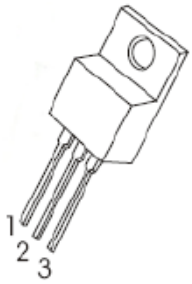
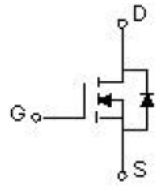
JIANGSU CHANGJIANG ELECTRONICS TECHNOLOGY CO., LTD

TO-220-3L Plastic-Encapsulate MOSFETS

IRF630 N-Channel Power MOSFET

TO-220-3L





1. GATE
2. DRAIN
3. SOURCE

GENERAL DESCRIPTION

It uses advanced trench technology and design to provide excellent $R_{DS(ON)}$ with low gate charge .This device is suitable for high current load applications.

FEATURE

- High current rating
- Ultra lower $R_{DS(on)}$
- Good stability and uniformity with high E_{AS}
- Excellent package for good heat dissipation

APPLICATION

- Power switching application
- Load switching in high circuit application
- DC/DC converters

Maximum ratings (T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	200	V
Gate-Source Voltage	V_{GS}	±20	
Continuous Drain Current	I_D	9.3	A
Pulsed Drain Current	I_{DM}	37	
Single Pulsed Avalanche Energy (note1)	E_{AS}	250	mJ
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	62.5	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature Range	T_{STG}	-55 ~+150	
Maximum lead temperure for soldering purposes , 1/8”from case for 5 seconds	T_L	260	

Electrical characteristics (T_a=25℃ unless otherwise noted)

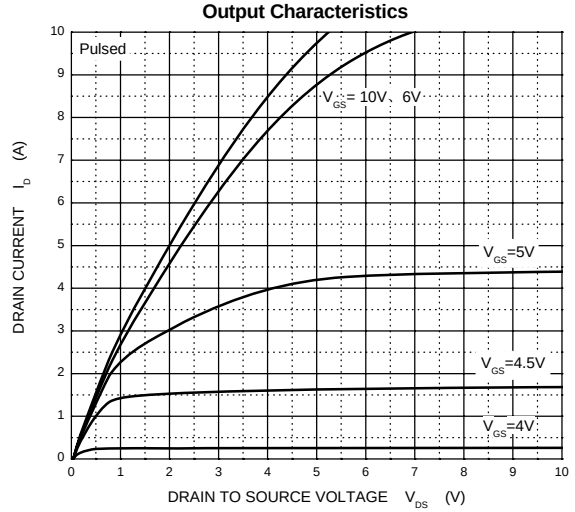
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Off characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	200			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =200V, V_{GS} =0V			25	μA
Gate-body leakage current	I_{GSS}	V_{DS} =0V, V_{GS} =±20V			±100	nA
On characteristics (note2)						
Gate-threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	2		4	V
Static drain-source on-resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =5.4A			400	mΩ
Forward transconductance	g_{fs}	V_{DS} =50V, I_D =5.4A	3.8			S
Dynamic characteristics (note 3)						
Input capacitance	C_{iss}	V_{DS} =25V,V_{GS} =0V,f =1MHz		800		pF
Output capacitance	C_{oss}			240		
Reverse transfer capacitance	C_{rss}			76		
Switching characteristics (note 3)						
Turn-on delay time	$t_{d(on)}$	V_{DD}=100V, V_{GS}=10V, R_G=12Ω, I_D =5.9A		9.4		ns
Turn-on rise time	t_r			28		
Turn-off delay time	$t_{d(off)}$			39		
Turn-off fall time	t_f			20		
Drain-Source Diode Characteristics						
Drain-source diode forward voltage(note2)	V_{SD}	V_{GS} = 0V, I_S =9A			2	V
Continuous drain-source diode forward current(note4)	I_S				9.3	A
Pulsed drain-source diode forward current	I_{SM}				37	A

Notes :

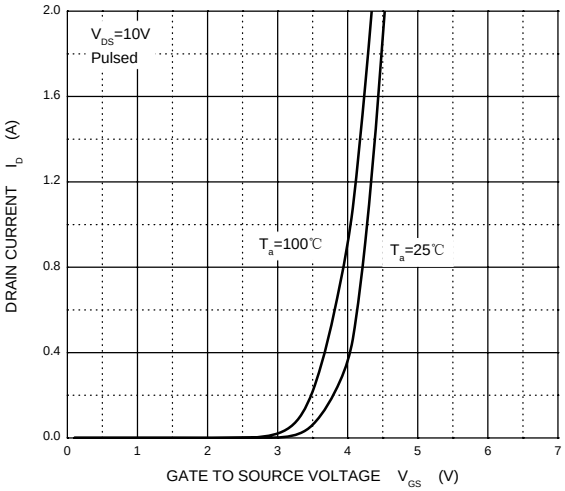
1. L=4.6mH, I_L=9.9A, V_{DD}=50V, R_G=25Ω,Starting T_J=25℃.
2. Pulse Test : Pulse width≤300μs, duty cycle ≤2%.
3. Guaranteed by design, not subject to production
4. Surface mounted on FR4 board, t≤10s

Typical Characteristics IRF630

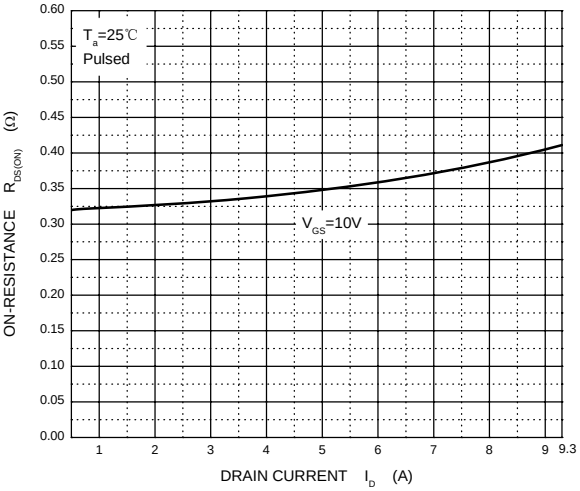
Output Characteristics



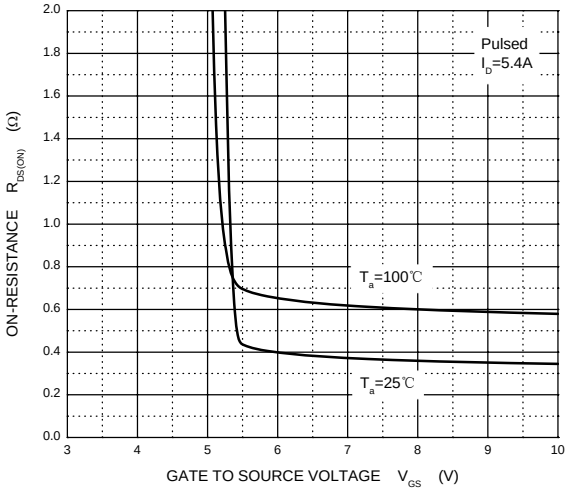
Transfer Characteristics



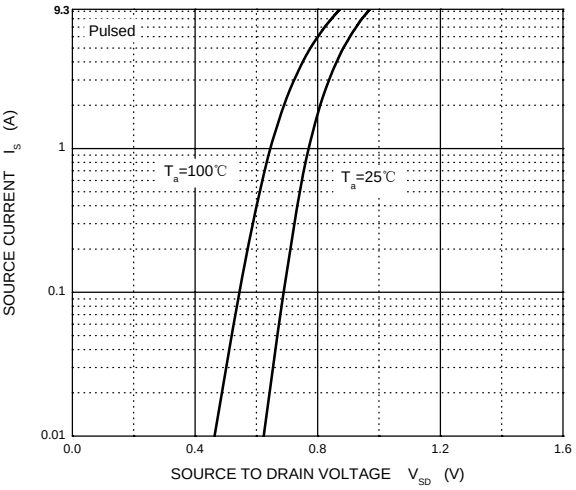
$R_{DS(ON)}$ —— I_D



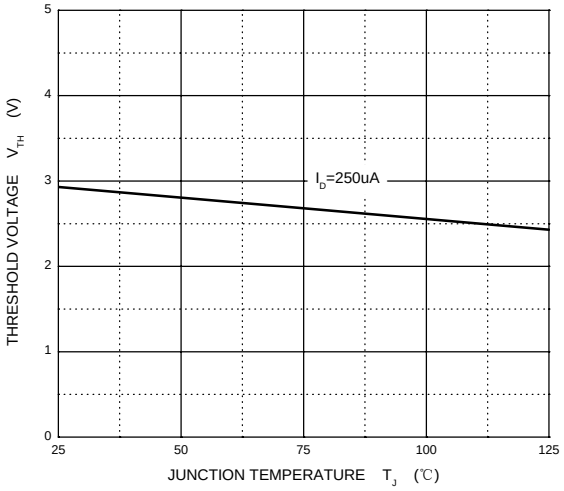
$R_{DS(ON)}$—— V_{GS}



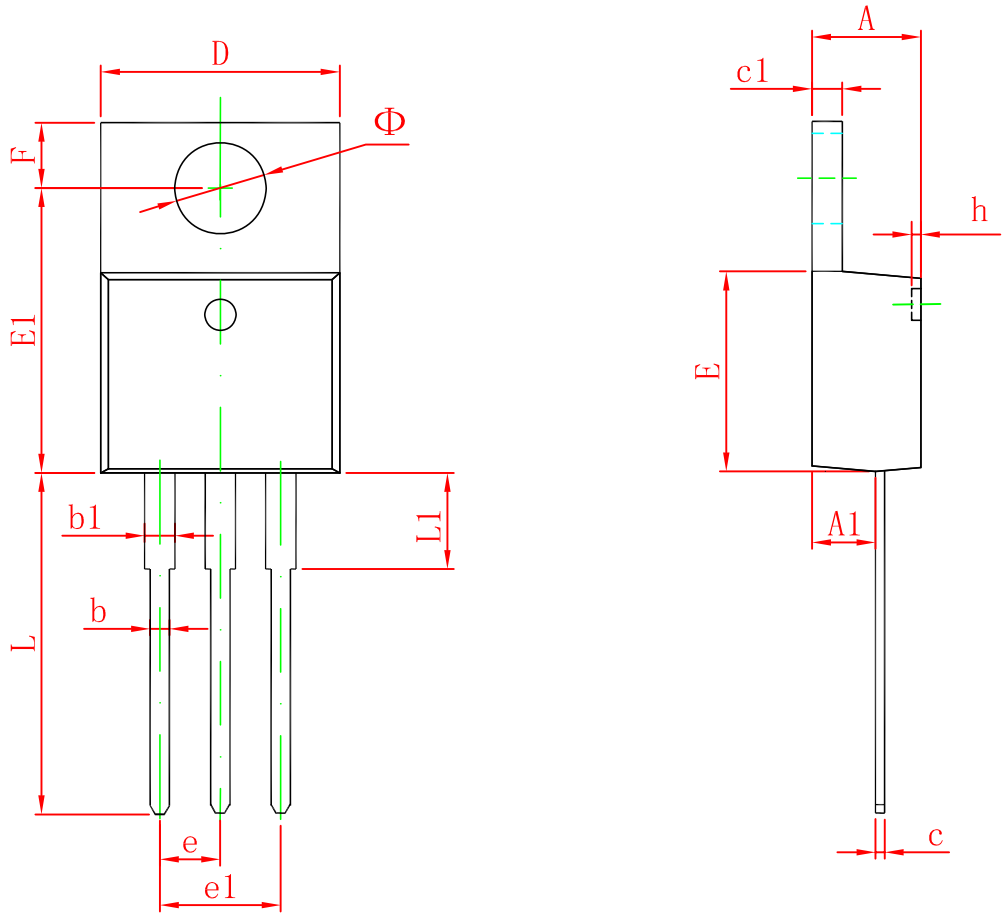
I_S —— V_{SD}



Threshold Voltage



TO-220-3L Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	4.470	4.670	0.176	0.184
A1	2.520	2.820	0.099	0.111
b	0.710	0.910	0.028	0.036
b1	1.170	1.370	0.046	0.054
c	0.310	0.530	0.012	0.021
c1	1.170	1.370	0.046	0.054
D	10.010	10.310	0.394	0.406
E	8.500	8.900	0.335	0.350
E1	12.060	12.460	0.475	0.491
e	2.540 TYP		0.100 TYP	
e1	4.980	5.180	0.196	0.204
F	2.590	2.890	0.102	0.114
h	0.000	0.300	0.000	0.012
L	13.400	13.800	0.528	0.543
L1	3.560	3.960	0.140	0.156
Φ	3.735	3.935	0.147	0.155