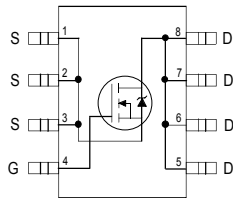
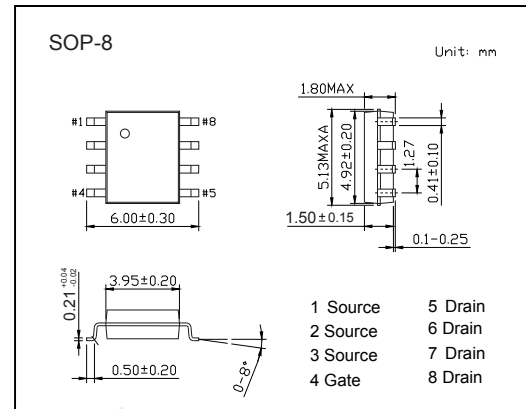


## N-Channel MOSFET

### IRF7476-HF (KRF7476-HF)

#### Features

- $V_{DS}$  (V) = 12V
- $I_D$  = 15 A ( $V_{GS}$  = 10V)
- $R_{DS(ON)}$  < 8m  $\Omega$  ( $V_{GS}$  = 4.5V)
- $R_{DS(ON)}$  < 30m  $\Omega$  ( $V_{GS}$  = 2.8V)
- Pb-Free Package May be Available. The G-Suffix Denotes a Pb-Free Lead Finish



#### Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	12	V
Gate-Source Voltage	$V_{GS}$	$\pm 12$	
Continuous Drain Current	$I_D$	$T_A=25^\circ\text{C}$	15
		$T_A=70^\circ\text{C}$	
Pulsed Drain Current	$I_{DM}$	120	A
Avalanche Current	$I_{AR}$	12	
Power Dissipation	$P_D$	$T_A=25^\circ\text{C}$	2.5
		$T_A=70^\circ\text{C}$	
Linear Derating Factor		0.02	W/ $^\circ\text{C}$
Single Pulse Avalanche Energy	$E_{AS}$	160	mJ
Thermal Resistance.Junction- to-Ambient	$R_{thJA}$	50	$^\circ\text{C}/\text{W}$
Thermal Resistance.Junction- to-Case	$R_{thJC}$	20	
Junction Temperature	$T_J$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-55 to 150	

## N-Channel MOSFET

### IRF7476-HF (KRF7476-HF)

#### ■ Typical Characteristics

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{DS}$	$I_D=250\ \mu\text{A}$ , $V_{GS}=0\text{V}$	12			V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=9.6\text{V}$ , $V_{GS}=0\text{V}$			100	$\mu\text{A}$
		$V_{DS}=9.6\text{V}$ , $V_{GS}=0\text{V}$ , $T_J=125^\circ\text{C}$			250	
Gate-Body Leakage Current	$I_{GSS}$	$V_{DS}=0\text{V}$ , $V_{GS}=\pm 12\text{V}$			$\pm 200$	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ , $I_D=250\ \mu\text{A}$	0.6		1.9	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=4.5\text{V}$ , $I_D=15\text{A}$			8	$\text{m}\Omega$
		$V_{GS}=2.8\text{V}$ , $I_D=12\text{A}$			30	
Forward Transconductance	$g_{FS}$	$V_{DS}=6\text{V}$ , $I_D=12\text{A}$	31			S
Input Capacitance	$C_{iss}$	$V_{GS}=0\text{V}$ , $V_{DS}=6\text{V}$ , $f=1\text{MHz}$		2550		$\text{pF}$
Output Capacitance	$C_{oss}$			2190		
Reverse Transfer Capacitance	$C_{rss}$			450		
Total Gate Charge	$Q_g$			26	40	
Gate Source Charge	$Q_{gs}$	$V_{GS}=4.5\text{V}$ , $V_{DS}=10\text{V}$ , $I_D=12\text{A}$		4.6		
Gate Drain Charge	$Q_{gd}$			11		
Output Gate Charge	$Q_{oss}$		$V_{GS}=0\text{V}$ , $V_{DS}=5\text{V}$		17	
Turn-On DelayTime	$t_{d(on)}$	$V_{GS}=4.5\text{V}$ , $V_{DS}=6\text{V}$ , $I_D=12\text{A}$ , $R_G=1.8\ \Omega$		11		ns
Turn-On Rise Time	$t_r$			29		
Turn-Off DelayTime	$t_{d(off)}$			19		
Turn-Off Fall Time	$t_f$			8.3		
Body Diode Reverse Recovery Time	$t_{rr}$		$I_F=12\text{A}$ , $V_R=12\text{V}$ , $di/dt=100\text{A}/\mu\text{s}$ , $T_J=25^\circ\text{C}$		55	
Body Diode Reverse Recovery Charge	$Q_{rr}$			59	89	nC
Body Diode Reverse Recovery Time	$t_{rr}$	$I_F=12\text{A}$ , $V_R=12\text{V}$ , $di/dt=100\text{A}/\mu\text{s}$ , $T_J=125^\circ\text{C}$		54	81	ns
Body Diode Reverse Recovery Charge	$Q_{rr}$			60	90	nC
Maximum Body-Diode Continuous Current	$I_S$				2.5	A
Pulsed Source Current	$I_{SM}$				120	
Diode Forward Voltage	$V_{SD}$	$I_S=12\text{A}$ , $V_{GS}=0\text{V}$ , $T_J=25^\circ\text{C}$		0.87	1.2	V
		$I_S=12\text{A}$ , $V_{GS}=0\text{V}$ , $T_J=125^\circ\text{C}$		0.73		

#### ■ Marking

Marking	7476
	KC**** <sub>F</sub>

## N-Channel MOSFET IRF7476-HF (KRF7476-HF)

■ Typical Characteristics

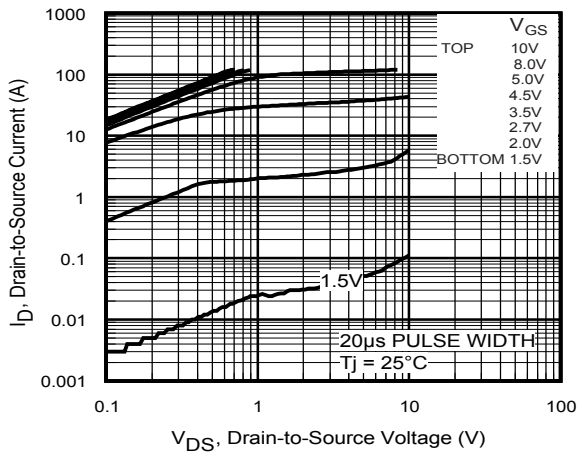


Fig 1. Typical Output Characteristics

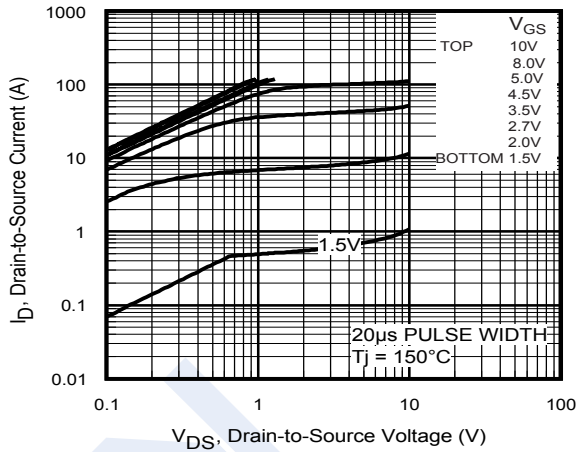


Fig 2. Typical Output Characteristics

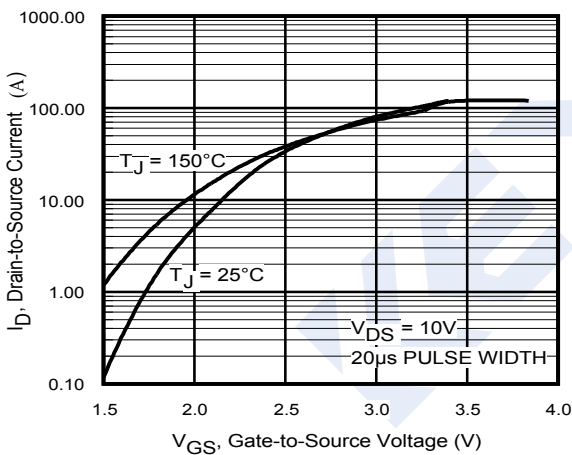


Fig 3. Typical Transfer Characteristics

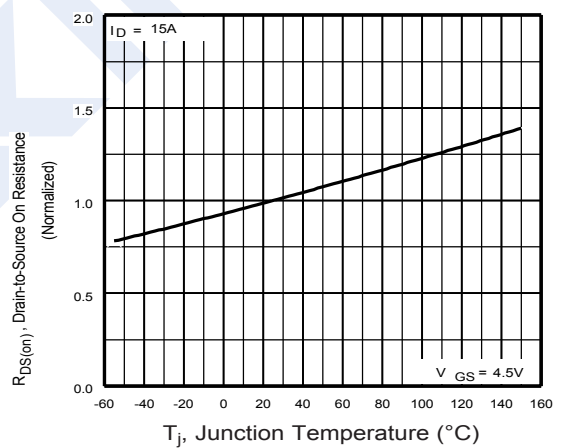


Fig 4. Normalized On-Resistance Vs. Temperature

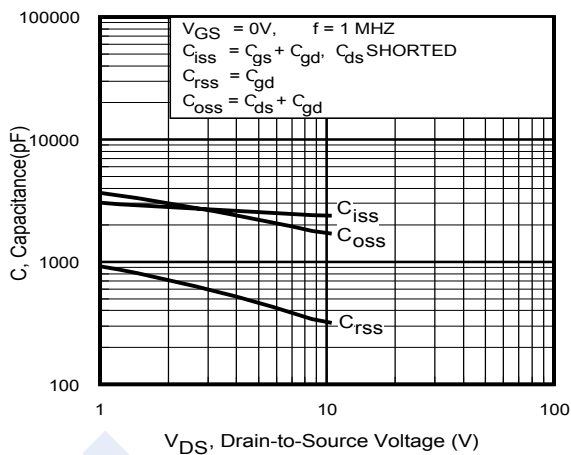


Fig 5. Typical Capacitance Vs. Drain-to-Source Voltage

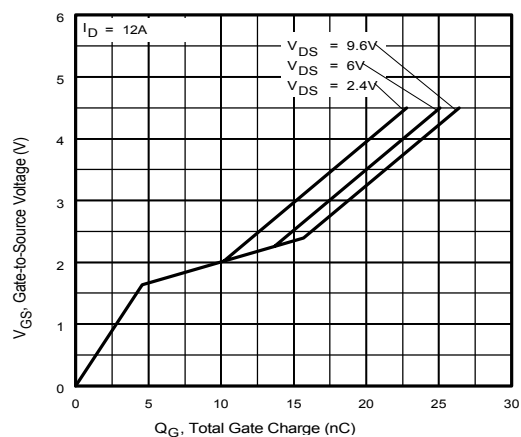
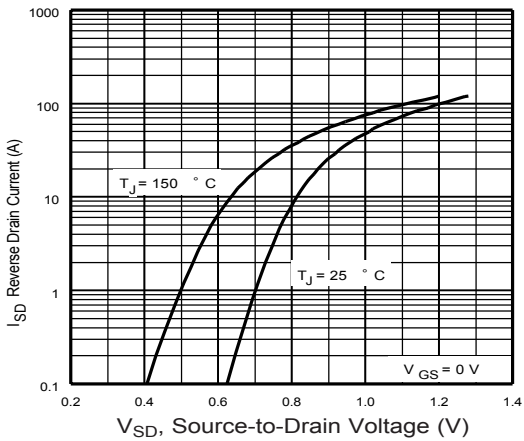


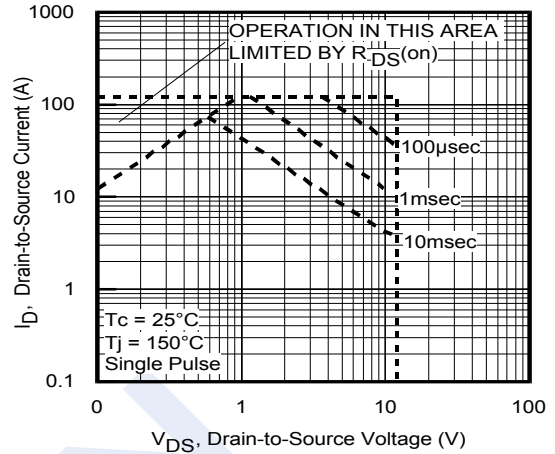
Fig 6. Typical Gate Charge Vs. Gate-to-Source Voltage

## N-Channel MOSFET IRF7476-HF (KRF7476-HF)

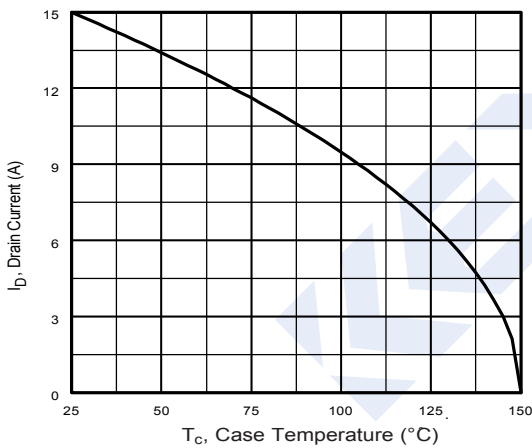
■ Typical Characteristics



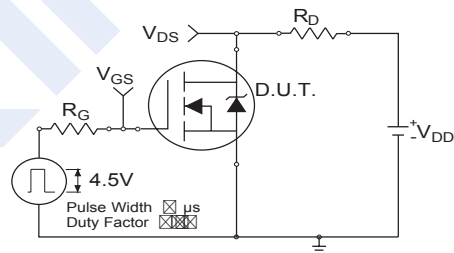
**Fig 7.** Typical Source-Drain Diode Forward Voltage



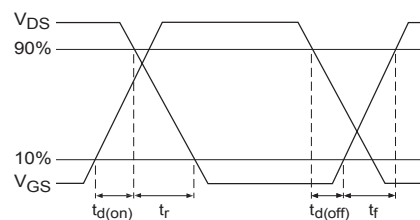
**Fig 8.** Maximum Safe Operating Area



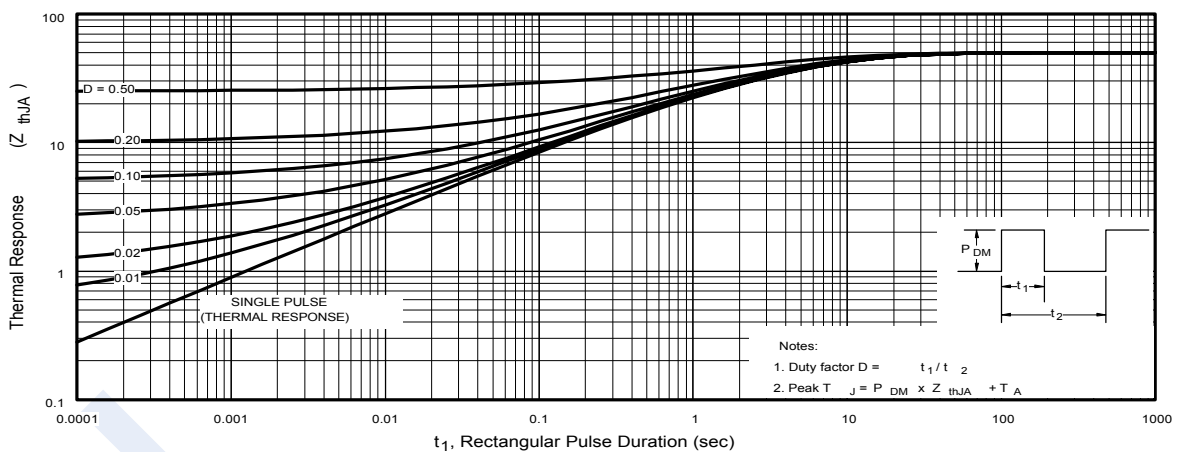
**Fig 9.** Maximum Drain Current Vs. Case Temperature



**Fig 10a.** Switching Time Test Circuit



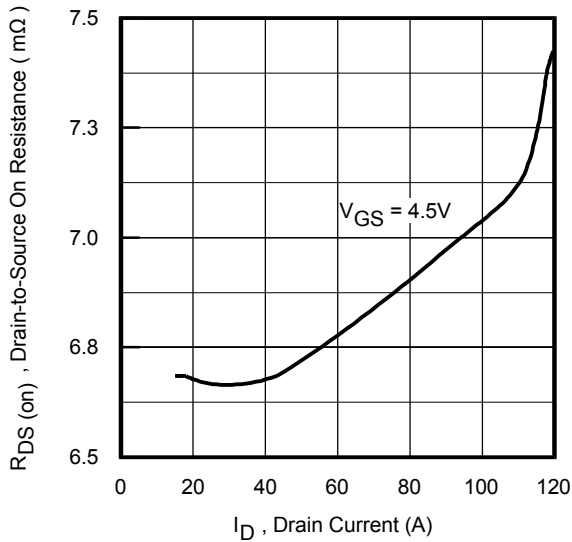
**Fig 10b.** Switching Time Waveforms



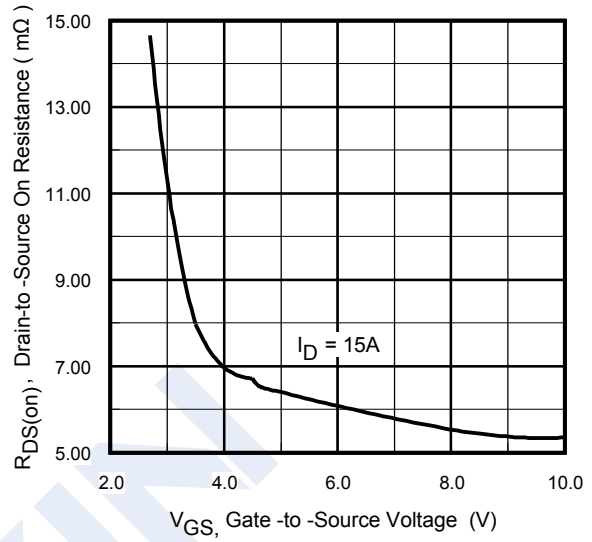
**Fig 10.** Maximum Effective Transient Thermal Impedance, Junction-to-Case

## N-Channel MOSFET IRF7476-HF (KRF7476-HF)

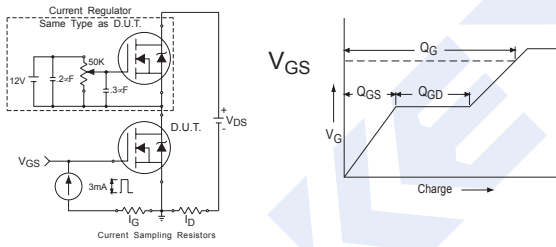
■ Typical Characteristics



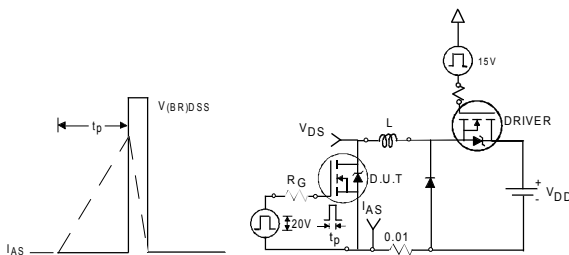
**Fig 12.** On-Resistance Vs. Drain Current



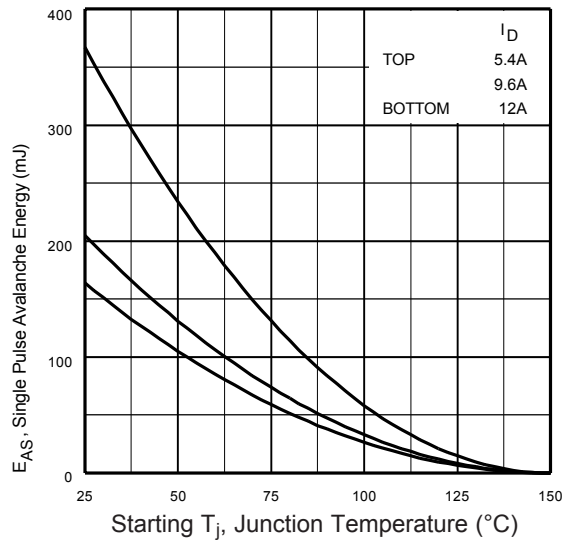
**Fig 13.** On-Resistance Vs. Gate Voltage



**Fig 13a&b.** Basic Gate Charge Test Circuit and Waveform



**Fig 14a&b.** Unclamped Inductive Test circuit and Waveforms



**Fig 14c.** Maximum Avalanche Energy Vs. Drain Current