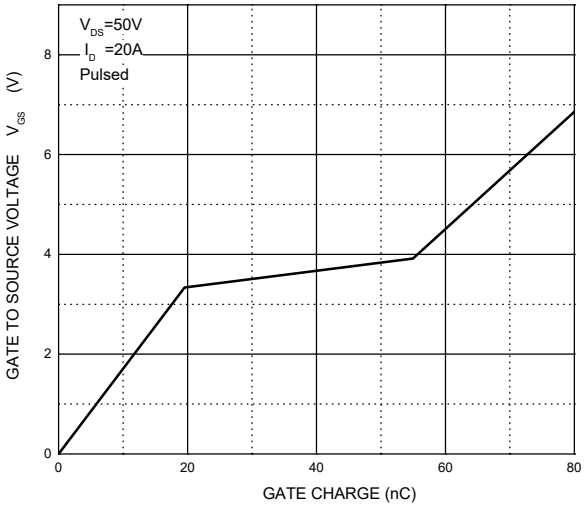


MOSFET ELECTRICAL CHARACTERISTICS

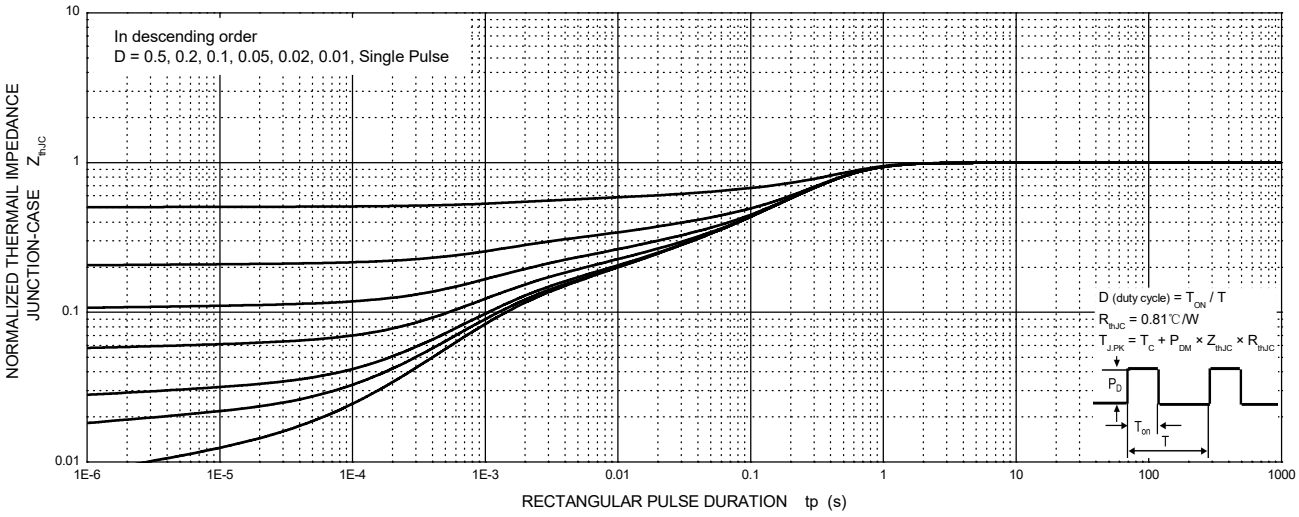
Capacitances



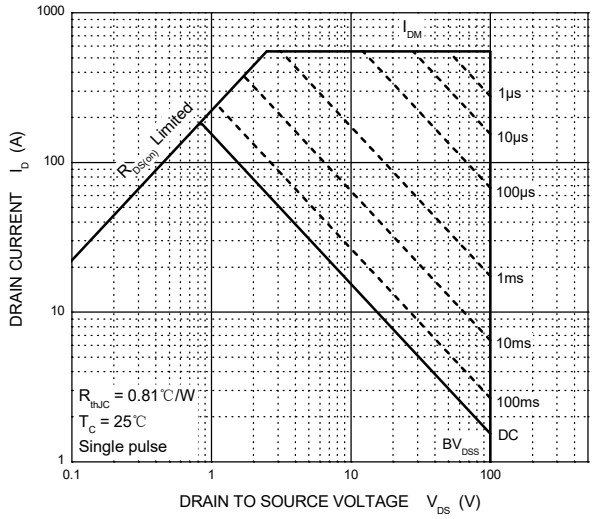
Gate Charge



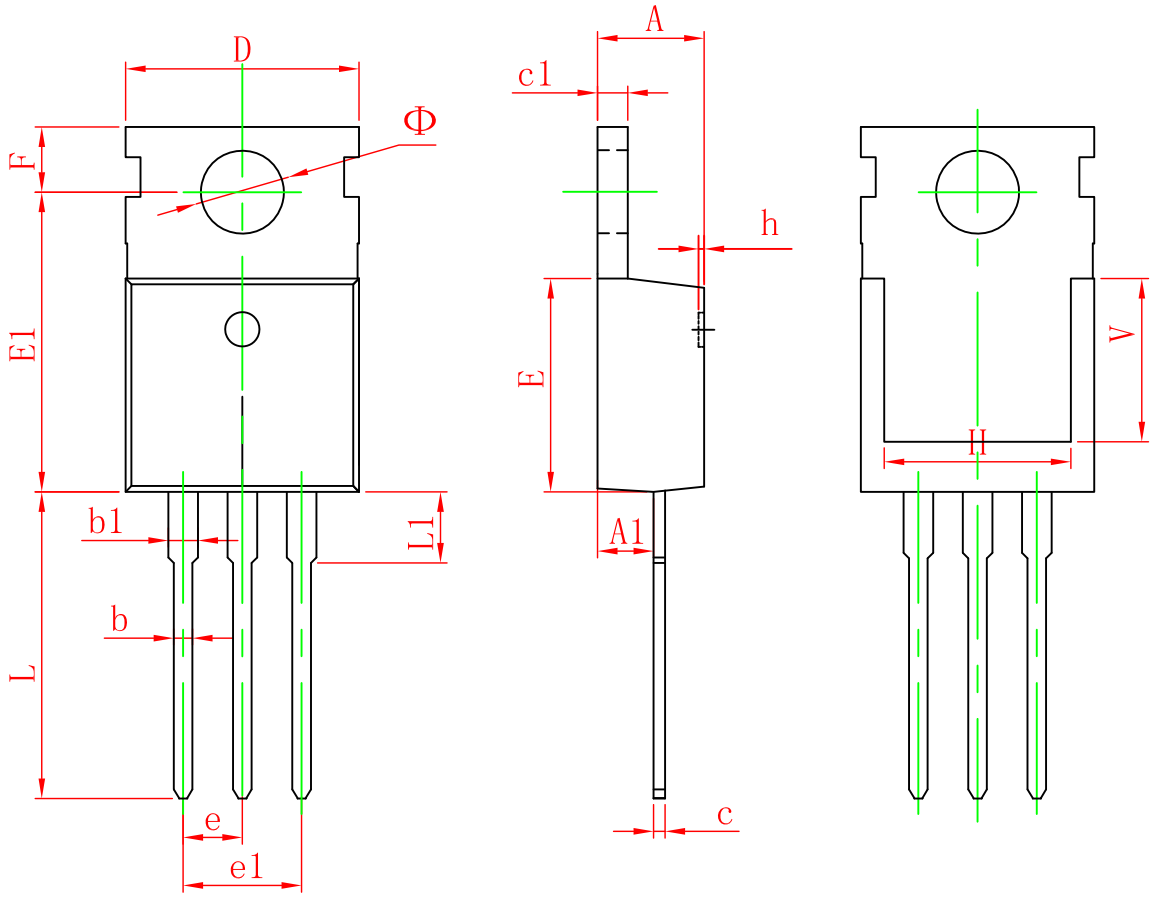
Transient Thermal Impedance, Junction-Case



Maximum Safe Operating Area



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