



JIANGSU CHANGJIANG ELECTRONICS TECHNOLOGY CO., LTD

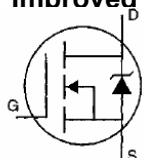
TO-220 Plastic-Encapsulate MOSFET

IRF730

MOSFET(N-Channel)

FEATURES

- 5.5A, 400V, $R_{DS(on)} = 1.0\Omega$ @ $V_{GS} = 10\text{ V}$
- Low gate charge (typical 25 nC)
- Low C_{rss} (typical 20 pF)
- Fast switching
- 100% avalanche tested
- Improved dv/dt capability



$V_{DSS} = 400\text{ V}$

$R_{DS(ON)} = 1\Omega$

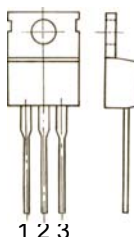
$I_D = 5.5\text{ A}$

TO-220

1. G

2. D

3. S



MAXIMUM RATINGS* $T_A = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
V_{DSS} @ $T_C = 25^\circ\text{C}$	Drain-Source Breakdown Voltage	400	V
I_D @ $T_C = 25^\circ\text{C}$	Continuous Drain Current, V_{GS} @ 10 V	5.5	A
I_D @ $T_C = 100^\circ\text{C}$	Continuous Drain Current, V_{GS} @ 10 V	3.5	A
I_{DM}	Pulsed Drain Current	22	A
P_D @ $T_C = 25^\circ\text{C}$	Power Dissipation	73	W
V_{GS}	Gate-Source Voltage	± 30	V
E_{AS}	Single Pulse Avalanche Energy	330	mJ
I_{AR}	Avalanche Current	5.5	A
E_{AR}	Repetitive Avalanche Energy	7.3	mJ
dv/dt	Peak Diode Recovery dv/dt	5.5	V/ns
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{stg}	Storage Temperature	-55-150	$^\circ\text{C}$

Thermal Resistance

	Parameter	Min.	Typ.	Max.	Units
$R_{\theta JC}$	Junction-to-case			1.71	$^\circ\text{C/W}$
$R_{\theta CS}$	Case-to-Sink, Flat, Greased surface		0.5		
$R_{\theta JA}$	Junction-to-Ambient			62.5	

ELECTRICAL CHARACTERISTICS(Tamb=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	400			V
Gate-Threshold Voltage	$V_{th(GS)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2		4	
Gate-body Leakage	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 30V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=400V, V_{GS}=0V$			10	μA
		$V_{DS}=320V, V_{GS}=0V, T_J=125^\circ C$			100	
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=2.75A$			1	Ω
Forward Transconductance	g_{fs}	$V_{DS}=40V, I_D=2.75A$	2.9	4.5		S
Diode Forward Voltage	V_{SD}	$I_S=5.5A, V_{GS}=0V$			1.5	V
Total Gate Charge	Q_g	$V_{DS}=320V, V_{GS}=10V, I_D=5.5A$			33	nC
Gate-Source Charge	Q_{gs}			4.3		
Gate-Drain Charge	Q_{gd}			11		
Input Capacitance	C_{iss}	$V_{DS}=25V, V_{GS}=0V, f=1MHz$			1000	pF
Output Capacitance	C_{oss}				100	
Reverse Transfer Capacitance	C_{rss}				26	

SWITCHING TIME

Turn-on Time	$t_{d(on)}$	$V_{DD}=200V,$ $I_D=5.5A,$			40	ns
	t_r				120	
Turn-off Time	$t_{d(off)}$	$R_G=25\Omega$			180	

Typical Characteristics

IRF730

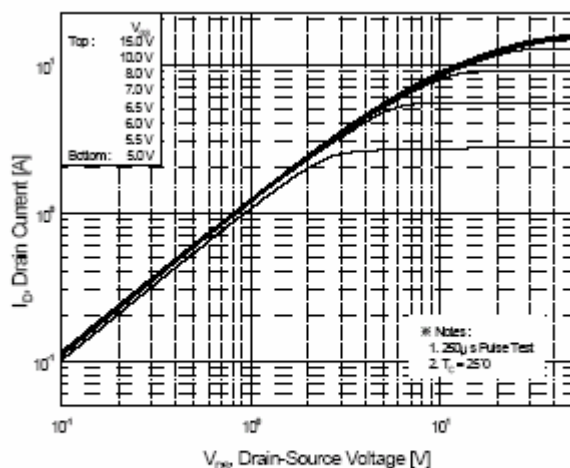


Figure 1. On-Region Characteristics

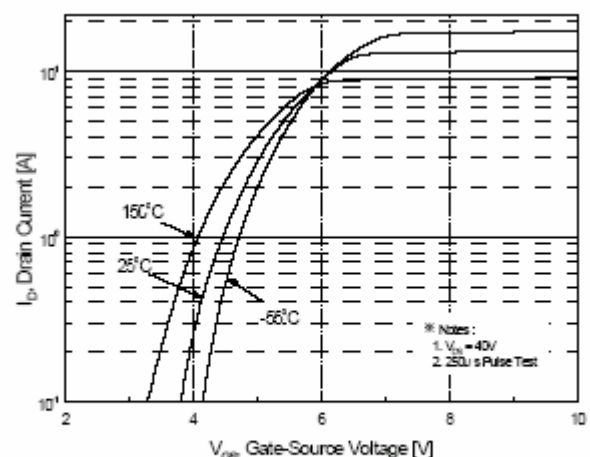


Figure 2. Transfer Characteristics

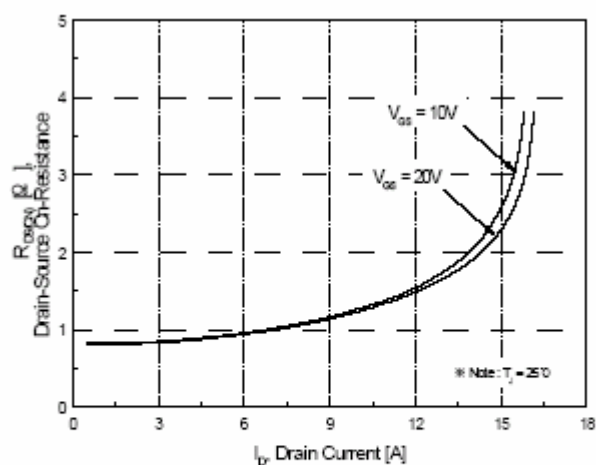


Figure 3. On-Resistance Variation vs Drain Current and Gate Voltage

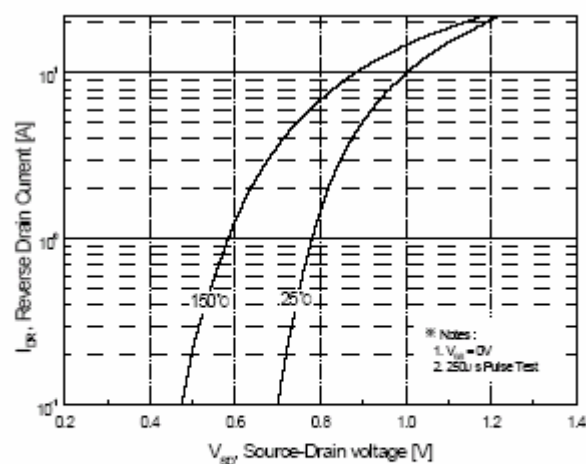


Figure 4. Body Diode Forward Voltage Variation with Source Current and Temperature

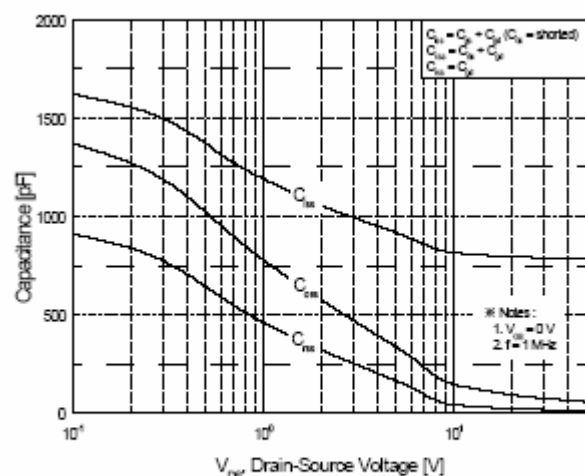


Figure 5. Capacitance Characteristics

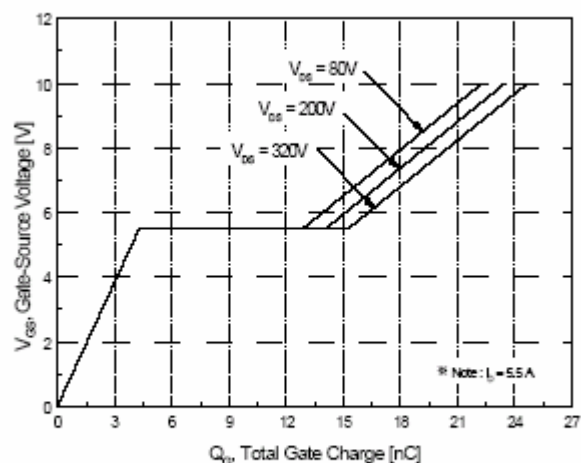


Figure 6. Gate Charge Characteristics

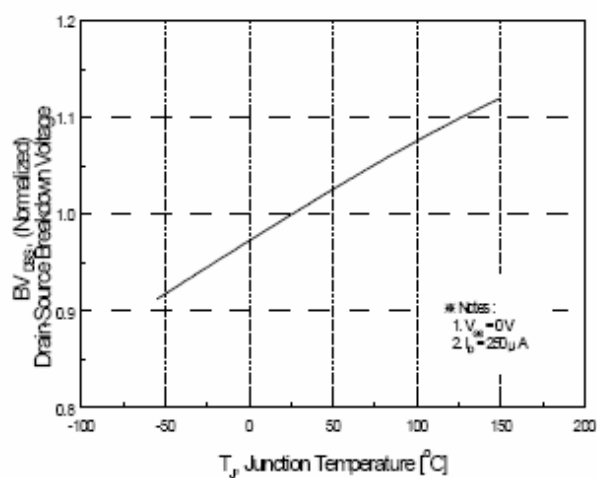


Figure 7. Breakdown Voltage Variation vs Temperature

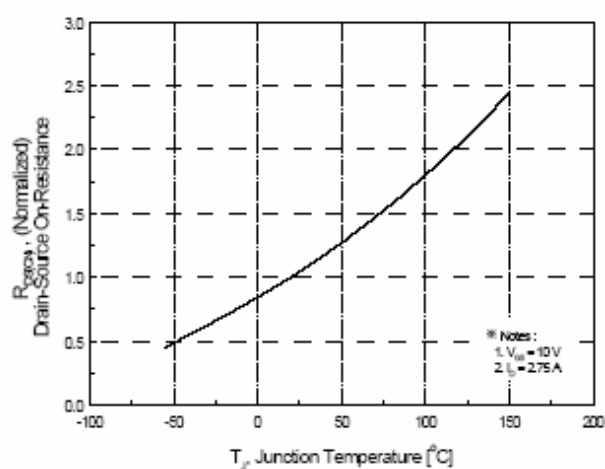


Figure 8. On-Resistance Variation vs Temperature

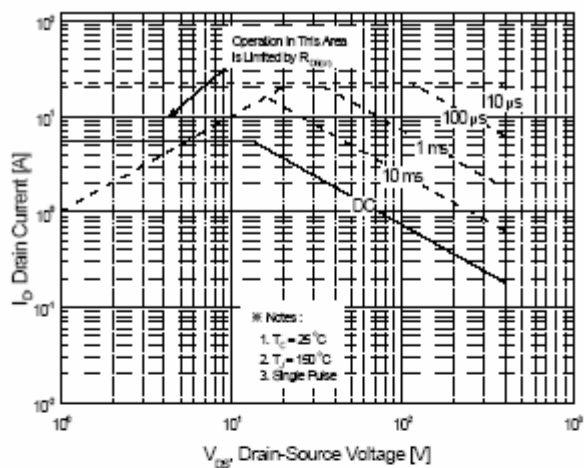


Figure 9-1. Maximum Safe Operating Area for IRF730B

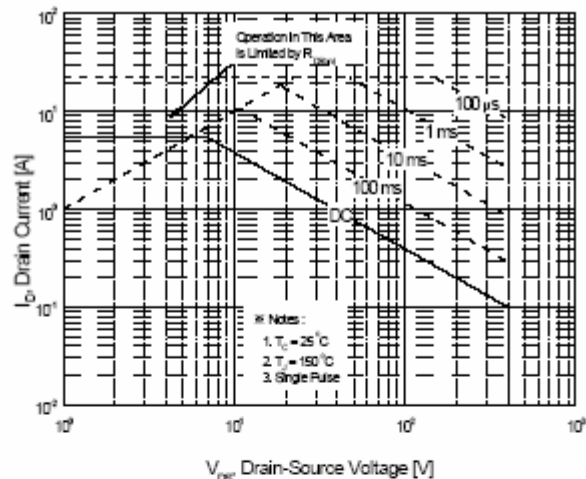


Figure 9-2. Maximum Safe Operating Area for IRFS730B

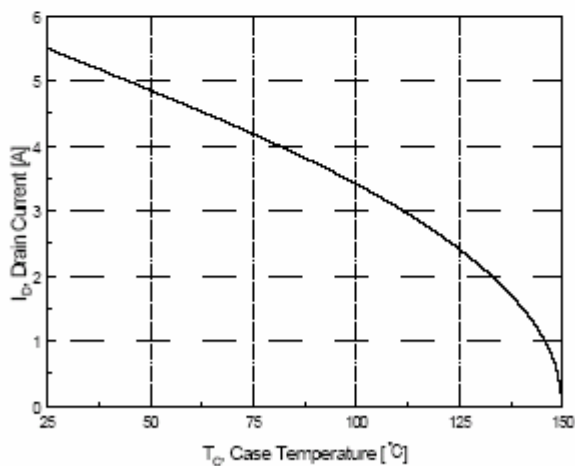


Figure 10. Maximum Drain Current vs Case Temperature

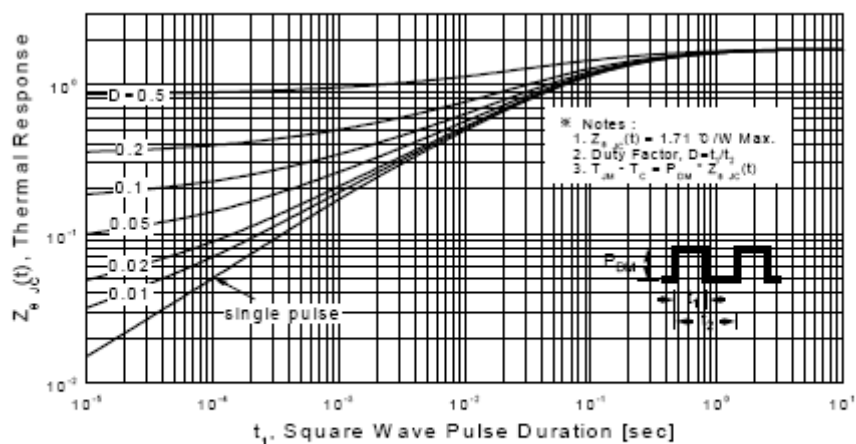


Figure 11. Transient Thermal Response Curve for IRF730B