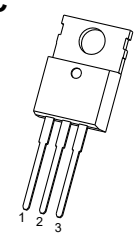
JIANGSU CHANGJING ELECTRONICS TECHNOLOGY CO., LTD

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

CJP50P06S P-Channel Power MOSFET

$V_{(BR)DSS}$	$R_{DS(on)}$TYP	I_D
-60V	25mΩ@-10V	-50A

TO-220-3L-C



1. GATE
2. DRAIN
3. SOURCE

GENERAL DESCRIPTION

The CJP50P06S uses advanced trench technology and design to provide excellent $R_{DS(on)}$ with low gate charge. It can be used in a wide variety of applications.

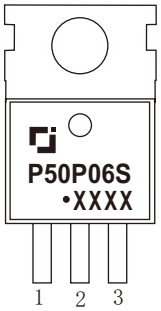
FEATURE

- Advanced trench process technology
- Reliable and rugged
- High density cell design for ultra low On-Resistance

APPLICATION

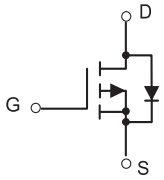
- Power management in notebook computer
- Portable equipment and battery powered systems

MARKING



P50P06S = 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}	-60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D ①	-50	A
Pulsed Drain Current	I_{DM} ②	-200	A
Single Pulsed Avalanche Energy	E_{AS} ③	160	mJ
Power Dissipation	P_D ①	95	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$ ⑥	62.5	℃/W
Thermal Resistance from Junction to Case	$R_{\theta JC}$ ①	1.31	℃/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 =-250μA		-60			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =-48V, 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		-1.0	-2.0	-3.0	V
Static drain-source on-sate resistance	$R_{DS(on)}$	V_{GS} =-10V, I_D =-20A			25	35	mΩ
Dynamic characteristics ⑤							
Input capacitance	C_{iss}	V_{DS} =-25V,V_{GS} =0V, f =1MHz			3005		pF
Output capacitance	C_{oss}				184		
Reverse transfer capacitance	C_{rss}				167		
Gate resistance	Rg	f =1MHz			4.0		Ω
Switching characteristics ⑤							
Total gate charge	Q_g	V_{GS}=-10V, V_{DS}=-30V, I_D=-20A			72		nC
Gate-source charge	Q_{gs}				15		
Gate-drain charge	Q_{gd}				17		
Turn-on delay time	$t_{d(on)}$	V_{DD}=-30V,R_G=3Ω R_L=1.5Ω,V_{GS}=-10V			16		ns
Turn-on rise time	t_r				18		
Turn-off delay time	$t_{d(off)}$				39		
Turn-off fall time	t_f				44		
Drain-Source Diode Characteristics							
Drain-source diode forward voltage	V_{SD} ④	V_{GS} =0V, I_S=-20A				-1.2	V
Continuous drain-source diode forward current	I_S ①					-50	A
Pulsed drain-source diode forward current	I_{SM} ②					-200	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°℃.

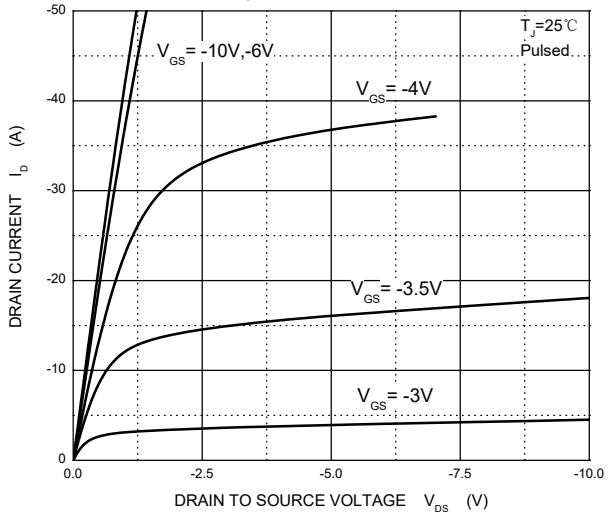
4.Pulse Test : Pulse Width≤300μs, duty cycle ≤2%.

5.Guaranteed by design, not subject to production.

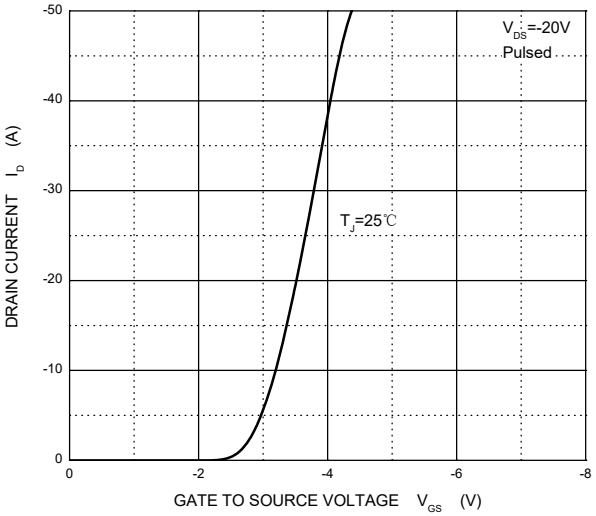
6.The value of $R_{\theta JA}$ is measured with the device in a still air environment with T_a=25℃.

Typical Characteristics

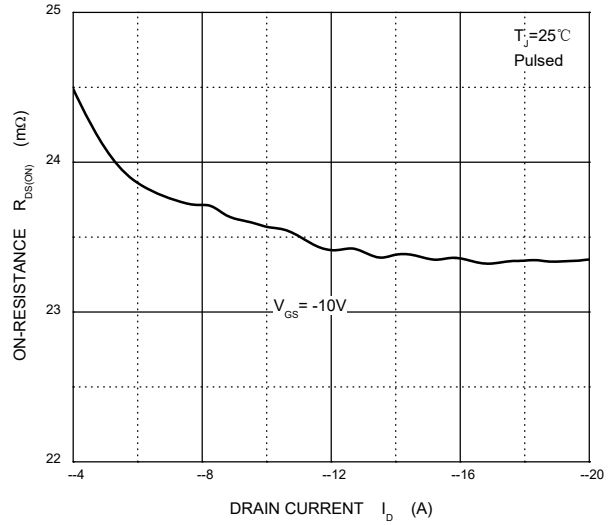
Output Characteristics



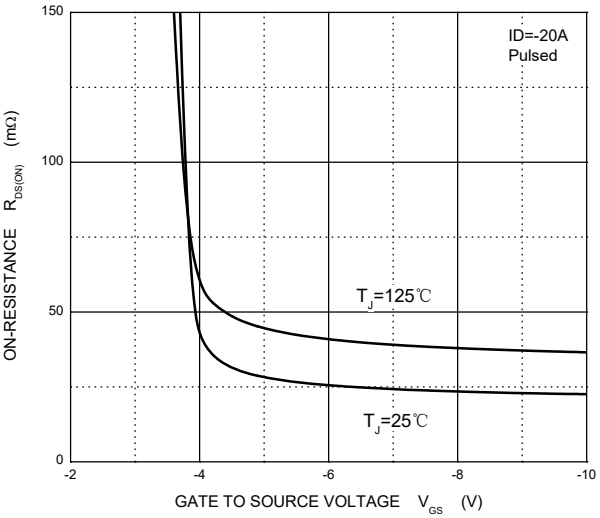
Transfer Characteristics



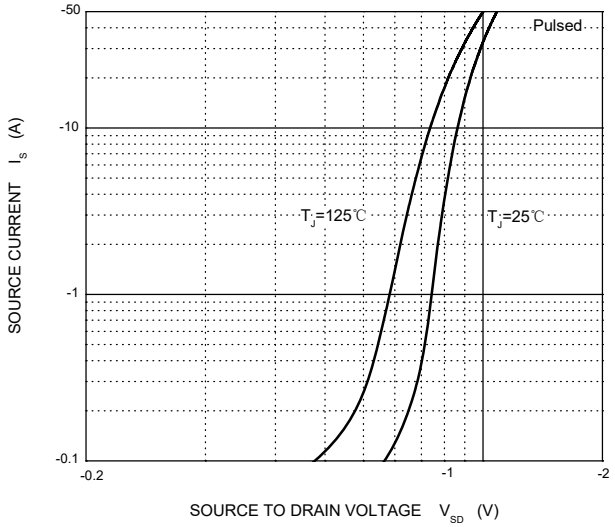
$R_{DS(ON)}$ —— I_D



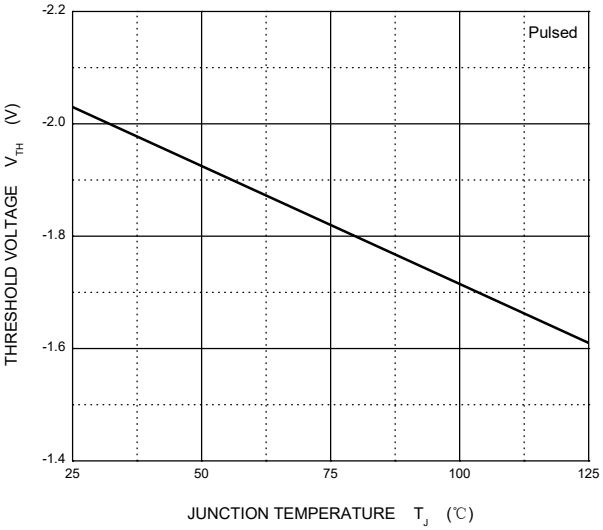
$R_{DS(ON)}$—— V_{GS}



I_S —— V_{SD}

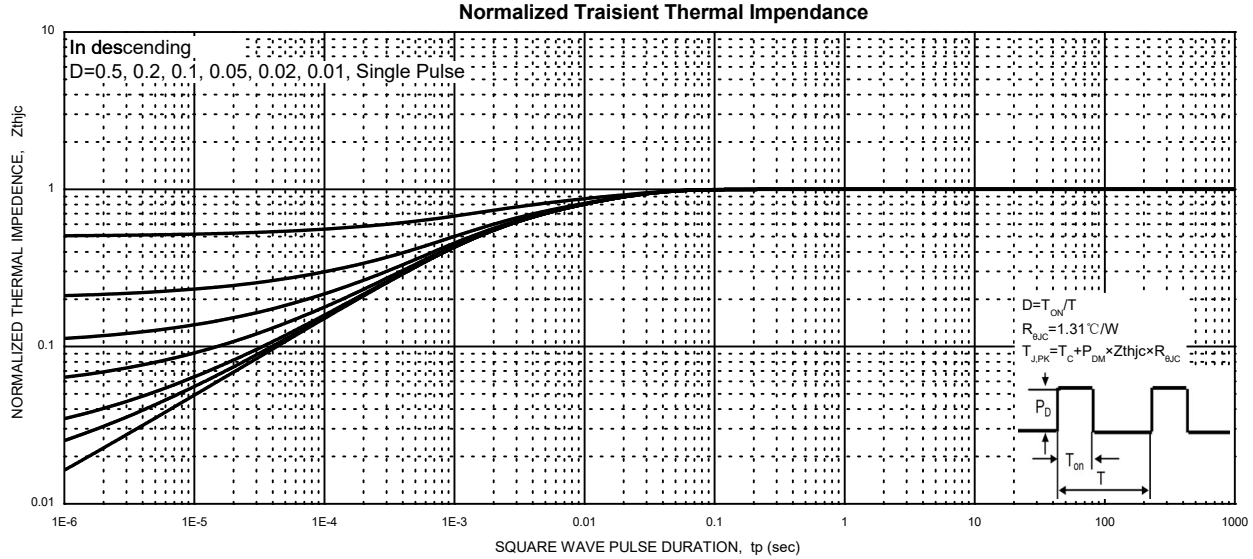


Threshold Voltage

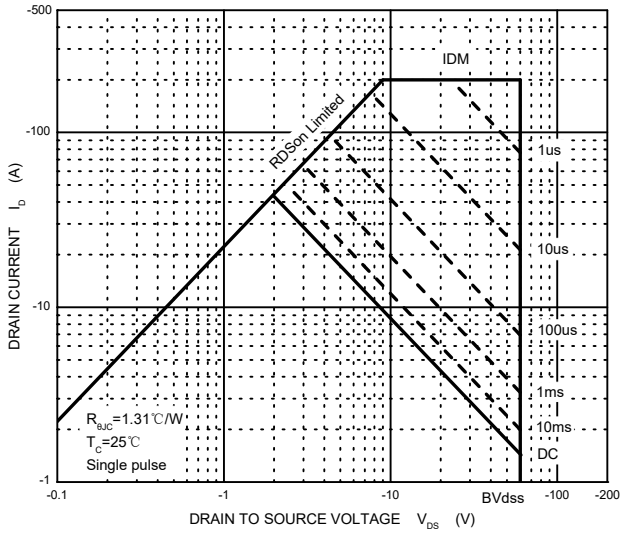


Typical Characteristics

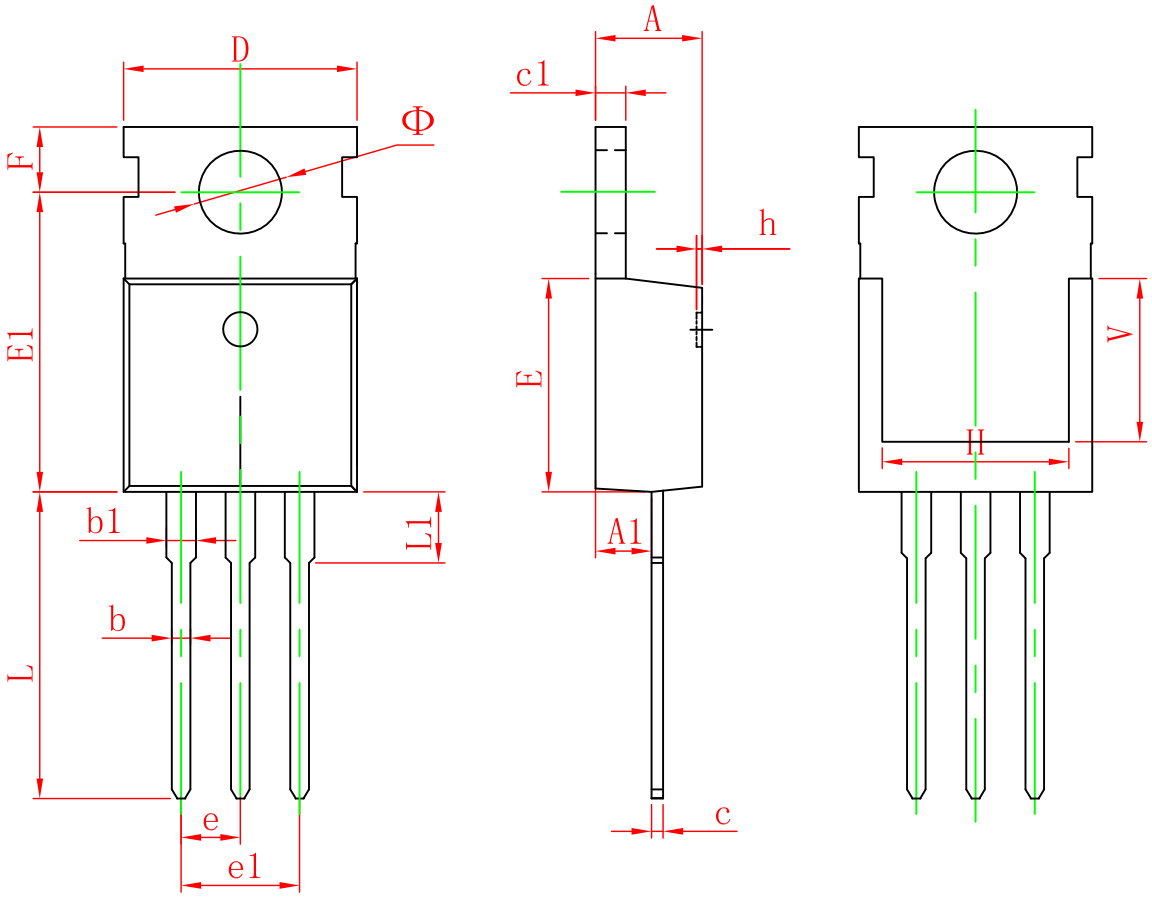
Normalized Traisient Thermal Impendance



Maximun 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