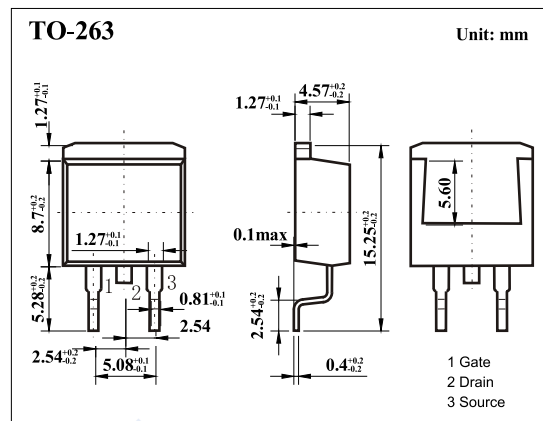
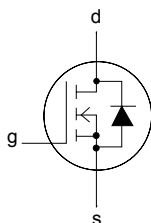


N-Channel MOSFET

IRF730S (KRF730S)

■ Features

- $V_{DS} (V) = 400V$
- $I_D = 5.5 A$ ($V_{GS} = 10V$)
- $R_{DS(ON)} < 1 \Omega$ ($V_{GS} = 10V$)
- Fast switching
- Low thermal resistance



■ Absolute Maximum Ratings $T_a = 25^\circ C$

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	400	V
Gate-Source Voltage	V_{GS}	± 20	
Continuous Drain Current	I_D	5.5	A
		3.5	
Pulsed Drain Current	I_{DM}	22	
Avalanche Current	I_{AR}	5.5	
Power Dissipation	P_D	74	W
		3.1	
Non-Repetitive Avalanche Energy (Note.1)	E_{AS}	290	mJ
Repetitive Avalanche Energy (Note.2)	E_{AR}	7.4	
Peak Diode Recovery dv/dt	dv/dt	4	V/ns
Thermal Resistance.Junction- to-Ambient	R_{thJA}	62	$^\circ C/W$
Thermal Resistance.Junction- to-Ambient (PCB mount)		40	
Thermal Resistance Junction to Mounting Base	R_{thJB}	1.7	
Junction Temperature	T_J	150	$^\circ C$
Storage Temperature Range	T_{stg}	-55 to 150	

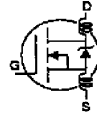
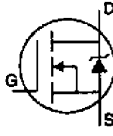
Note.1: $V_{DD} = 50V$, starting $T_J = 25^\circ C$, $L = 16mH$, $R_g = 25\Omega$, $I_{AS} = 5.5 A$

Note.2: $I_{SD} \leq 5.5 A$, $dI/dt \leq 90A/\mu s$, $V_{DD} \leq V_{(BR)DSS}$, $T_J \leq 150^\circ C$.

N-Channel MOSFET

IRF730S (KRF730S)

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V _{DSS}	I _D =250 μA, V _{GS} =0V	400			V
Zero Gate Voltage Drain Current	I _{DSS}	V _D =400V, V _{GS} =0V			25	μA
		V _D =320V, V _{GS} =0V, T _J =125°C			250	
Gate-Body Leakage Current	I _{GSS}	V _D =0V, V _{GS} =±20V			±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _D =V _{GS} , I _D =250μA (Note.1)	2		4	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =3.3A (Note.1)			1	Ω
Forward Transconductance	g _{FS}	V _D =50V, I _D =3.3A (Note.1)	2.9			S
Input Capacitance	C _{iss}	V _{GS} =0V, V _D =25V, f=1MHz		700		pF
Output Capacitance	C _{oss}			170		
Reverse Transfer Capacitance	C _{rss}			64		
Total Gate Charge	Q _g	V _{GS} =10V, V _D =320V, I _D =3.5A			38	nC
Gate Source Charge	Q _{gs}				5.7	
Gate Drain Charge	Q _{gd}				22	
Internal Drain Inductance	L _D	Between lead, 6 mm (0.25in.) from package and center of die contact 		4.5		nH
Internal Source Inductance	L _S			7.5		
Turn-On DelayTime	t _{d(on)}	V _D =200V, I _D =3.5A, R _L =57 Ω, R _G =12 Ω		10		ns
Turn-On Rise Time	t _r			15		
Turn-Off DelayTime	t _{d(off)}			38		
Turn-Off Fall Time	t _f			14		
Body Diode Reverse Recovery Time	t _{rr}	I _F = 3.5A; dI _F /dt = 100 A/μs, T _J =25°C			530	μC
Body Diode Reverse Recovery Charge	Q _{rr}				2.2	
Maximum Body-Diode Continuous Current	I _S	MOSFET symbol showing the integral reverse p-n junction diode. 			5.5	A
Pulsed Source Current (Body Diode)	I _{SM}				22	
Diode Forward Voltage	V _{SD}	I _S =5.5A, V _{GS} =0, T _J =25°C			1.6	V

Note.1: Pulse width ≤ 300 μs; duty cycle ≤ 2 %.

N-Channel MOSFET

IRF730 (KRF730)

■ Typical Characteristics

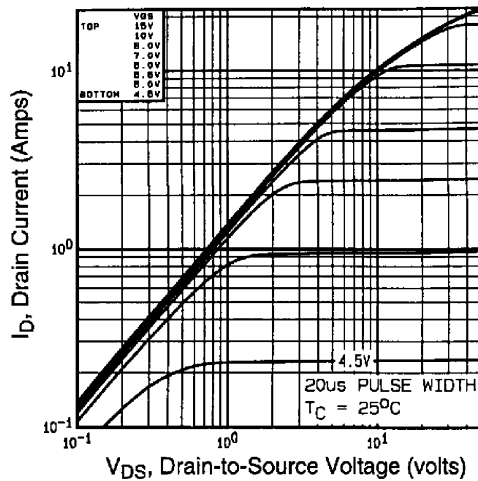
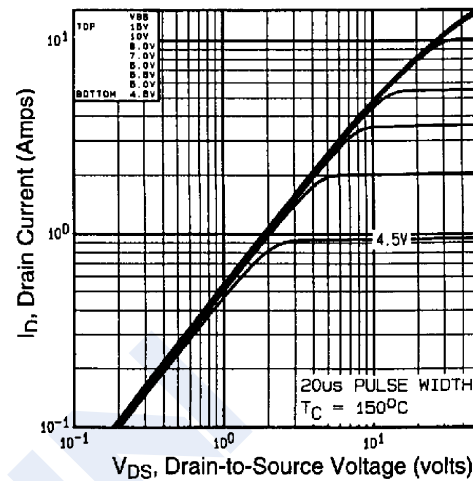
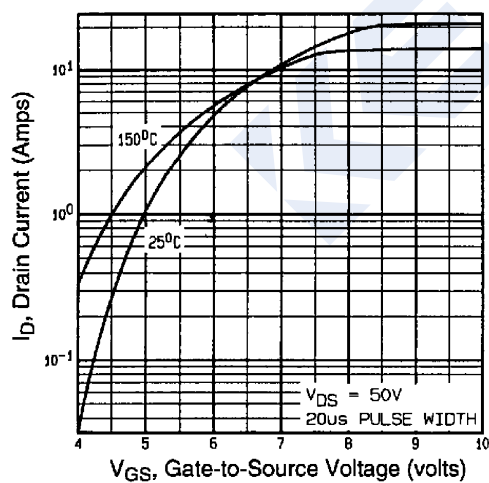
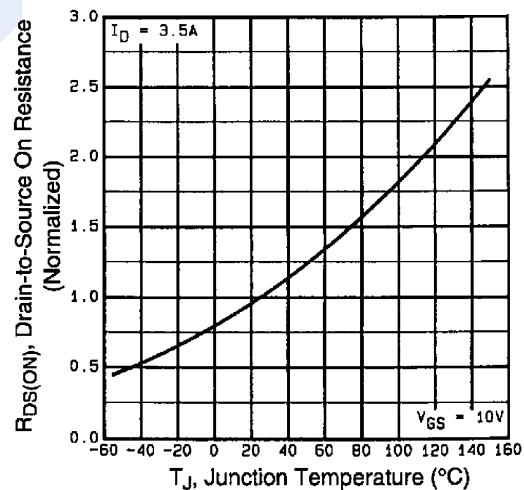
Fig 1. Typical Output Characteristics,
 $T_C = 25^\circ\text{C}$ Fig 2. Typical Output Characteristics,
 $T_C = 150^\circ\text{C}$ 

Fig 3. Typical Transfer Characteristics

Fig 4. Normalized On-Resistance
Vs. Temperature

N-Channel MOSFET

IRF730 (KRF730)

■ Typical Characteristics

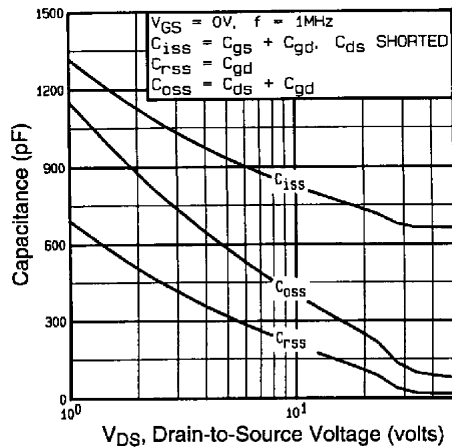


Fig 5. Typical Capacitance Vs. Drain-to-Source Voltage

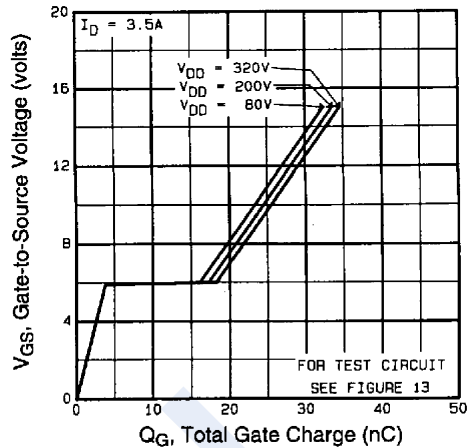


Fig 6. Typical Gate Charge Vs. Gate-to-Source Voltage

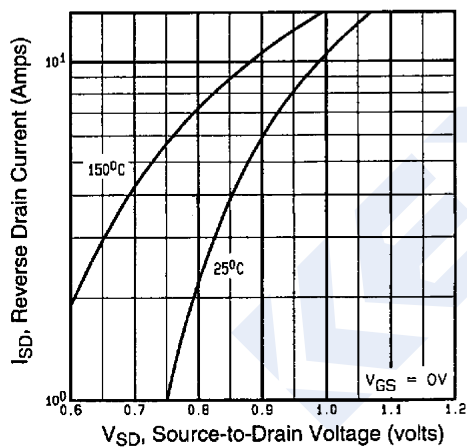


Fig 7. Typical Source-Drain Diode Forward Voltage

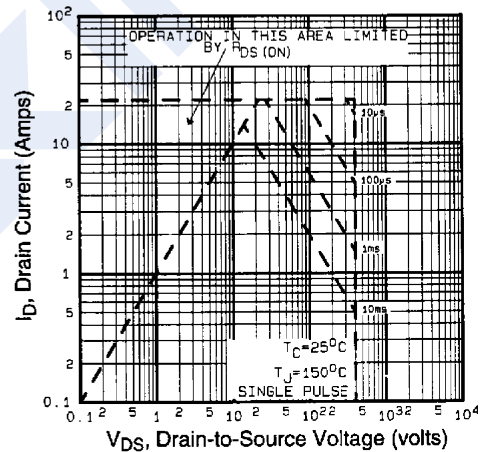


Fig 8. Maximum Safe Operating Area

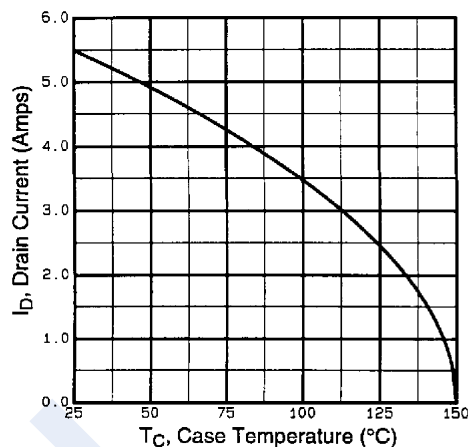


Fig 9. Maximum Drain Current Vs. Case Temperature

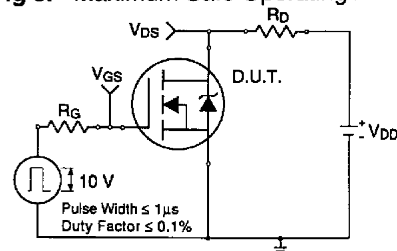


Fig 10a. Switching Time Test Circuit

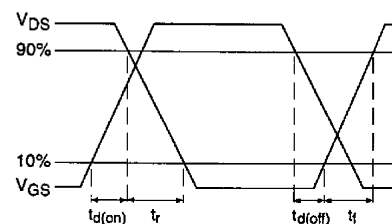


Fig 10b. Switching Time Waveforms

N-Channel MOSFET

IRF730 (KRF730)

■ Typical Characteristics

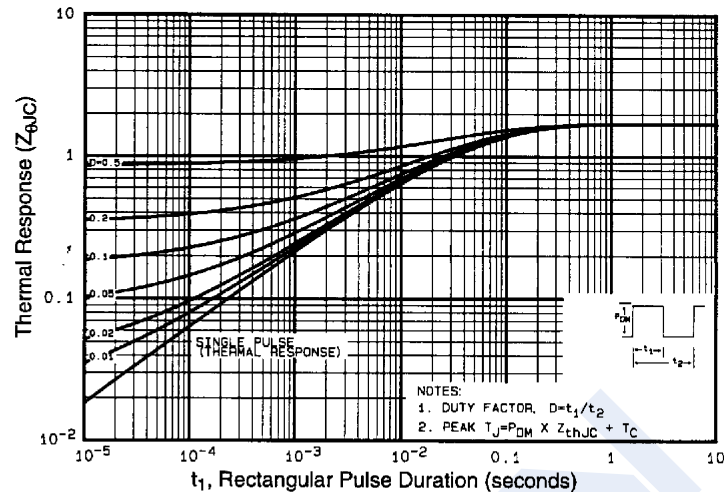


Fig 11. Maximum Effective Transient Thermal Impedance, Junction-to-Case

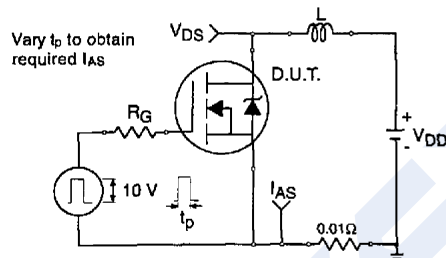


Fig 12a. Unclamped Inductive Test Circuit

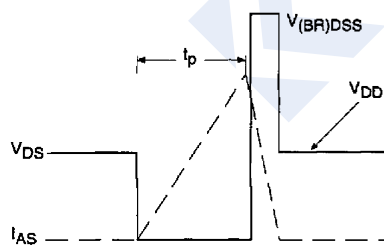


Fig 12b. Unclamped Inductive Waveforms

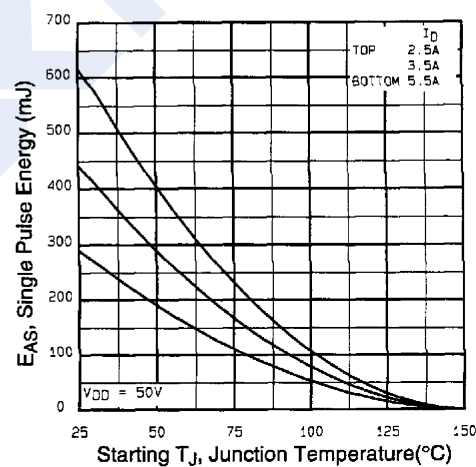


Fig 12c. Maximum Avalanche Energy Vs. Drain Current

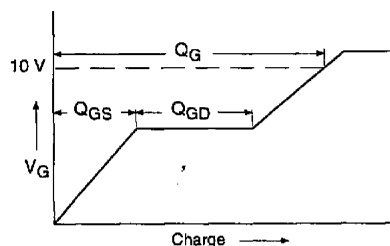


Fig 13a. Basic Gate Charge Waveform

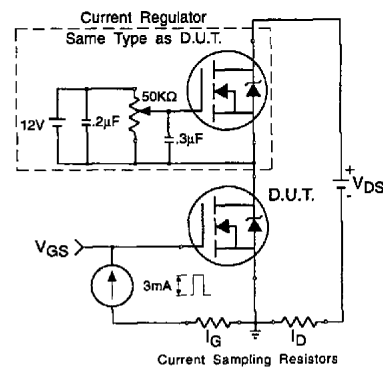


Fig 13b. Gate Charge Test Circuit