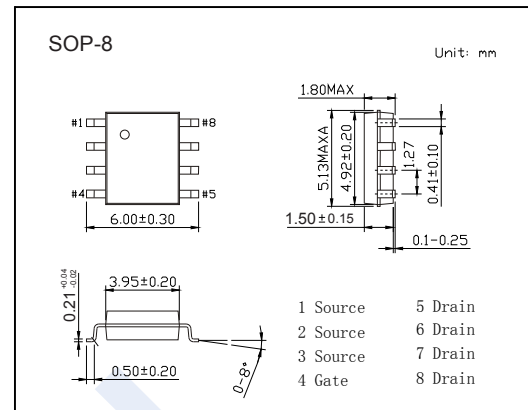
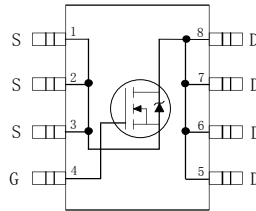


N-Channel MOSFET

IRF7855 (KRF7855)

■ Features

- $V_{DS} = 60V$
- $I_D = 12 A$ ($V_{GS} = 10V$)
- $R_{DS(ON)} < 9.4m\Omega$ ($V_{GS} = 10V$)



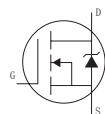
■ Absolute Maximum Ratings $T_a = 25^\circ C$

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	
Continuous Drain Current	I_D	$T_A = 25^\circ C$	12
		$T_A = 70^\circ C$	8.7
Pulsed Drain Current	I_{DM}	97	A
Power Dissipation	P_D	2.5	W
Linear Derating Factor		0.02	$W/^\circ C$
Avalanche Current	I_{AS}	7.2	A
Single Pulse Avalanche Energy	E_{AS}	540	mJ
Peak Diode Recovery dv/dt	dv/dt	9.9	V/ns
Thermal Resistance.Junction- to-Ambient	R_{thJA}	50	$^\circ C/W$
Thermal Resistance.Junction- to-Case	R_{thJC}	20	
Junction Temperature	T_J	150	$^\circ C$
Storage Temperature Range	T_{stg}	-55 to 150	

N-Channel MOSFET

IRF7855 (KRF7855)

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DS}	$I_D=250\ \mu\text{A}$, $V_{GS}=0\text{V}$	60			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=60\text{V}$, $V_{GS}=0\text{V}$			20	μA
		$V_{DS}=60\text{V}$, $V_{GS}=0\text{V}$, $T_J=125^\circ\text{C}$			250	
Gate-Body Leakage Current	I_{GSS}	$V_{DS}=0\text{V}$, $V_{GS}=\pm 20\text{V}$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$, $I_D=100\ \mu\text{A}$	3		4.9	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10\text{V}$, $I_D=12\text{A}$		7.4	9.4	m Ω
Forward Transconductance	g_{FS}	$V_{DS}=25\text{V}$, $I_D=7.2\text{A}$	14			S
Input Capacitance	C_{iss}	$V_{GS}=0\text{V}$, $V_{DS}=25\text{V}$, $f=1\text{MHz}$		1560		pF
Output Capacitance	C_{oss}			440		
Reverse Transfer Capacitance	C_{rss}			120		
Output Capacitance	C_{oss}	$V_{GS}=0\text{V}$, $V_{DS}=1\text{V}$, $f=1.0\text{MHz}$		1910		
Output Capacitance	C_{oss}	$V_{GS}=0\text{V}$, $V_{DS}=48\text{V}$, $f=1.0\text{MHz}$		320		
Effective Output Capacitance	$C_{oss\ eff}$	$V_{GS}=0\text{V}$, $V_{DS}=0\text{ to }48\text{V}$		520		
Total Gate Charge	Q_g	$V_{GS}=10\text{V}$, $V_{DS}=30\text{V}$, $I_D=7.2\text{A}$		26	39	nC
Gate Source Charge	Q_{gs}			6.8		
Gate Drain Charge	Q_{gd}			9.6		
Turn-On DelayTime	$t_{d(on)}$	$V_{GS}=10\text{V}$, $V_{DS}=30\text{V}$, $I_D=7.2\text{A}$, $R_G=6.2\ \Omega$		8.7		ns
Turn-On Rise Time	t_r			13		
Turn-Off DelayTime	$t_{d(off)}$			16		
Turn-Off Fall Time	t_f			12		
Body Diode Reverse Recovery Time	t_{rr}	$I_S=7.2\text{A}$, $V_{GS}=0$, $di/dt=100\text{A}/\mu\text{s}$, $T_J=25^\circ\text{C}$		33	50	
Body Diode Reverse Recovery Charge	Q_{rr}	$I_F=7.2\text{A}$, $V_{DD}=25\text{V}$, $di/dt=100\text{A}/\mu\text{s}$, $T_J=25^\circ\text{C}$		38	57	nC
Maximum Body-Diode Continuous Current	I_S	MOSFET symbol showing the integral reverse p-n junction diode. 			2.3	A
Pulsed Source Current	I_{SM}					
Diode Forward Voltage	V_{SD}	$I_S=7.2\text{A}$, $V_{GS}=0$, $T_J=25^\circ\text{C}$		0.71	1.3	V

N-Channel MOSFET IRF7855 (KRF7855)

■ Typical Characteristics

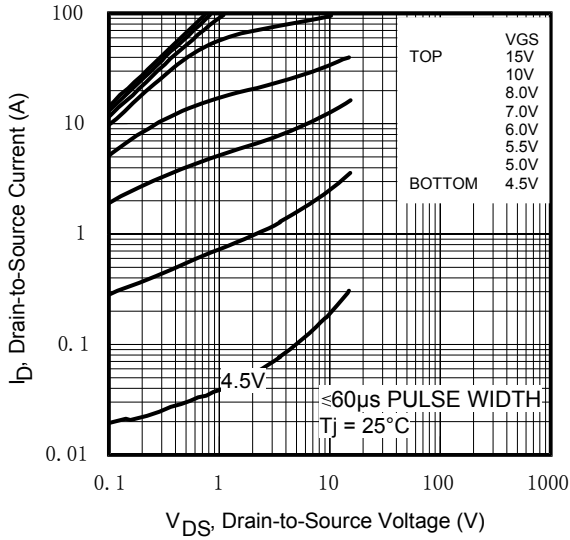


Fig 1. Typical Output Characteristics

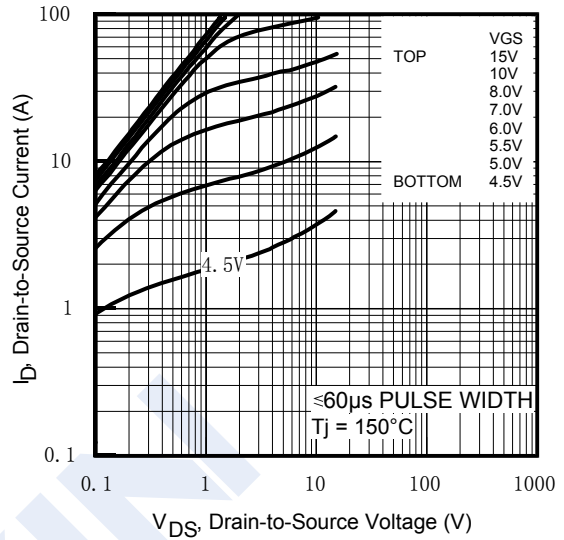


Fig 2. Typical Output Characteristics

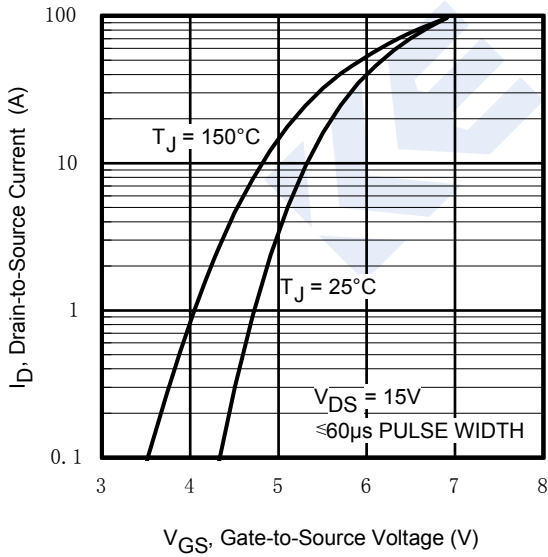


Fig 3. Typical Transfer Characteristics

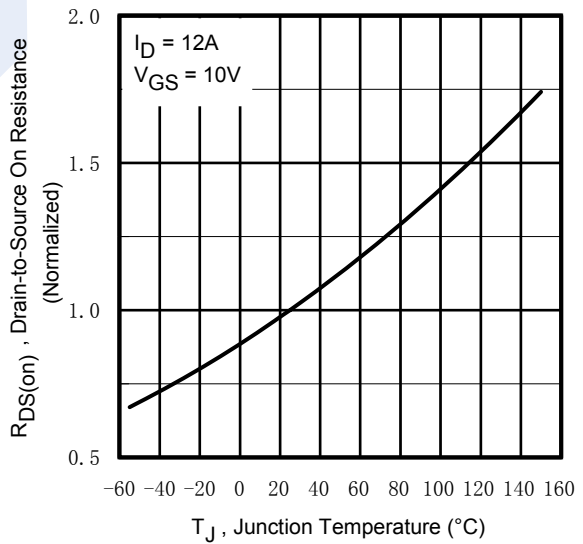


Fig 4. Normalized On-Resistance vs. Temperature

N-Channel MOSFET IRF7855 (KRF7855)

■ Typical Characteristics

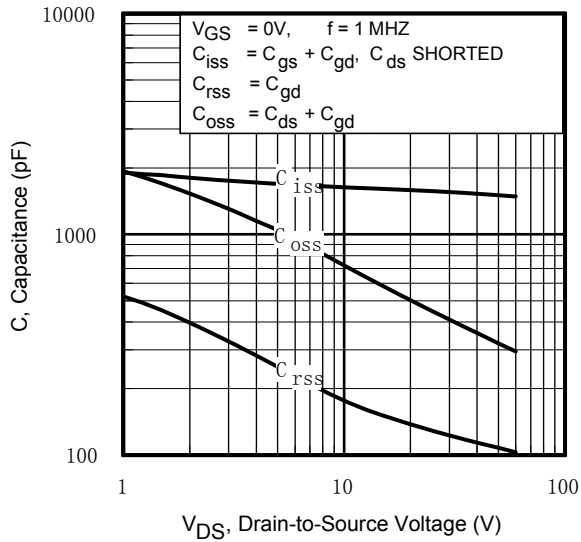


Fig 5. Typical Capacitance vs. Drain-to-Source Voltage

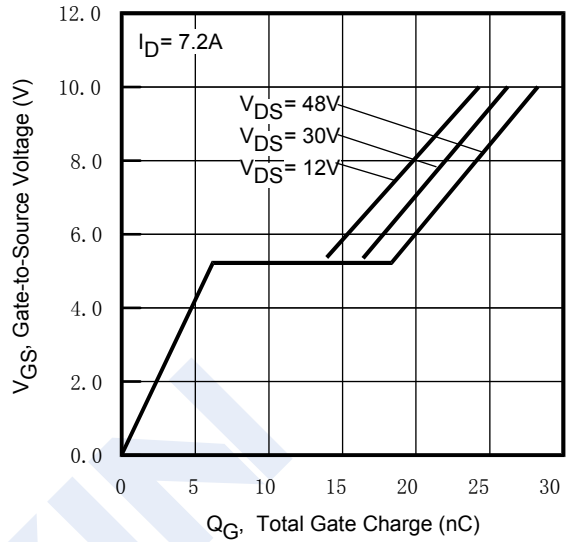


Fig 6. Typical Gate Charge vs. Gate-to-Source Voltage

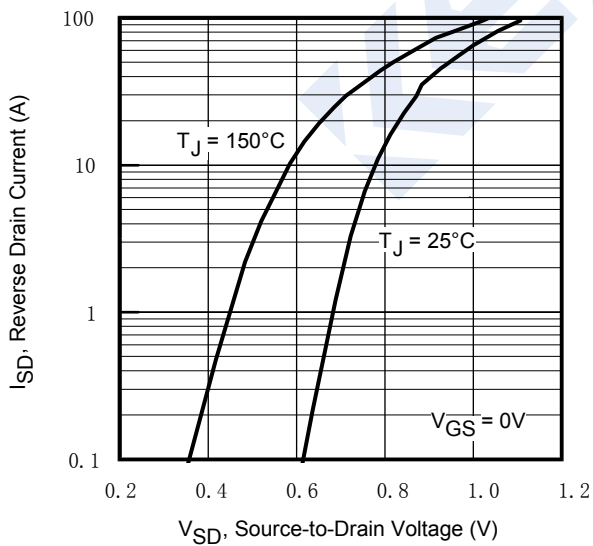


Fig 7. Typical Source-Drain Diode Forward Voltage

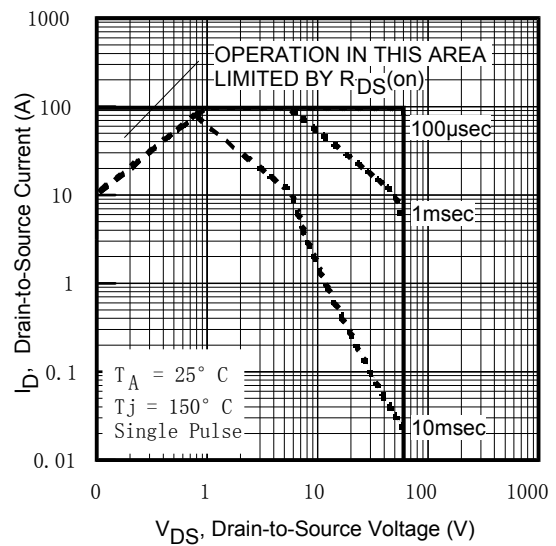


Fig 8. Maximum Safe Operating Area

N-Channel MOSFET IRF7855 (KRF7855)

■ Typical Characteristics

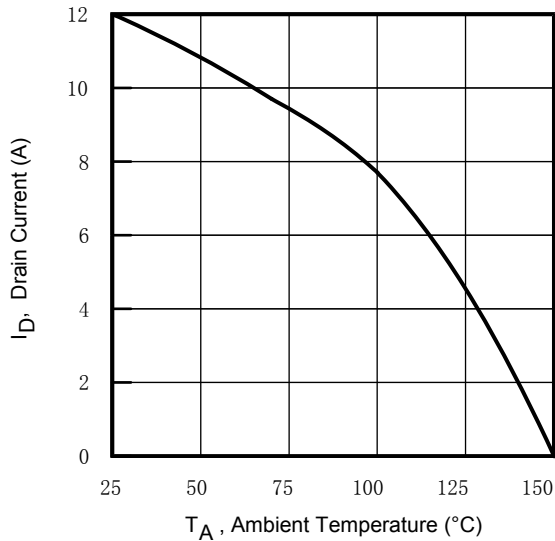


Fig 9. Maximum Drain Current vs. Ambient Temperature

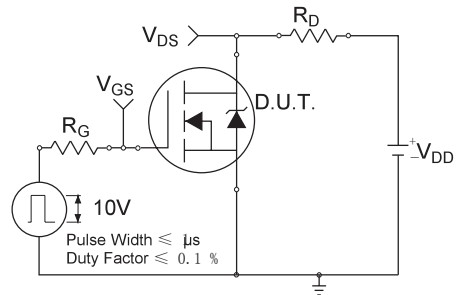


Fig 10a. Switching Time Test Circuit

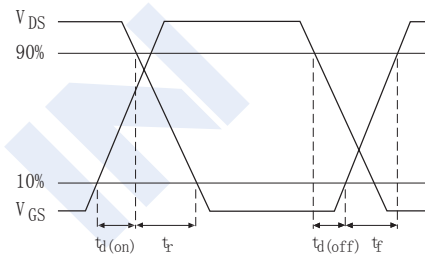


Fig 10b. Switching Time Waveforms

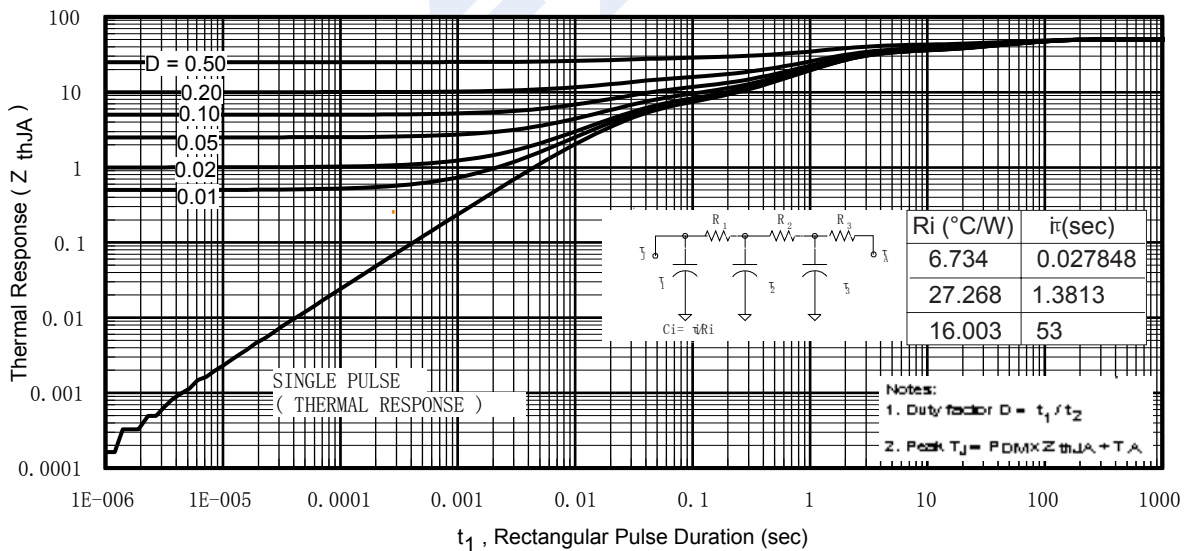


Fig 11. Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

N-Channel MOSFET IRF7855 (KRF7855)

■ Typical Characteristics

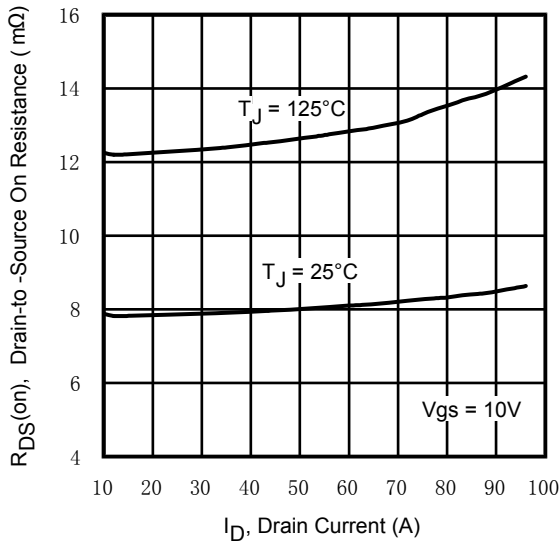


Fig 12. On-Resistance vs. Drain Current

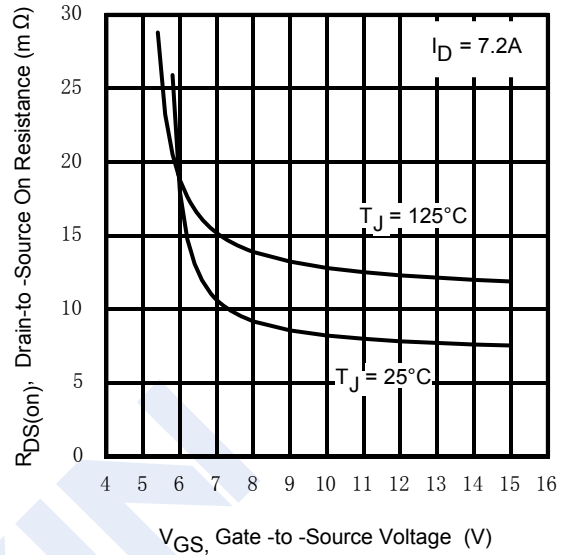


Fig 13. On-Resistance vs. Gate Voltage

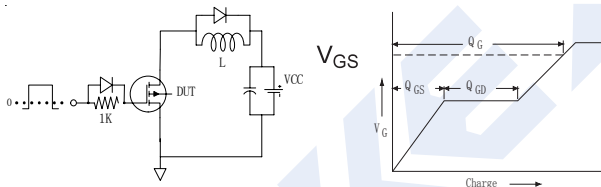


Fig 14a&b. Basic Gate Charge Test Circuit and Waveform

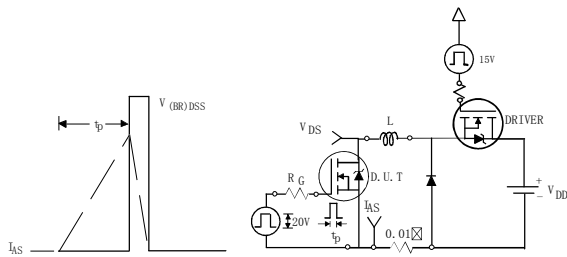


Fig 15a&b. Unclamped Inductive Test circuit and Waveforms

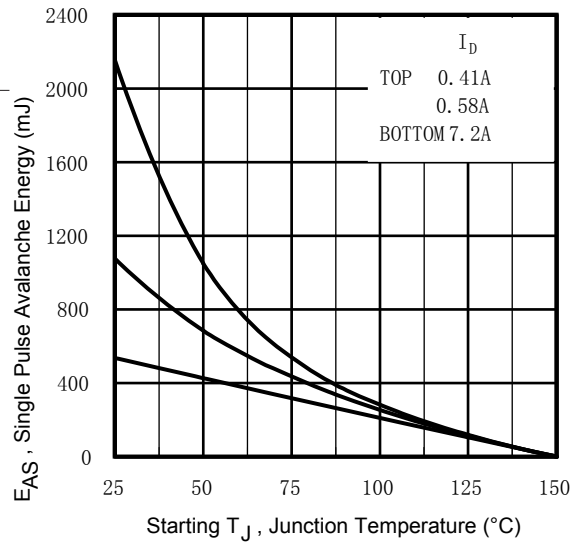


Fig 15c. Maximum Avalanche Energy vs. Drain Current