



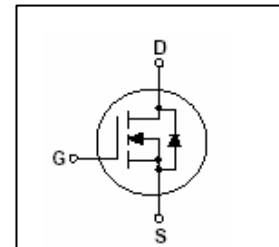
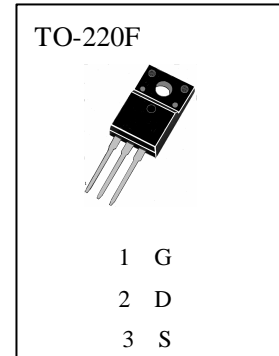
# HFF2N60

## APPLICATIONS

High-Speed Switching.

## ABSOLUTE MAXIMUM RATINGS ( $T_a=25$ )

$T_{stg}$	Storage Temperature.....	-55~150
$T_j$	Operating Junction Temperature .....	150
$P_D$	Allowable Power Dissipation ( $T_c=25$ ) .....	23W
$V_{DSS}$	Drain-Source Voltage .....	600V
$V_{GSS}$	Gate-Source Voltage .....	$\pm 30V$
$I_D$	Drain Current( $T_c=25$ ) .....	2.0A



## ELECTRICAL CHARACTERISTICS ( $T_a=25$ )

Symbol	Characteristics	Min	Typ	Max	Unit	Test Conditions
$BV_{DSS}$	Drain-Source Breakdown Voltage	600			V	$I_D=250 \mu A, V_{GS}=0V$
$I_{DSS}$	Zero Gate Voltage Drain Current			10	$\mu A$	$V_{DS}=600V, V_{GS}=0$
$I_{GSS}$	Gate -Source Leakage Current			$\pm 100$	nA	$V_{GS}=\pm 30V, V_{DS}=0V$
$V_{GS(th)}$	Gate Threshold Voltage	2.0		4.0	V	$V_{DS}=V_{GS}, I_D=250 \mu A$
$R_{DS(on)}$	Static Drain-Source On-Resistance		3.8	5.0		$V_{GS}=10V, I_D=1.0A$
$g_{fs}$	Forward Transconductance		2.05		S	$V_{DS}=40V, I_D=1.0A$ *
$C_{iss}$	Input Capacitance		180	235	pF	} $V_{DS}=25V, V_{GS}=0, f=1MHz$
$C_{oss}$	Output Capacitance		20	25	pF	
$C_{rss}$	Reverse Transfer Capacitance		4.3	3	pF	
$t_{d(on)}$	Turn - On Delay Time		9	28	nS	} $V_{DD}=300V,$ $I_D=2A$ (峰值) $R_G=25$
$t_r$	Rise Time		25	60	nS	
$t_{d(off)}$	Turn - Off Delay Time		24	58	nS	
$t_f$	Fall Time		28	66	nS	} *
$Q_g$	Total Gate Charge		8.5	12	nC	} $V_{DS}=480V$ $V_{GS}=10V$ $I_D=2A$ *
$Q_{gs}$	Gate-Source Charge		1.3		nC	
$Q_{gd}$	Gate-Drain Charge		4.1		nC	
$I_s$	Continuous Source Current			2.0	A	
$V_{SD}$	Diode Forward Voltage			1.4	V	$I_s=2.0A, V_{GS}=0$
$R_{th(j-c)}$	Thermal Resistance , Junction-to-Case			5.5	/W	

\*Pulse Test : Pulse Width 300  $\mu s$  , Duty Cycle 2%

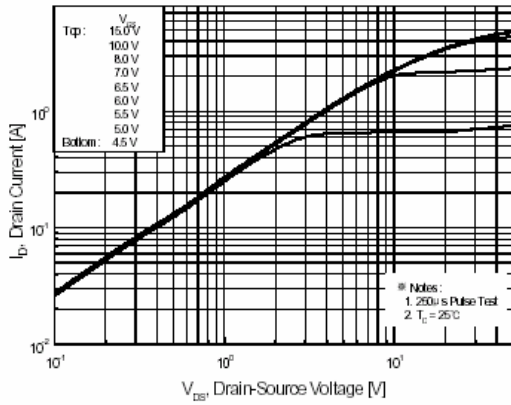


Figure 1. On-Region Characteristics

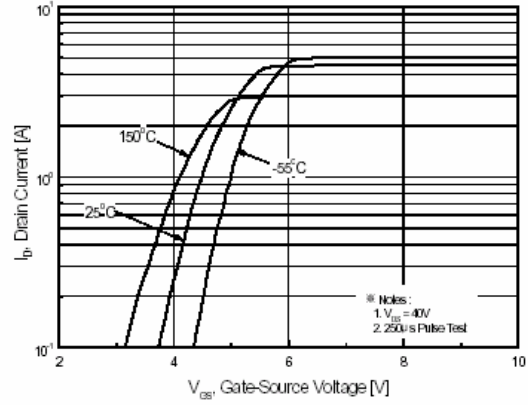


Figure 2. Transfer Characteristics

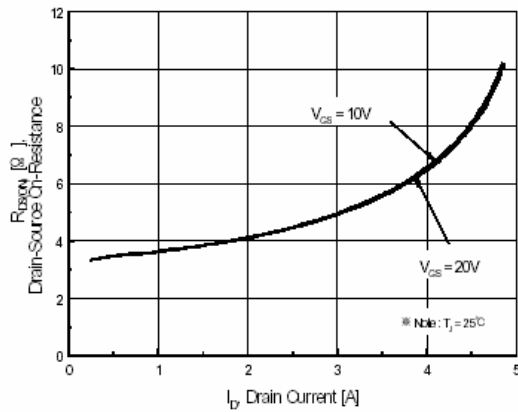


Figure 3. On-Resistance Variation vs Drain Current and Gate Voltage

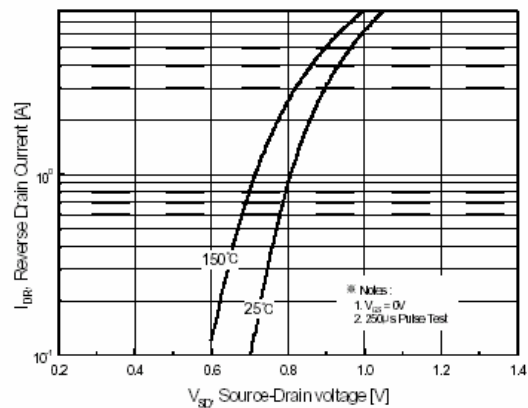


Figure 4. Body Diode Forward Voltage Variation with Source Current and Temperature

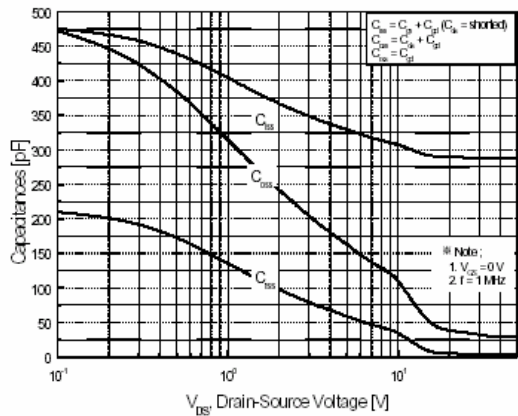


Figure 5. Capacitance Characteristics

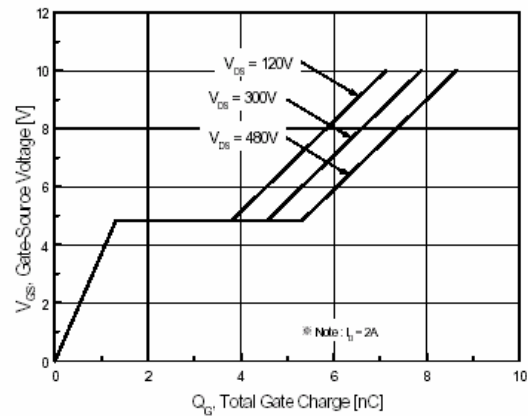


Figure 6. Gate Charge Characteristics

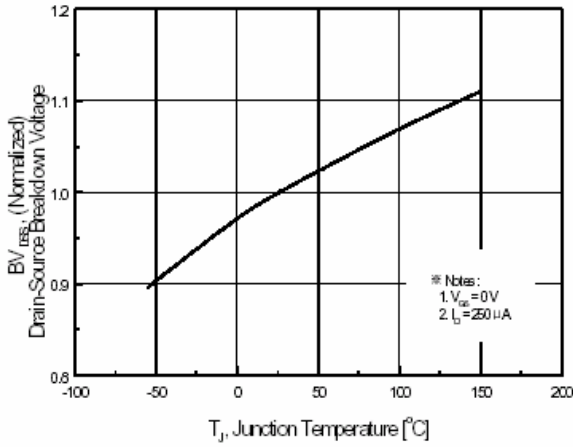


Figure 7. Breakdown Voltage Variation vs Temperature

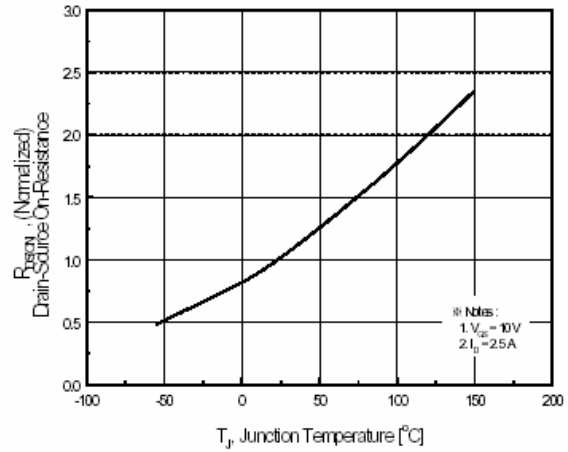


Figure 8. On-Resistance Variation vs Temperature

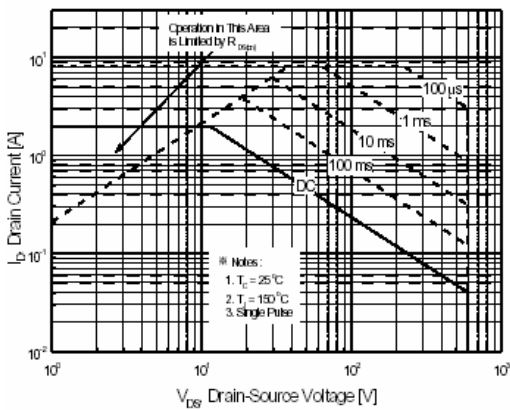


Figure 9-2. Maximum Safe Operating Area for HFF2N60

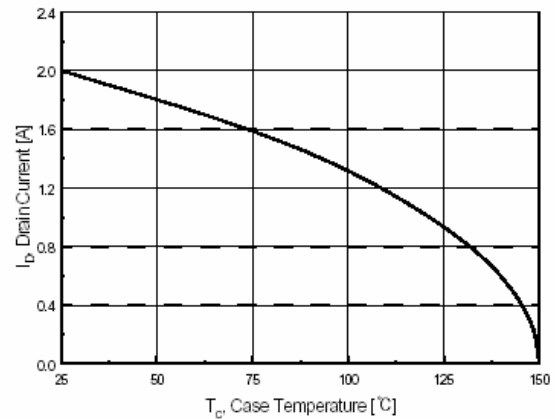


Figure 10. Maximum Drain Current vs Case Temperature

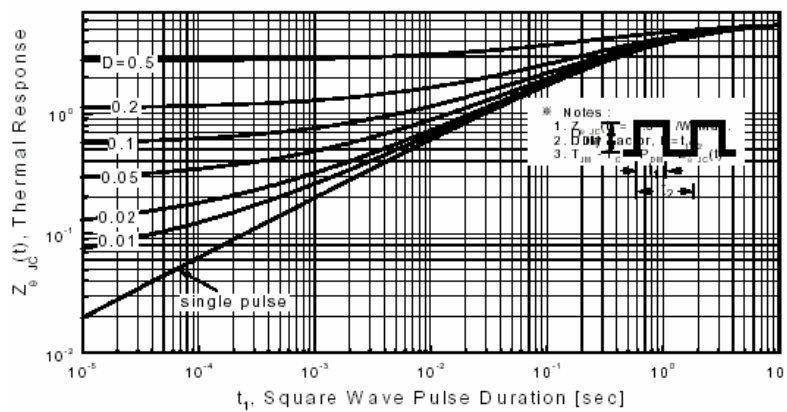
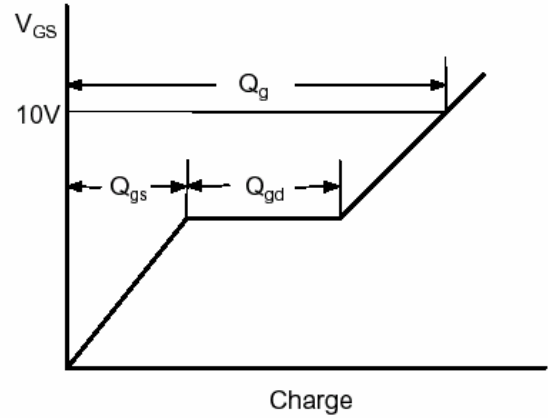
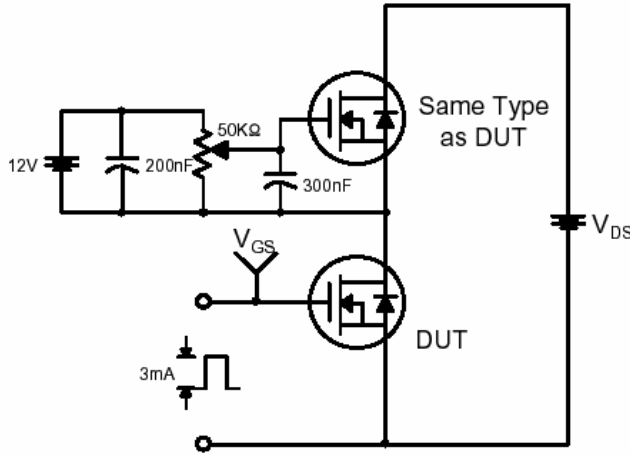


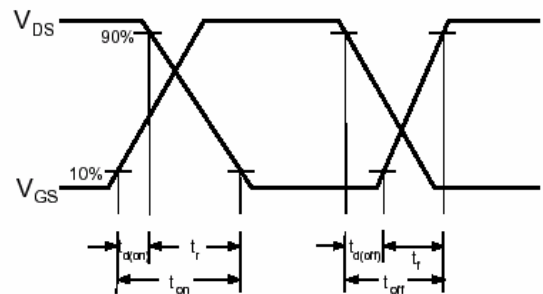
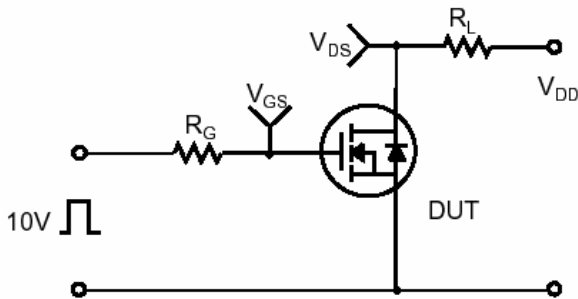
Figure 11-2. Transient Thermal Response Curve for HFF2N60



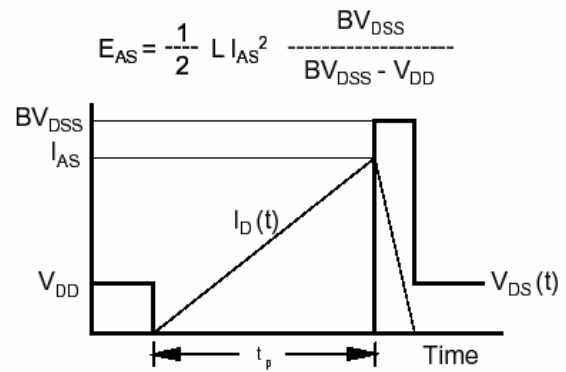
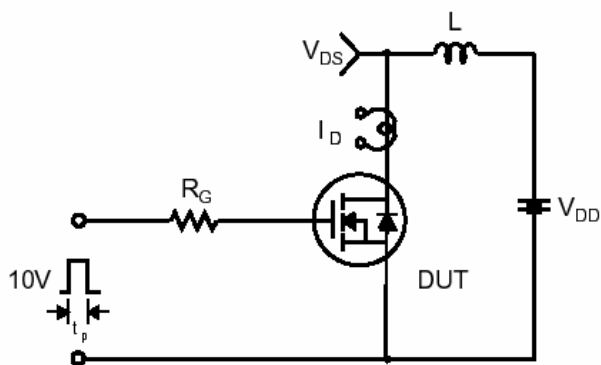
### Gate Charge Test Circuit & Waveform



### Resistive Switching Test Circuit & Waveforms



### Unclamped Inductive Switching Test Circuit & Waveforms





## Peak Diode Recovery dv/dt Test Circuit & Waveforms

