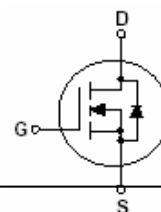
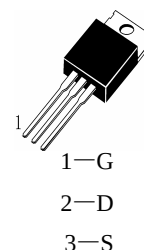


**HFP2N60****APPLICATIONS**

High-Speed Switching.

ABSOLUTE MAXIMUM RATINGS ($T_a=25^{\circ}\text{C}$) T_{stg} — Storage Temperature $-55\sim 150^{\circ}\text{C}$ T_j — Operating Junction Temperature 150°C P_D — Allowable Power Dissipation ($T_c=25^{\circ}\text{C}$) 54W V_{DSS} — Drain-Source Voltage 600V V_{GSS} — Gate-Source Voltage $\pm 30\text{V}$ I_D — Drain Current ($T_c=25^{\circ}\text{C}$) 2.0A

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**ELECTRICAL CHARACTERISTICS ($T_a=25^{\circ}\text{C}$)**

Symbol	Characteristics	Min	Typ	Max	Unit	Test Conditions
BV_{DSS}	Drain-Source Breakdown Voltage	600			V	$I_D=250\mu\text{A}$, $V_{\text{GS}}=0\text{V}$
I_{DSS}	Zero Gate Voltage Drain Current			10	μA	$V_{\text{DS}}=600\text{V}$, $V_{\text{GS}}=0$
I_{GSS}	Gate-Source Leakage Current			± 100	nA	$V_{\text{GS}}=\pm 30\text{V}$, $V_{\text{DS}}=0\text{V}$
$V_{\text{GS(th)}}$	Gate Threshold Voltage	2.0		4.0	V	$V_{\text{DS}}=V_{\text{GS}}$, $I_D=250\mu\text{A}$
$R_{\text{DS(on)}}$	Static Drain-Source On-Resistance		3.8	5.0	Ω	$V_{\text{GS}}=10\text{V}$, $I_D=2.0\text{A}$
gfs	Forward Transconductance		2.05		S	$V_{\text{DS}}=40\text{V}$, $I_D=1.0\text{A}$
C_{iss}	Input Capacitance		180	235	pF	$V_{\text{DS}}=25\text{V}$, $V_{\text{GS}}=0$, $f=1\text{MHz}$
C_{oss}	Output Capacitance		20	25	pF	
C_{rss}	Reverse Transfer Capacitance		4.3	3	pF	
$t_{\text{d(on)}}$	Turn - On Delay Time		9	28	nS	$V_{\text{DD}}=300\text{V}$, $I_D=2.0\text{A}$ $R_G=25\Omega^*$
t_r	Rise Time		25	60	nS	
$t_{\text{d(off)}}$	Turn - Off Delay Time		24	58	nS	
t_f	Fall Time		28	66	nS	$V_{\text{DS}}=480\text{V}$ $V_{\text{GS}}=10\text{V}$ $I_D=2.0\text{A}^*$
Qg	Total Gate Charge		8.5	12	nC	
Qgs	Gate-Source Charge		1.3		nC	
Qgd	Gate-Drain Charge		4.1		nC	
I_s	Continuous Source Current			2.0	A	$I_s=2.0\text{A}$, $V_{\text{GS}}=0$
V_{SD}	Diode Forward Voltage			1.4	V	
$R_{\text{th(j-c)}}$	Thermal Resistance, Junction-to-Case			2.32	$^{\circ}\text{C/W}$	

*Pulse Test : Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$

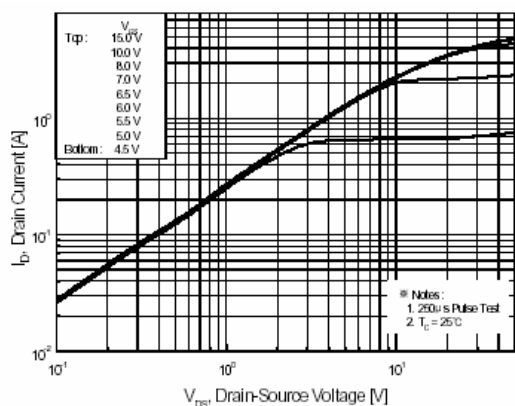


Figure 1. On-Region Characteristics

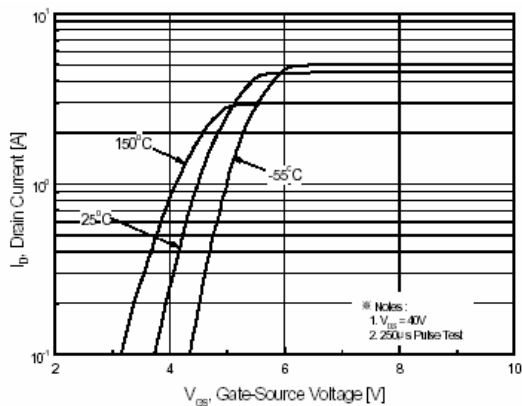


Figure 2. Transfer Characteristics

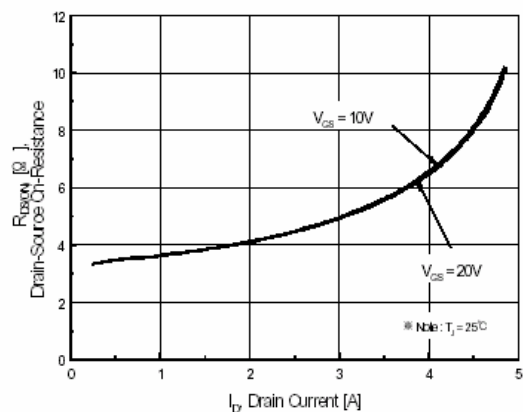


Figure 3. On-Resistance Variation vs Drain Current and Gate Voltage

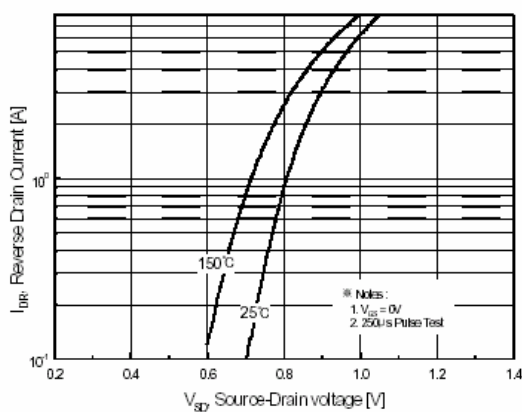


Figure 4. Body Diode Forward Voltage Variation with Source Current and Temperature

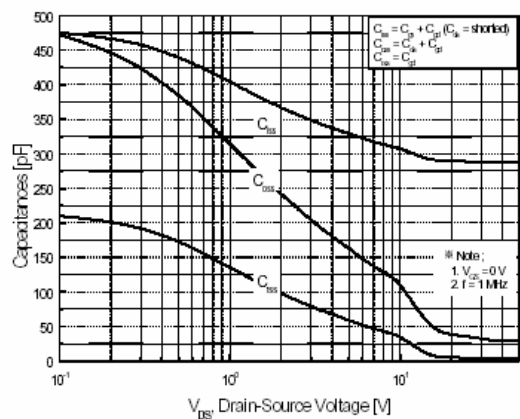


Figure 5. Capacitance Characteristics

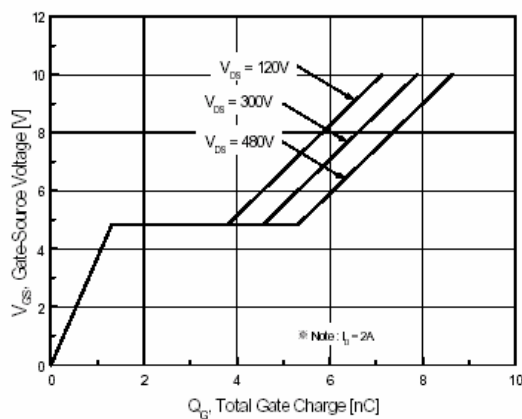


Figure 6. Gate Charge Characteristics

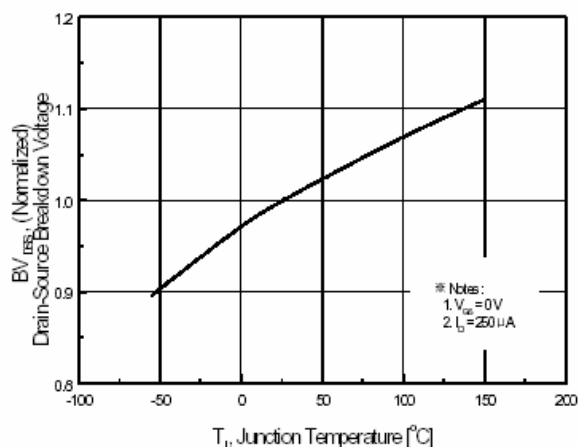


Figure 7. Breakdown Voltage Variation vs Temperature

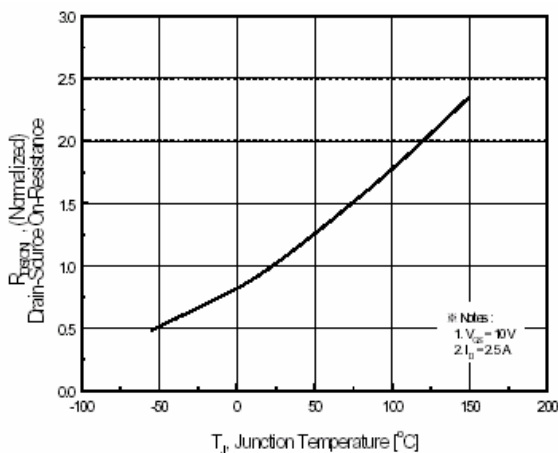


Figure 8. On-Resistance Variation vs Temperature

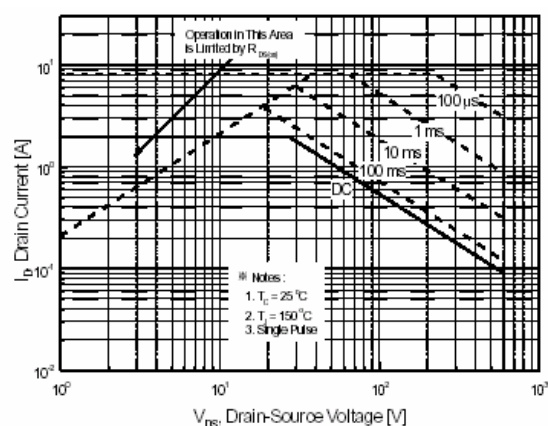


Figure 9-1. Maximum Safe Operating Area for HFP2N60

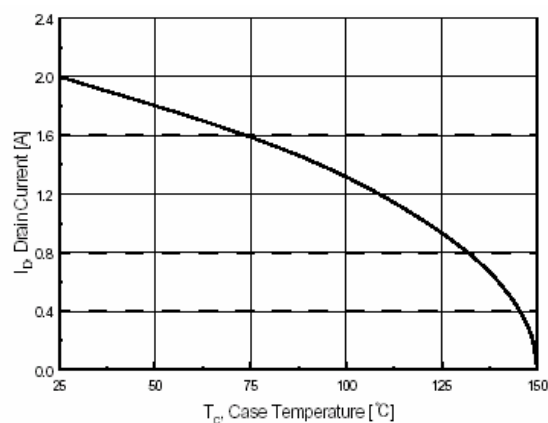


Figure 10. Maximum Drain Current vs Case Temperature

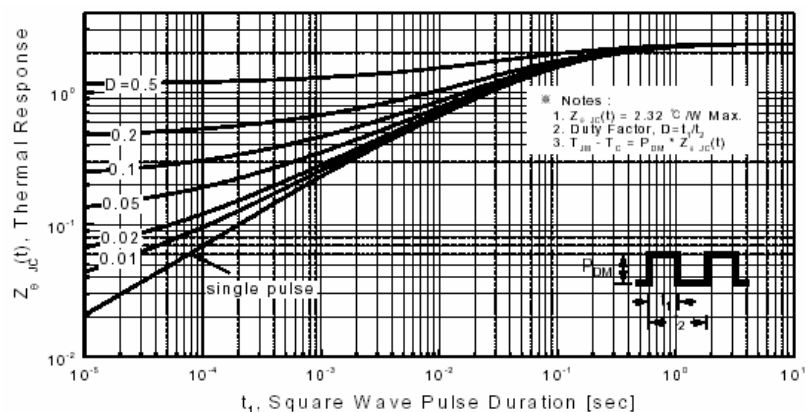
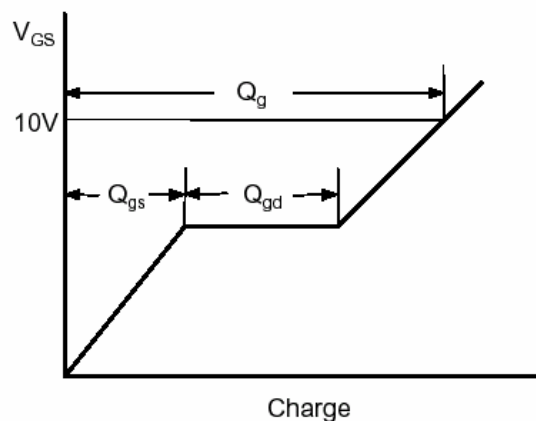
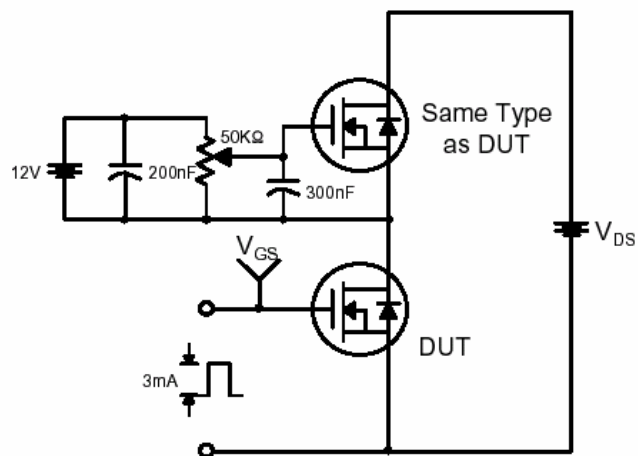


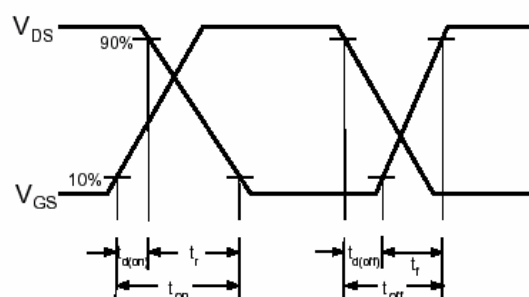
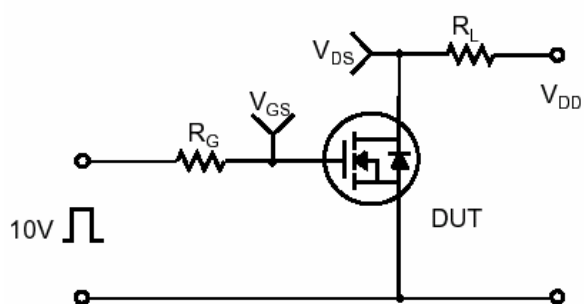
Figure 11-1. Transient Thermal Response Curve for HFP2N60



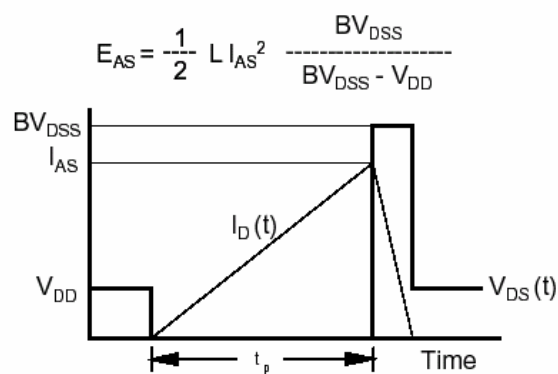
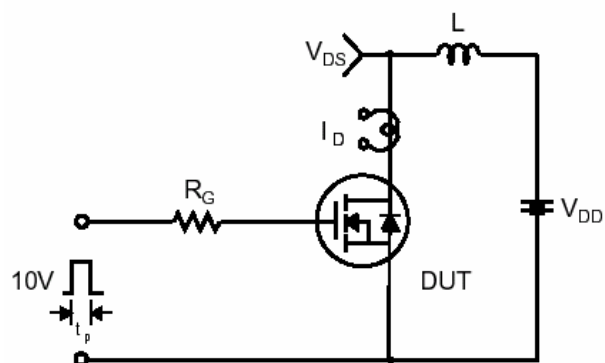
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms



Unclamped Inductive Switching Test Circuit & Waveforms





Peak Diode Recovery dv/dt Test Circuit & Waveforms

