JIANGSU CHANGJING ELECTRONICS TECHNOLOGY CO., LTD.

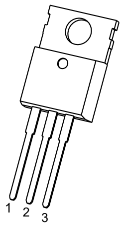
TO-220-3L-C Plastic-Encapsulate MOSFETS

CJP150SN10 N-Channel Power MOSFET

$V_{(BR)DSS}$	$R_{DS(on)}$TYP	I_D
100V	3.2mΩ@10V	150A
	4.5mΩ@4.5V	

TO-220-3L-C

1. GATE
2. DRAIN
3. SOURCE



DESCRIPTION

The CJP150SN10 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

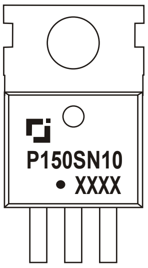
FEATURES

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

APPLICATIONS

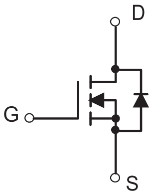
- High efficiency power supply
- Secondary synchronus rectifier

MARKING



P150SN10 = 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_D ①	150	A
Pulsed Drain Current	I_{DM} ②	500	A
Single Pulsed Avalanche Energy	E_{AS} ③	600	mJ
Power Dissipation	P_D ①	164	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	62.5	℃/W
Thermal Resistance from Junction to Case	$R_{\theta JC}$ ①	0.76	℃/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 = 250uA	100			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =80V, V_{GS} =0V, T_J =25℃			1.0	μA
		V_{DS} =80V, V_{GS} =0V, 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 = 250uA	1.5	2.0	2.5	V
Static drain-source on-sate resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 20A		3.2	3.9	mΩ
	$R_{DS(on)}$	V_{GS} = 4.5V, I_D = 20A		4.5	6.5	mΩ
Dynamic characteristics ④⑤						
Input capacitance	C_{iss}	V_{DS} = 50V, V_{GS} = 0V, f = 100kHz		5200		pF
Output capacitance	C_{oss}			868		
Reverse transfer capacitance	C_{rss}			33.5		
Gate resistance	R_g	f = 1MHz		2.5		Ω
Switching characteristics ④⑤						
Total gate charge	Q_g	V_{GS} = 10V, V_{DS} = 50V, I_D = 45A		88		nC
Gate-source charge	Q_{gs}			15		
Gate-drain charge	Q_{gd}			22		
Turn-on delay time	$t_{d(on)}$	V_{DS}=50V, R_L=2.5Ω V_{GS}=10V, R_G=10Ω		97		ns
Turn-on rise time	t_r			131		
Turn-off delay time	$t_{d(off)}$			292		
Turn-off fall time	t_f			180		
Drain-Source Diode Characteristics						
Drain-source diode forward voltage(note1)	V_{SD} ④	V_{GS} = 0V, I_S = 20A			1.3	V
Continuous drain-source diode forward current	I_S ①				150	A
Pulsed drain-source diode forward current	I_{SM} ②				500	A

Notes:

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

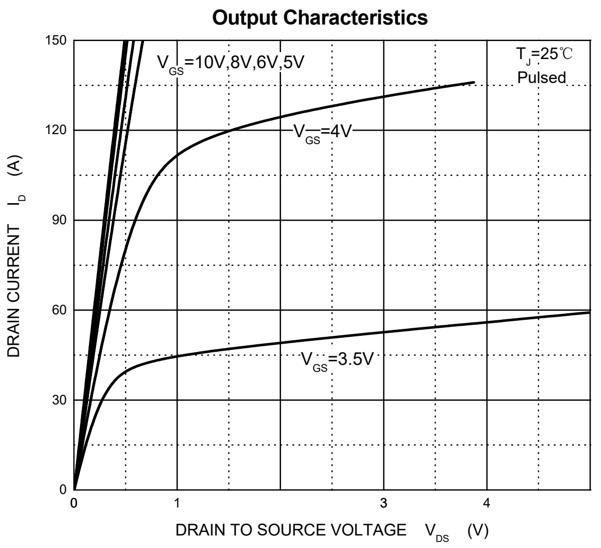
2.P_W≤10μs, Duty cycle≤1%.

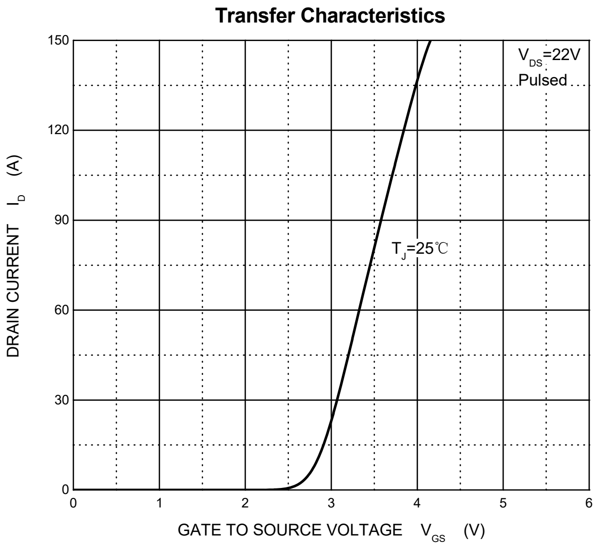
3.EAS condition: V_{DD}=25V,V_{GS}=10V, L=0.5mH, R_g=25Ω Starting T_J = 25°℃.

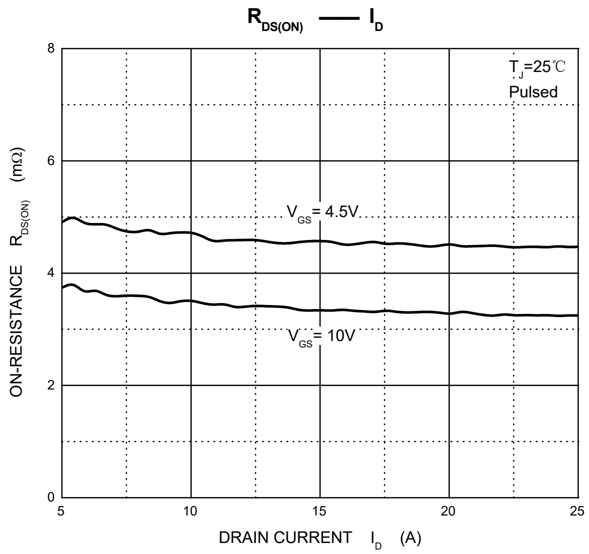
4.Pulse Test : Pulse Width≤300μs, duty cycle ≤2%.

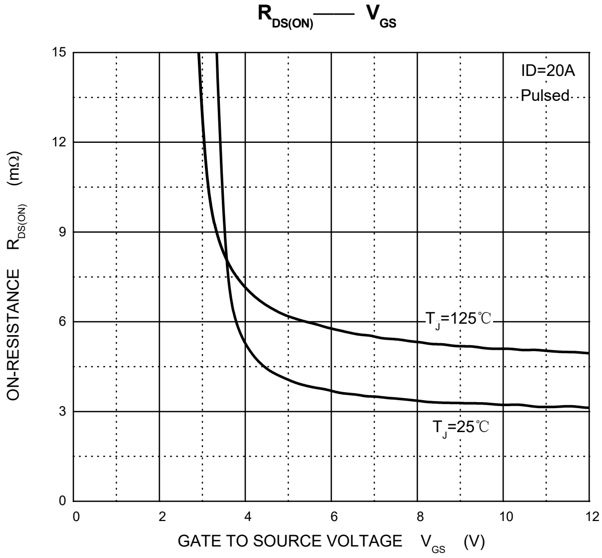
5.Guaranteed by design, not subject to production.

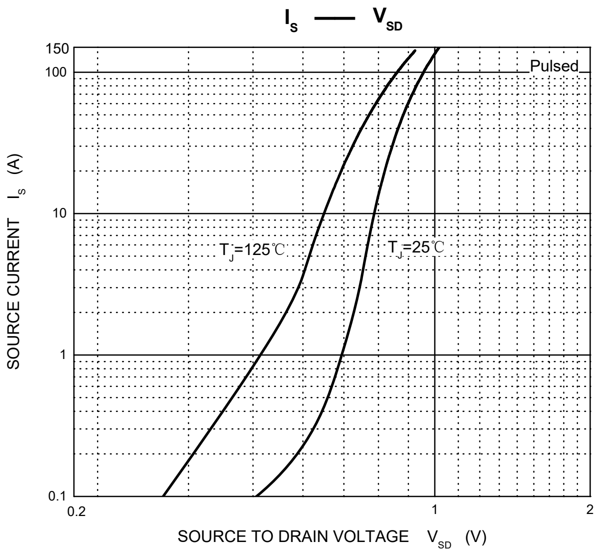
Typical Characteristics

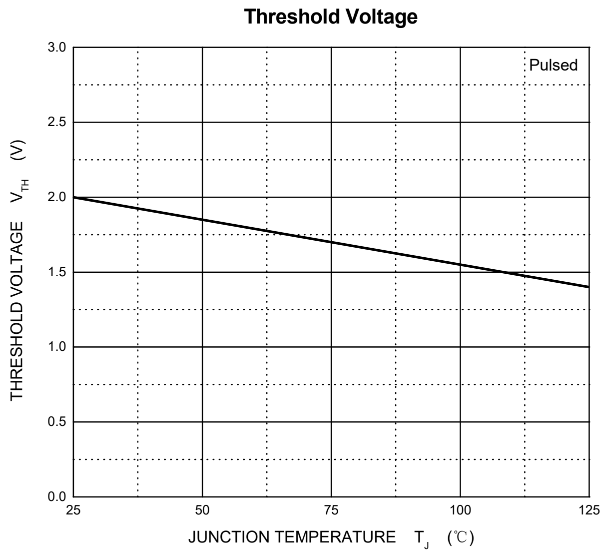

Output Characteristics


Transfer Characteristics

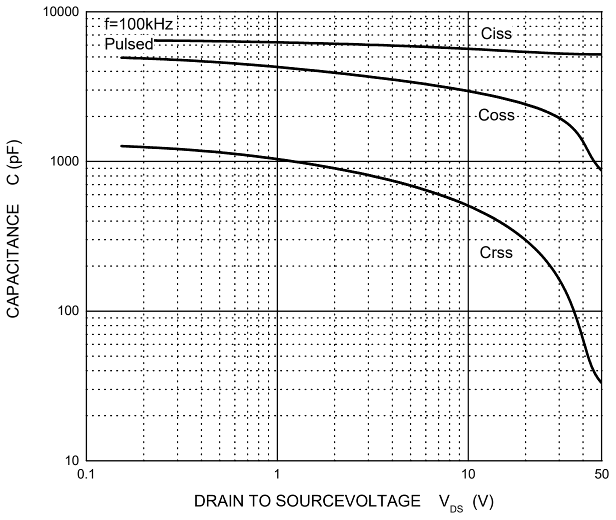

$R_{DS(ON)}$ —— I_D

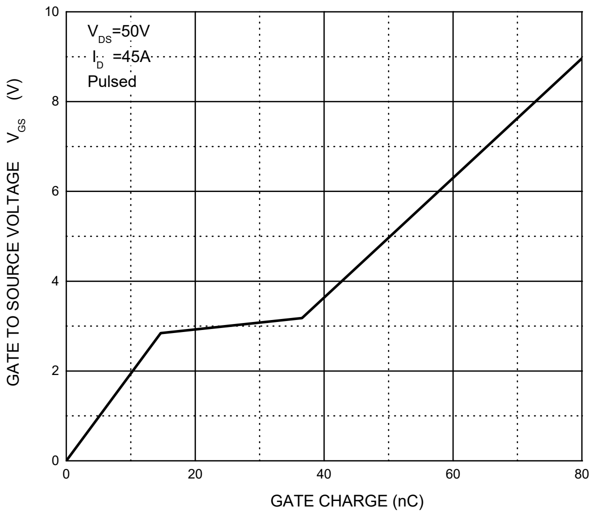

$R_{DS(ON)}$—— V_{GS}


I_S —— V_{SD}

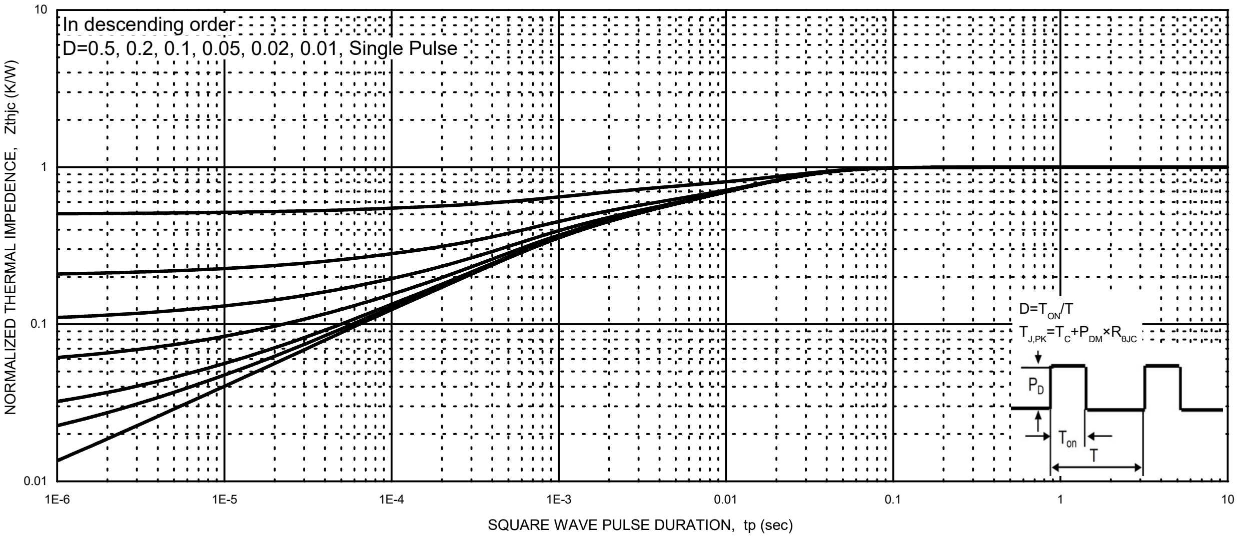

Threshold Voltage

Typical Characteristics

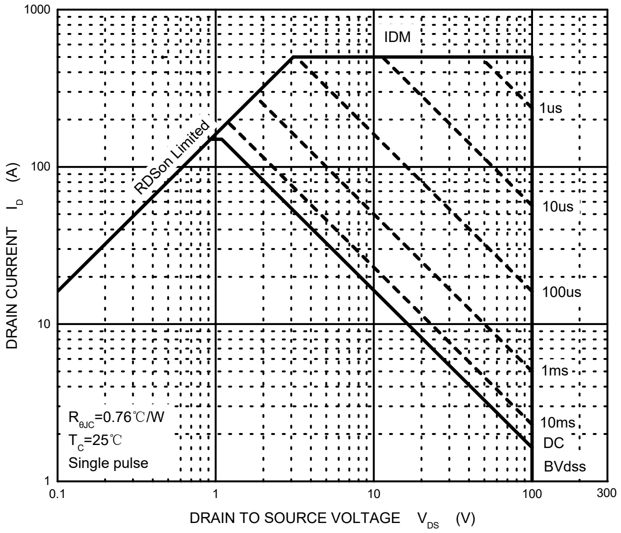

Capacitances


Gate Charge

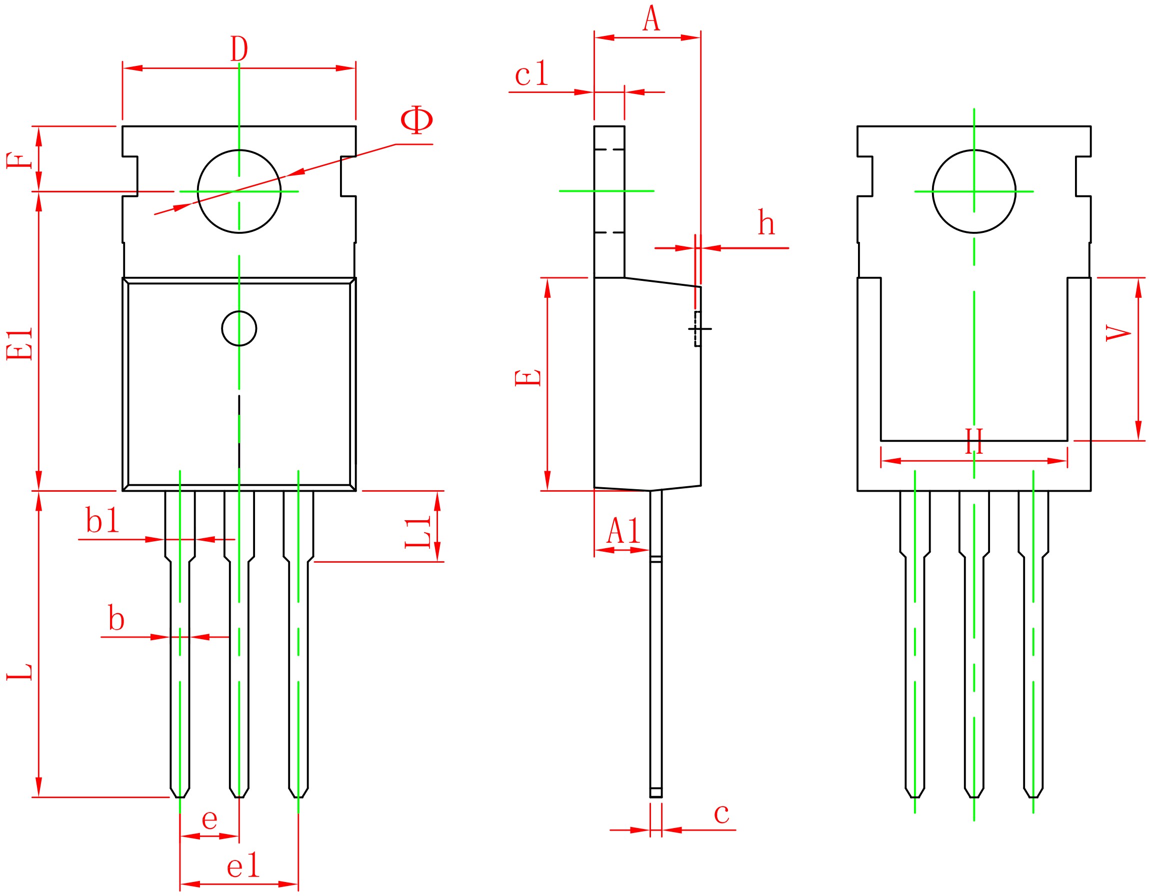
NORMALIZED TRAISIENT THERMAL IMPENDANCE



MAXIMUM FORWARD BIASED 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