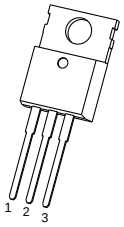
JIANGSU CHANGJIANG ELECTRONICS TECHNOLOGY CO., LTD

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

CJP50N06 N-Channel Power MOSFET

$V_{(BR)DSS}$	$R_{DS(on)}$MAX	I_D
60V	20mΩ@10V	50A

TO-220-3L-C



1. GATE
2. DRAIN
3. SOURCE

GENERAL DESCRIPTION

The CJP50N06 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

- High density cell design for ultra low R_{dson}
- Fully characterized avalanche voltage and current
- Good stability and uniformity with high E_{AS}
- Excellent package for good heat dissipation
- Special process technology for high ESD capability

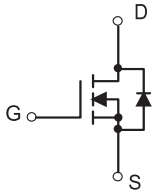
APPLICATION

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

MARKING

CJP50N06= Device code
Solid dot = Green molding compound device, if none, the normal device
XXX=Date Code

EQUIVALENT CIRCUIT



Maximum ratings (T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	
Continuous Drain Current	I_D	50	A
Pulsed Drain Current	I_{DM}	220	
Single Pulsed Avalanche Energy*	E_{AS}	115	mJ
Power Dissipation	P_D	2	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	62.5	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{stg}	-50 ~+150	

*E_{AS} condition: T_j=25℃,V_{DD}=50V,L=0.5mH, R_G=25Ω, Starting T_J = 25°C

MOSFET ELECTRICAL CHARACTERISTICS

T_a=25℃ unless otherwise specified

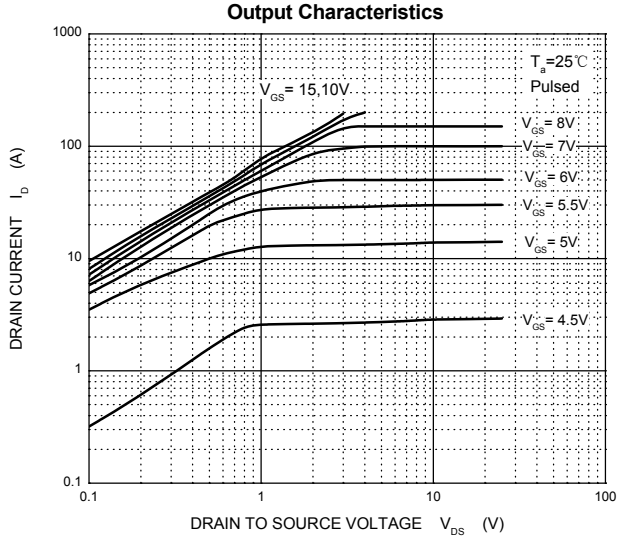
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Off characteristics						
Drain-source breakdown voltage	$V_{(BR)\ DSS}$	V_{GS} = 0V, I_D =250μA	60			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =60V, V_{GS} =0V			1	μA
Gate-body leakage current	I_{GSS}	V_{DS} =0V, V_{GS} =±20V			±100	nA
On characteristics (note1)						
Gate-threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	1.5	1.8	2.5	V
Static drain-source on-resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =20A		17	20	mΩ
Forward transconductance	g_{Fs}	V_{DS} =25V, I_D =20A	24			S
Dynamic characteristics (note 2)						
Input capacitance	C_{iss}	V_{DS} =25V,V_{GS} =0V, f =1MHz		900		pF
Output capacitance	C_{oss}			104		
Reverse transfer capacitance	C_{rss}			33		
Switching characteristics (note 2)						
Total gate charge	Q_g	V_{DS}=30V, V_{GS}=10V, I_D=50A		30		nC
Gate-source charge	Q_{gs}			10		
Gate-drain charge	Q_{gd}			5		
Turn-on delay time	$t_{d(on)}$	V_{DD}=30V,I_D=2A, V_{GS}=10V,R_G=2.5Ω, R_L=15Ω		25		ns
Turn-on rise time	t_r			5		
Turn-off delay time	$t_{d(off)}$			50		
Turn-off fall time	t_f			6		
Drain-Source Diode Characteristics						
Drain-source diode forward voltage(note1)	V_{SD}	V_{GS} =0V, I_S=40A			1.2	V
Continuous drain-source diode forward current	I_S				50	A
Pulsed drain-source diode forward current	I_{SM}				220	A

Notes:

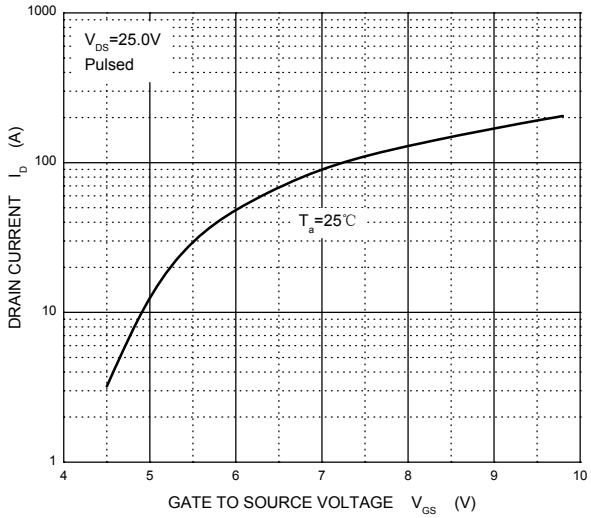
1. Pulse Test : Pulse Width≤300μs, duty cycle ≤2%.
2. Guaranteed by design, not subject to production.

Typical Characteristics

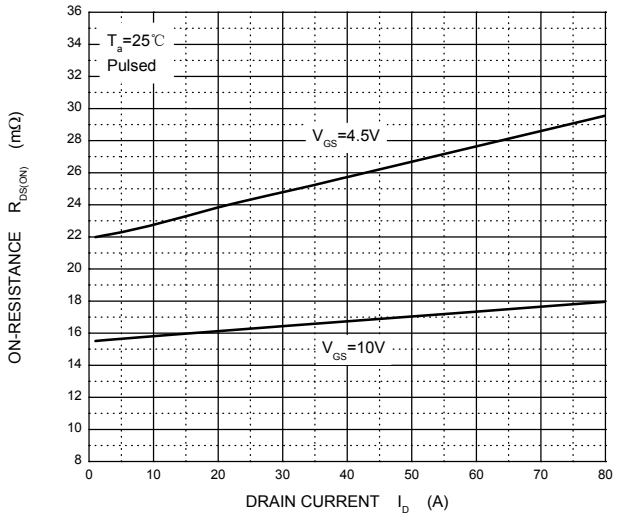
Output Characteristics



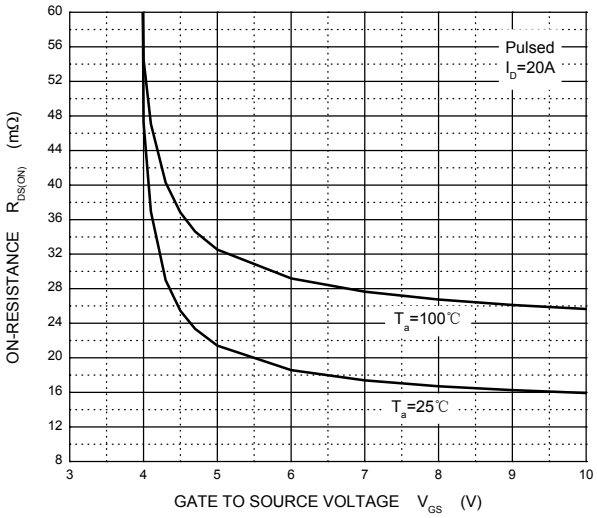
Transfer Characteristics



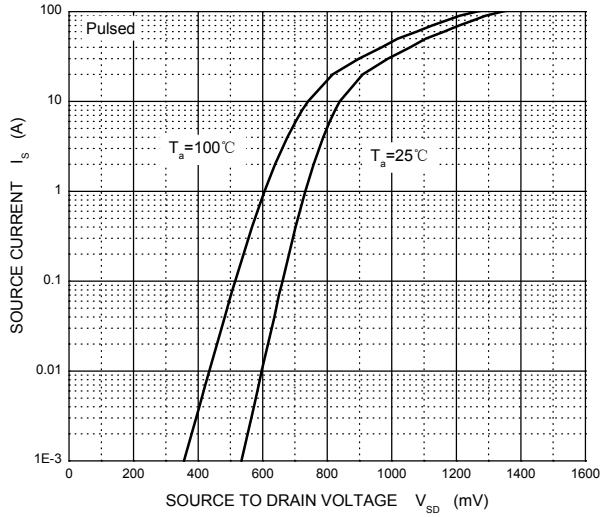
$R_{DS(ON)}$ —— I_D



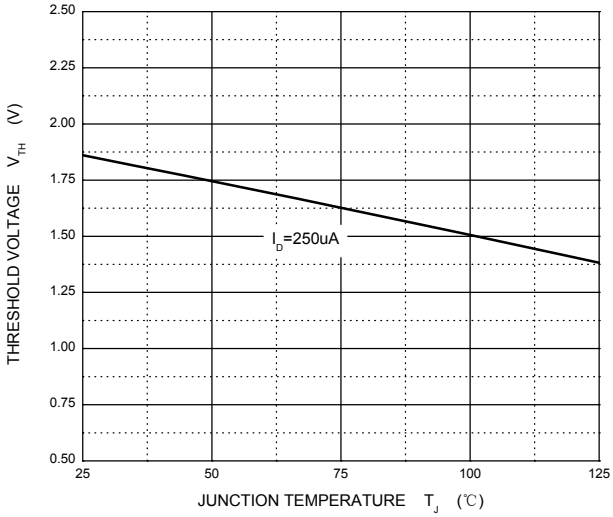
$R_{DS(ON)}$—— V_{GS}



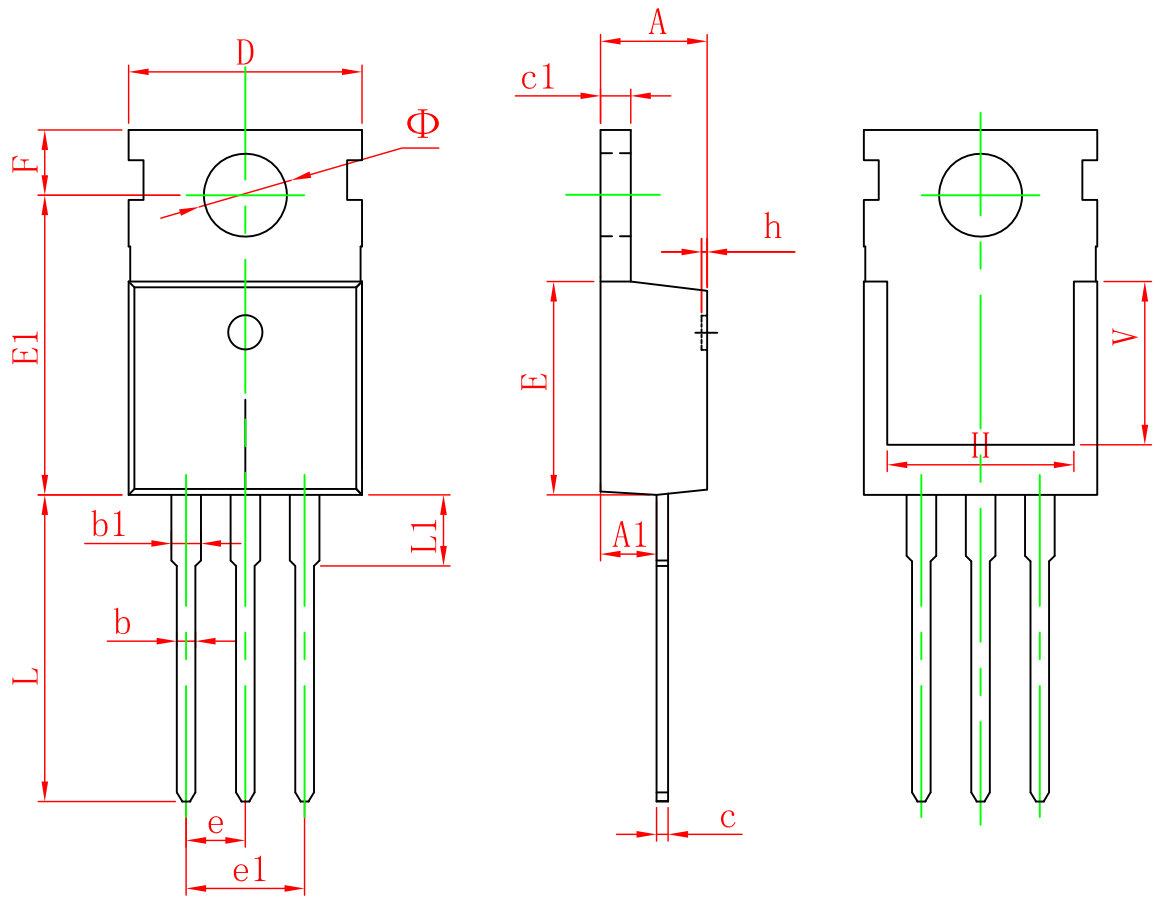
I_S —— V_{SD}



Threshold Voltage



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