

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

CJP55H12 N-Channel Power MOSFET

GENERAL DESCRIPTION

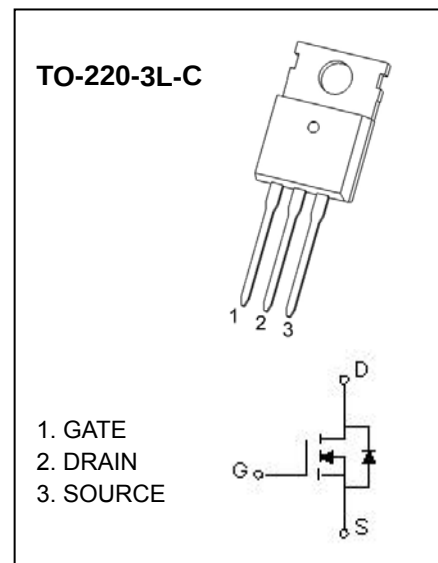
The CJP55H12 uses advanced trench technology and design to provide excellent $R_{DS(on)}$ with low gate charge. It can be used in a wide variety of applications.

FEATURE

- High density cell design for ultra low $R_{ds(on)}$
- Fully characterized avalanche voltage and current
- Good stability and uniformity with high EAS
- 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



Maximum ratings ($T_a=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	55	V
Gate-Source Voltage	V_{GS}	± 20	
Continuous Drain Current	I_D	120	A
Pulsed Drain Current	I_{DM}	420	
Single Pulsed Avalanche Energy (note1)	E_{AS}	1100	mJ
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	62.5	$^{\circ}\text{C/W}$
Junction Temperature	T_J	150	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	-55 ~ +150	
Maximum Lead Temperature for Soldering Purposes , 1/8" from Case for 5 Seconds	T_L	260	

Electrical characteristics (T_a=25°C unless otherwise noted)

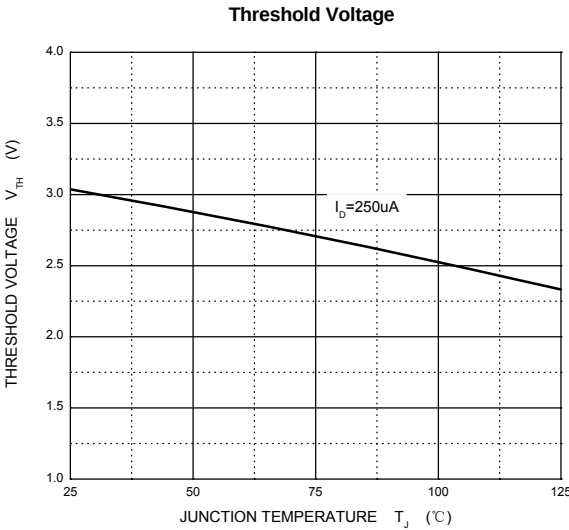
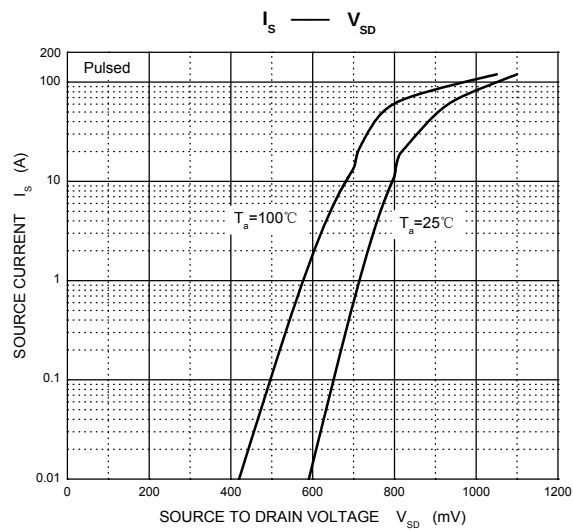
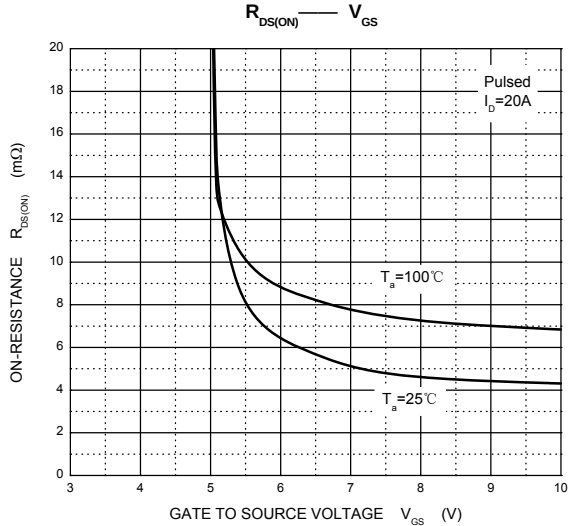
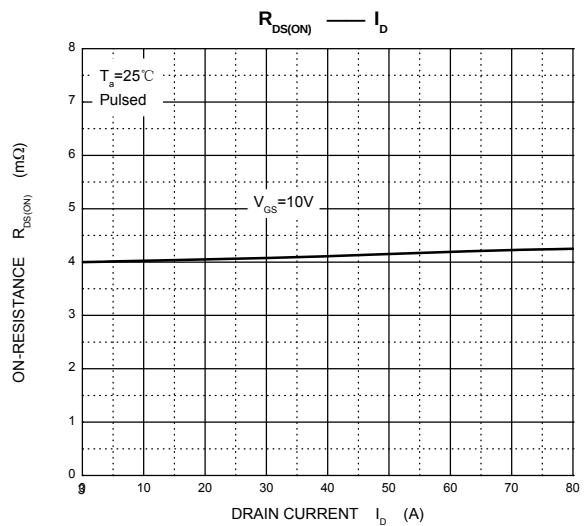
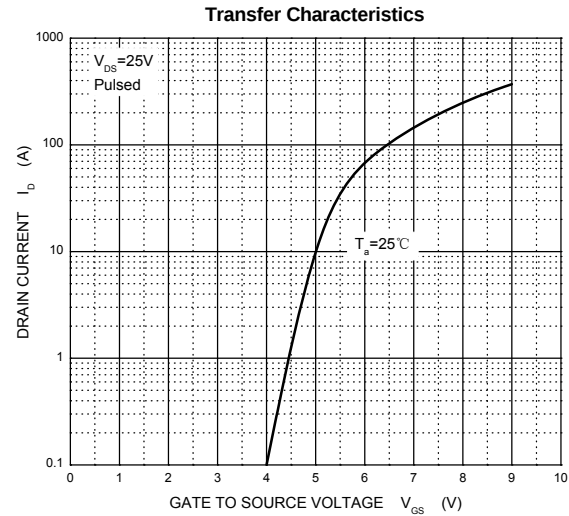
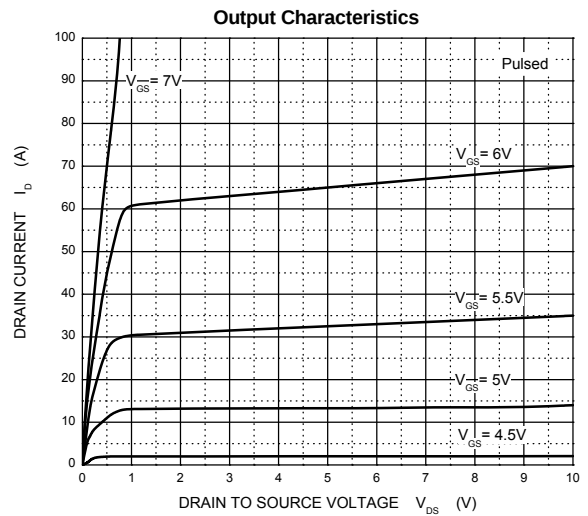
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Off characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D =250μA	55	65		V
Zero gate voltage drain current	I _{DSS}	V _{DS} =55V, V _{GS} =0V			1	μA
		V _{DS} =0.8xRatedV _{(BR)DSS} , V _{GS} =0V, T _J =125℃			100	
Gate-body leakage current	I _{GSS}	V _{DS} =0V, V _{GS} = ± 20V			± 100	nA
On characteristics (note2)						
Gate-threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	2.0		4.0	V
Static drain-source on-resistance	R _{DS(on)}	V _{GS} =10V, I _D =40A		4.1	5.5	mΩ
Forward transconductance	g _{fs}	V _{DS} =25V, I _D =40A	50			S
Dynamic characteristics (note 3)						
Input capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V, f =1MHz		4900		pF
Output capacitance	C _{oss}			470		
Reverse transfer capacitance	C _{rss}			460		
Switching characteristics (note 2,3)						
Turn-on delay time	t _{d(on)}	V _{DD} =30V, I _D =2.0A, V _{GS} =10V, R _{GEN} =2.5Ω		20		ns
Turn-on rise time	t _r			19		
Turn-off delay time	t _{d(off)}			70		
Turn-off fall time	t _f			30		
Total gate charge	Q _G	V _{DS} =30V , V _{GS} =10V, I _D =30A,		125		nC
Gate to source charge	Q _{GS}			24		
Gate to drain “miller” charge	Q _{GD}			49		
Drain-Source Diode Characteristics						
Drain-source diode forward voltage(note2)	V _{SD}	V _{GS} = 0V, I _S =40A			1.2	V
Continuous drain-source diode forward current(note4)	I _S				120	A
Pulsed drain-source diode forward current	I _{SM}				420	A

Notes :

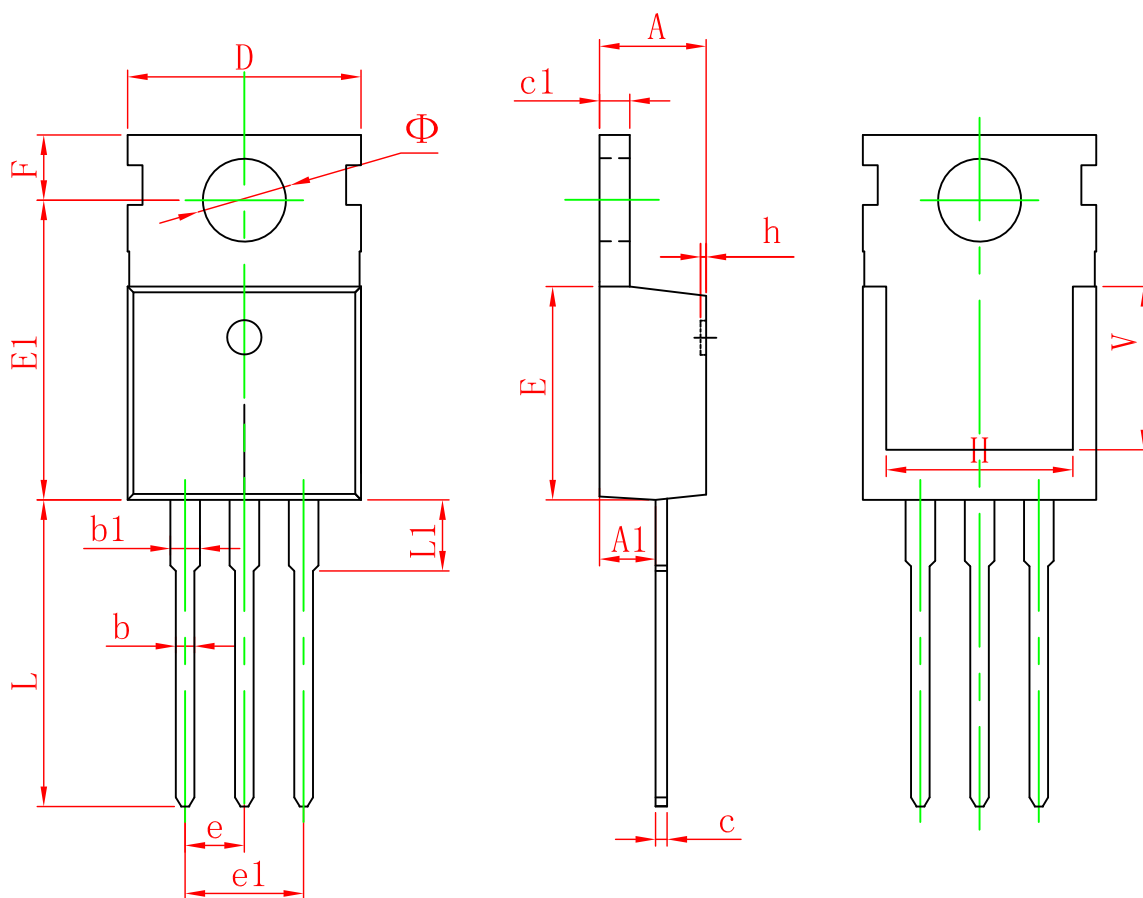
1. L=0.5mH, V_{DD}=30V, V_{GS}=10V, R_G=25Ω, Starting T_J=25°C.
2. Pulse Test : Pulse width≤300μs, duty cycle ≤2%.
3. Guaranteed by design, not subject to production
4. Surface mounted on FR4 board, t≤10s

Typical Characteristics

CJP55H12



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