



JIANGSU CHANGJIANG ELECTRONICS TECHNOLOGY CO., LTD

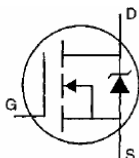
TO-220 Plastic-Encapsulate MOSFET

IRF630

MOSFET (N-Channel)

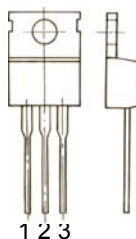
FEATURES

- Dynamic dv/dt Rating
- Repetitive Avalanche Rated
- Fast Switching
- Ease of Paralleling
- Simple Drive Requirements



TO-220

1. GATE
2. DRAIN
3. SOURCE



MAXIMUM RATINGS* T_A=25°C unless otherwise noted

Symbol	Parameter	Value	Units
I _D @T _C =25°C	Continuous Drain Current, V _{GS} @ 10 V	9.3	A
I _D @T _C =100°C	Continuous Drain Current, V _{GS} @ 10 V	6.5	A
I _{DM}	Pulsed Drain Current	4	A
P _D @T _C =25°C	Power Dissipation	82	W
	Linear Derating Factor	0.55	W/°C
V _{GS}	Gate-Source Voltage	±20	V
E _{AS}	Single Pulse Avalanche Energy	94	mJ
T _J	Junction Temperature	150	°C
T _{stg}	Storage Temperature	-55-150	°C

Thermal Resistance

R _{θJC}	Thermal Resistance Junction to Case	1.83	°C/W
R _{θJA}	Thermal Resistance Junction to Ambient	62	°C/W

ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250μA	200			V
Gate-Threshold Voltage	V _{th(GS)}	V _{DS} =V _{GS} , I _D =250μA	2		4	V
Gate-body Leakage	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =200V, V _{GS} =0V			25	μA
		V _{DS} =160V, V _{GS} =0V, T _J =150°C			250	
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =5.4A			0.3	Ω
Forward Trans conductance	g _{fs}	V _{DS} =50V, I _D =5.4A	3.8			S
Diode Forward Voltage	V _{SD}	I _S =9A, V _{GS} =0V			1.2	V
Total Gate Charge	Q _g	V _{DD} =100V, V _{GS} =0to2V, I _D =11A, I _g =1mA			3.2	nC
Gate-Source Charge	Q _{gs}			4		
Gate-Drain Charge	Q _{gd}			11		
Input Capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V, f=1MHz		600		pF
Output Capacitance	C _{oss}			250		
Reverse Transfer Capacitance	C _{rss}			80		

SWITCHING TIME

Turn-on Time	$t_{d(on)}$	$V_{DD}=100V,$ $I_D=5.9A,$ $R_G=12\Omega, R_D=16\Omega$		9		ns
	t_r			12		
Turn-off Time	$t_{d(off)}$				135	

Typical Characteristics

IRF630

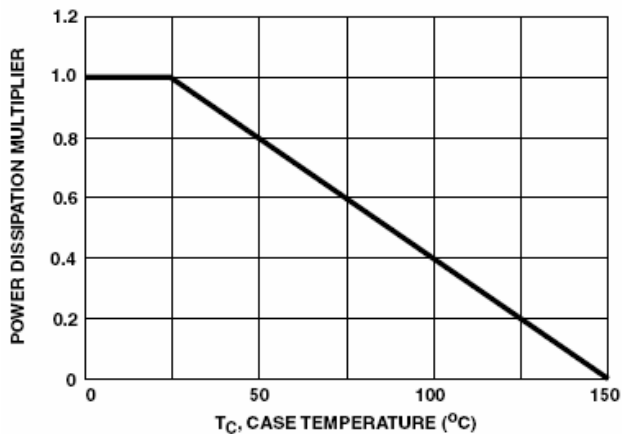


FIGURE 1. NORMALIZED POWER DISSIPATION vs CASE TEMPERATURE

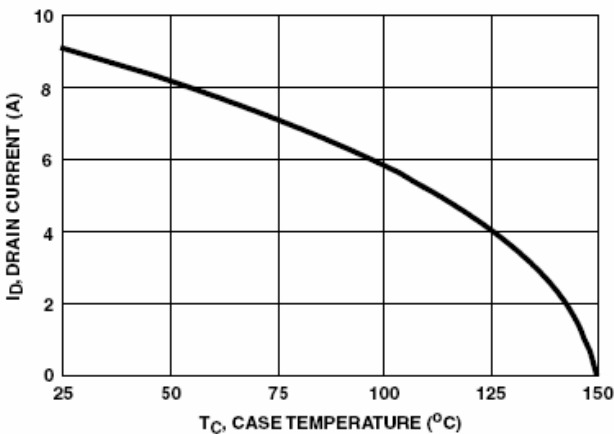


FIGURE 2. MAXIMUM CONTINUOUS DRAIN CURRENT vs CASE TEMPERATURE

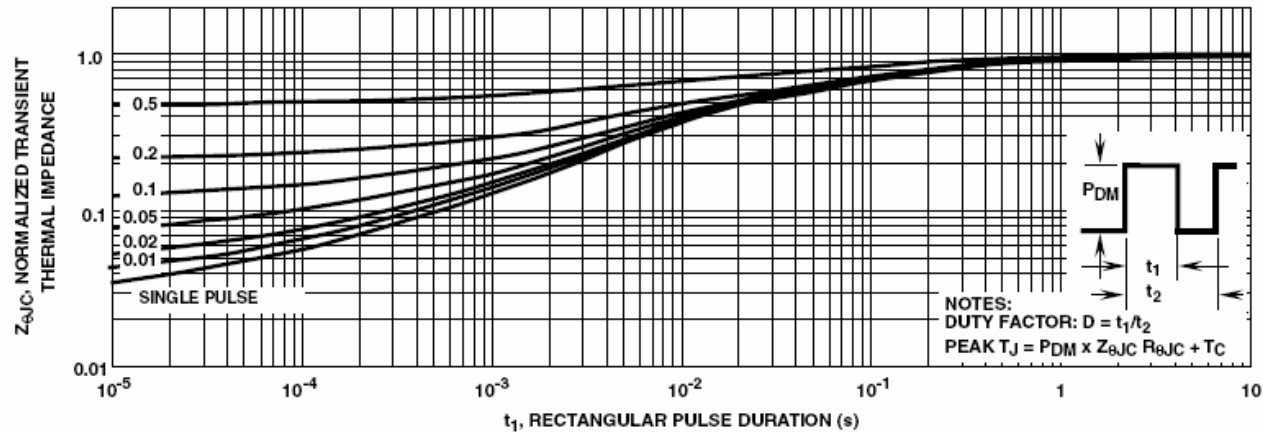


FIGURE 3. NORMALIZED TRANSIENT THERMAL IMPEDANCE

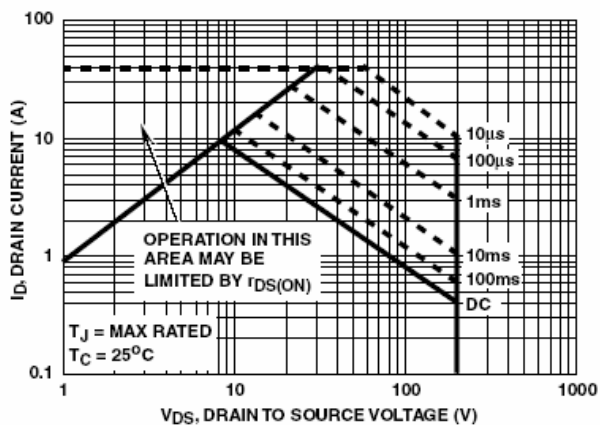


FIGURE 4. FORWARD BIAS SAFE OPERATING AREA

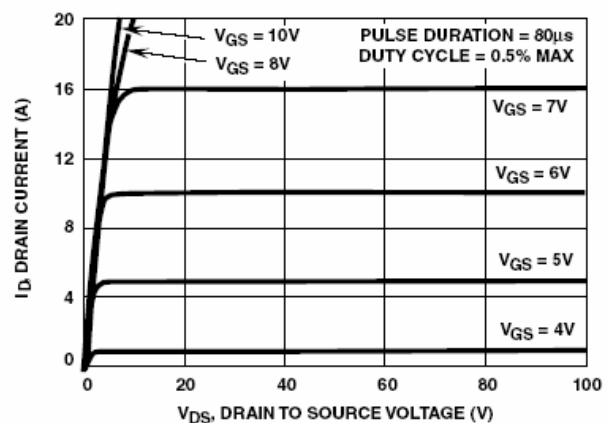


FIGURE 5. OUTPUT CHARACTERISTICS

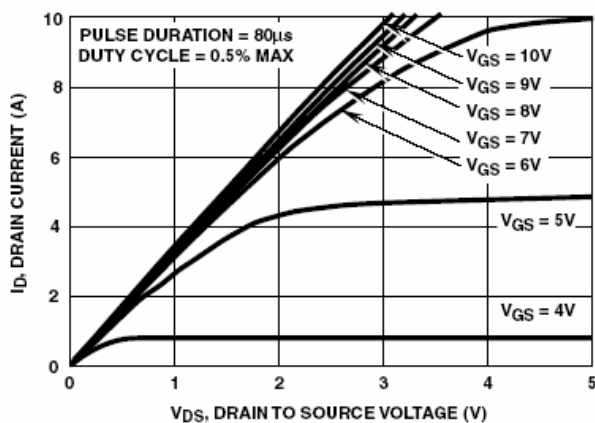


FIGURE 6. SATURATION CHARACTERISTICS

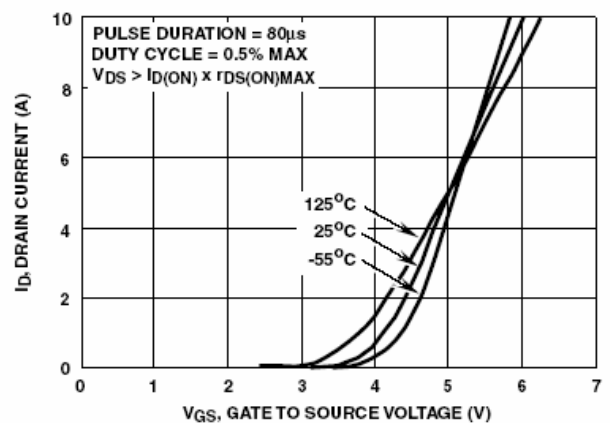


FIGURE 7. TRANSFER CHARACTERISTICS

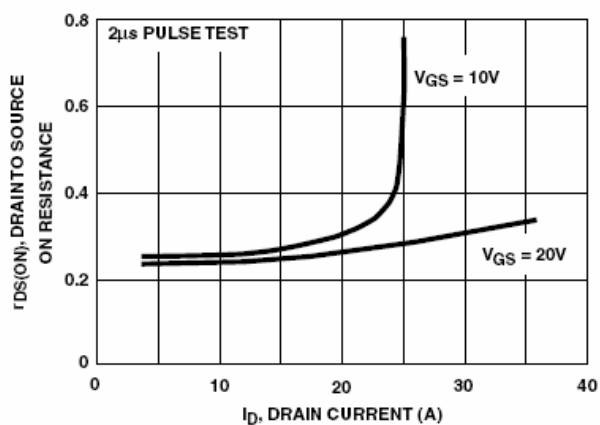


FIGURE 8. DRAIN TO SOURCE ON RESISTANCE vs GATE VOLTAGE AND DRAIN CURRENT

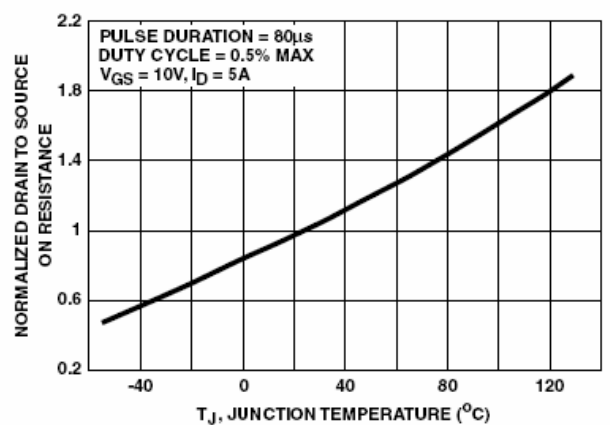


FIGURE 9. NORMALIZED DRAIN TO SOURCE ON RESISTANCE vs JUNCTION TEMPERATURE

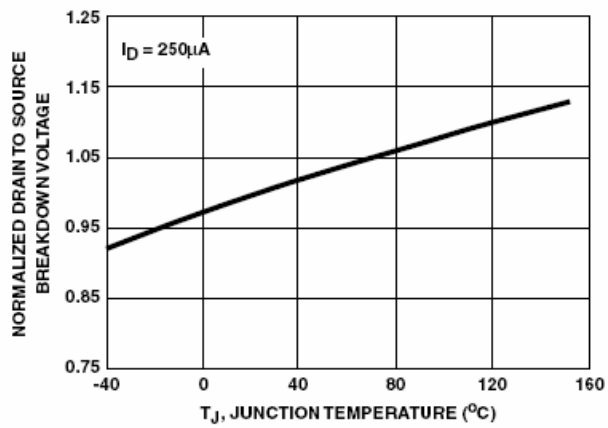


FIGURE 10. NORMALIZED DRAIN TO SOURCE BREAKDOWN VOLTAGE vs JUNCTION TEMPERATURE

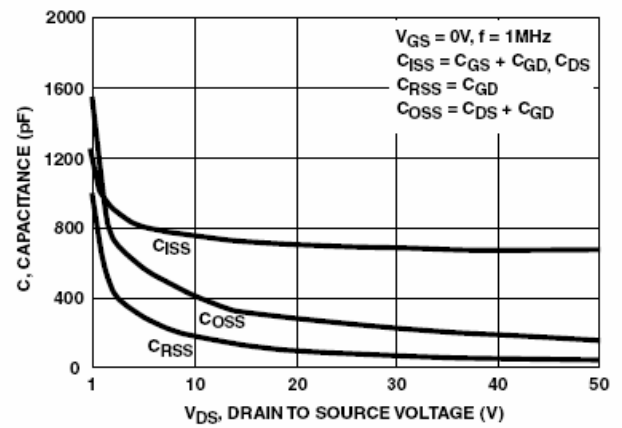


FIGURE 11. CAPACITANCE vs DRAIN TO SOURCE VOLTAGE

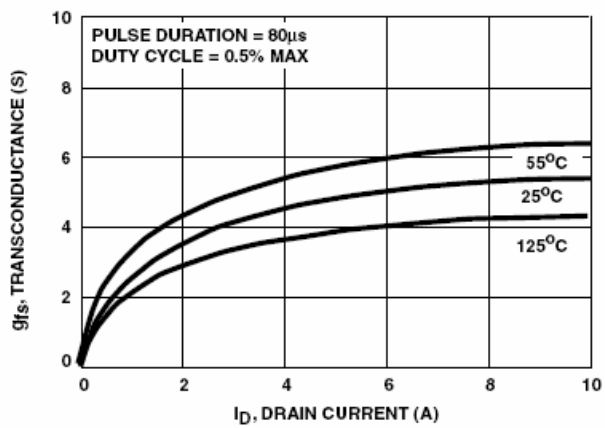


FIGURE 12. TRANSCONDUCTANCE vs DRAIN CURRENT

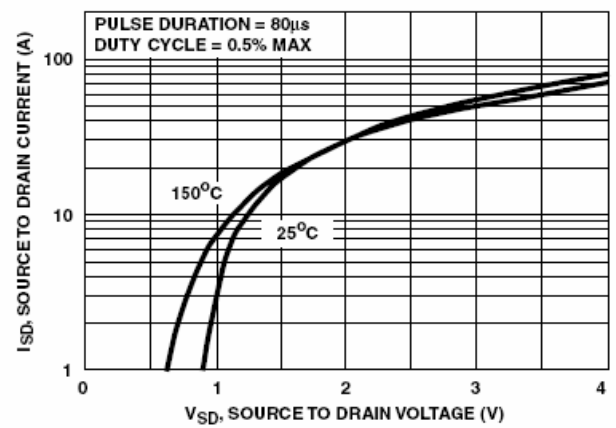


FIGURE 13. SOURCE TO DRAIN DIODE VOLTAGE

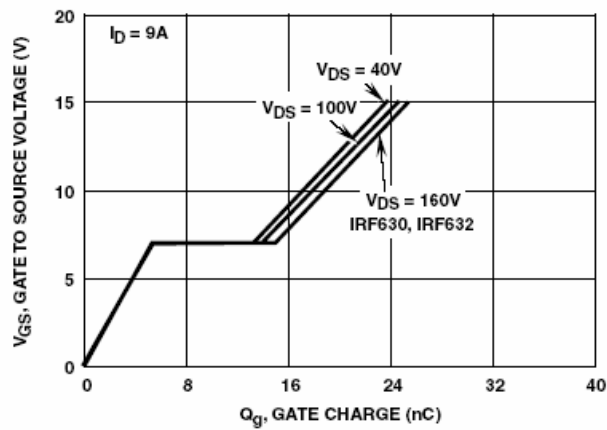


FIGURE 14. GATE TO SOURCE VOLTAGE vs GATE CHARGE