



汕头华汕电子器件有限公司

N-Channel Enhancement Mode Field Effect Transistor

HFP11N60S

对应国外型号
FCP11N60N

■ 主要用途

高速开关应用。

■ 极限值 ($T_a=25^{\circ}\text{C}$)

T_{stg} ——贮存温度..... $-55\sim 150^{\circ}\text{C}$

T_j ——结温..... 150°C

V_{DSS} ——漏极—源极电压..... 600V

V_{GS} ——栅极—源极电压..... $\pm 30\text{V}$

I_{D} ——漏极电流 ($T_c=25^{\circ}\text{C}$) 10.8A

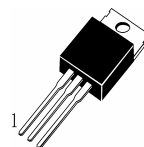
I_{DM} ——漏极电流 (脉冲) (注 1) 32.4A

P_{D} ——耗散功率 ($T_c=25^{\circ}\text{C}$) 94W

■ 电参数 ($T_a=25^{\circ}\text{C}$)

■ 外形图及引脚排列

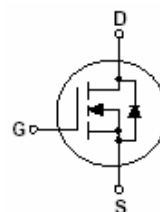
TO-220



1—栅 极 G

2—漏 极 D

3—源 极 S



参数符号	符 号 说 明	最小值	典型值	最大值	单 位	测 试 条 件
BV_{DSS}	漏—源极击穿电压	600			V	$I_{\text{D}}=250\mu\text{A}$, $V_{\text{GS}}=0$
I_{DSS}	零栅压漏极电流			1.0	μA	$V_{\text{DS}}=600\text{V}$, $V_{\text{GS}}=0$
I_{GSS}	栅极泄漏电流			± 100	nA	$V_{\text{GS}}=\pm 30\text{V}$, $V_{\text{DS}}=0$
$V_{\text{GS}}(\text{th})$	栅—源极开启电压	2.0		4.0	V	$V_{\text{DS}}=V_{\text{GS}}$, $I_{\text{D}}=250\mu\text{A}$
$R_{\text{DS}}(\text{on})$	漏—源极导通电阻			0.75	Ω	$V_{\text{GS}}=10\text{V}$, $I_{\text{D}}=5\text{A}$
C_{iss}	输入电容		1130	1505	pF	$V_{\text{DS}}=100\text{V}$, $V_{\text{GS}}=0$, $f=1\text{MHz}$
C_{oss}	输出电容		45	60	pF	
C_{rss}	反向传输电容		3	5	pF	
$T_{\text{d}}(\text{on})$	导通延迟时间		13.6	37.2	ns	$V_{\text{DD}}=380\text{V}$, $I_{\text{D}}=5.4\text{A}$ $R_{\text{G}}=4.7\Omega$ (注 2)
T_{r}	上升时间		9.1	28.2	ns	
$T_{\text{d}}(\text{off})$	断开延迟时间		42	94	ns	
T_{f}	下降时间		10	30	ns	$V_{\text{DS}}=380\text{V}$, $V_{\text{GS}}=10\text{V}$, $I_{\text{D}}=5.4\text{A}$ (注 2)
Q_{g}	栅极总电荷		27.4	35.6	nC	
Q_{gs}	栅极—源极电荷		4.9		nC	
Q_{gd}	栅极—漏极电荷		8.8		nC	
I_{S}	源极—漏极二极管正向电流			10.8	A	$I_{\text{S}}=5.4\text{A}$, $V_{\text{GS}}=0$
V_{SD}	源极—漏极二极管导通电压			1.2	V	
$R_{\text{th}}(\text{j-c})$	热阻			1.33	$^{\circ}\text{C/W}$	结到外壳

*注 1：漏极电流受最大结温限制。

*注 2：脉冲测试，宽度 $\leq 300\mu\text{S}$ ，占空比 $\leq 2\%$



典型特性曲线

Figure 1. On-Region Characteristics

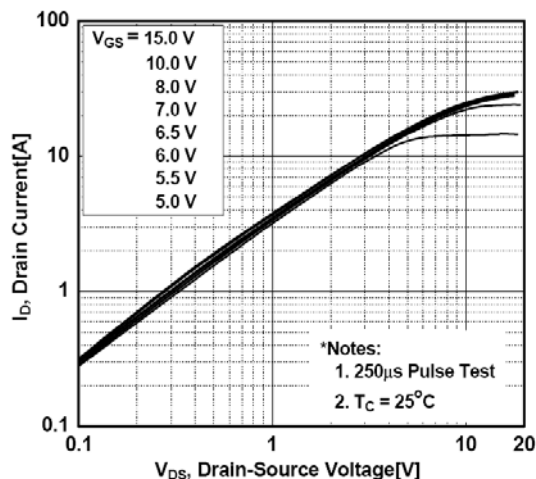


Figure 2. Transfer Characteristics

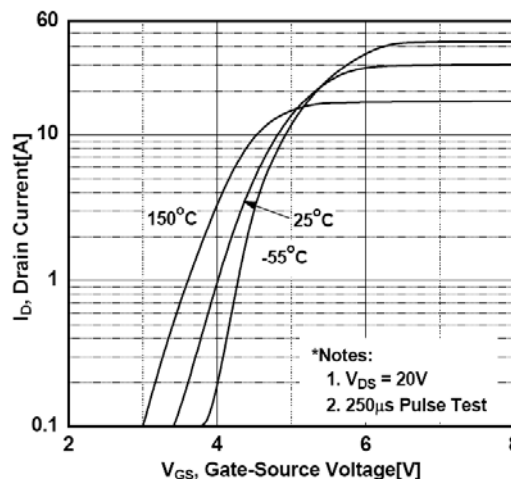


Figure 3. On-Resistance Variation vs. Drain Current and Gate Voltage

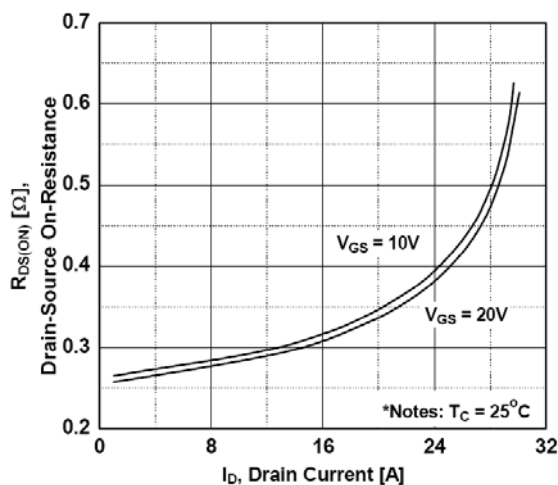


Figure 4. Body Diode Forward Voltage Variation vs. Source Current and Temperature

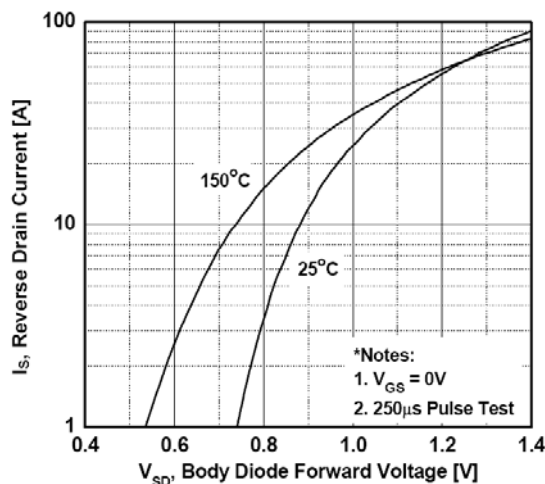


Figure 5. Capacitance Characteristics

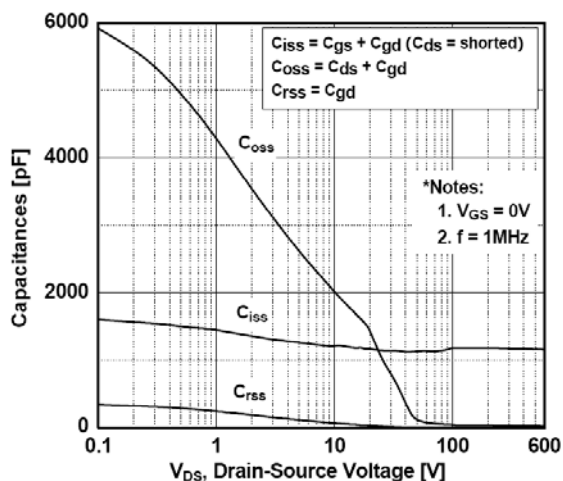
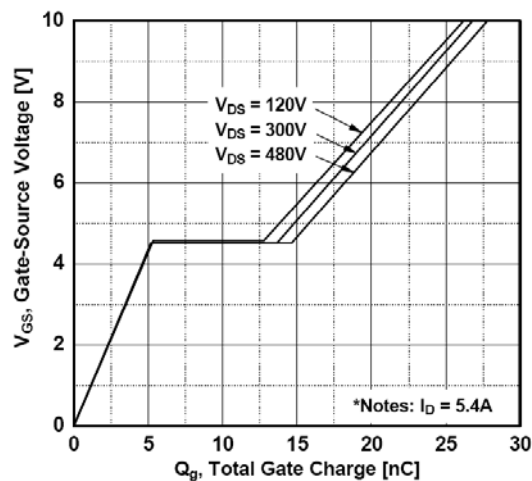


Figure 6. Gate Charge Characteristics





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Figure 7. Breakdown Voltage Variation vs. Temperature

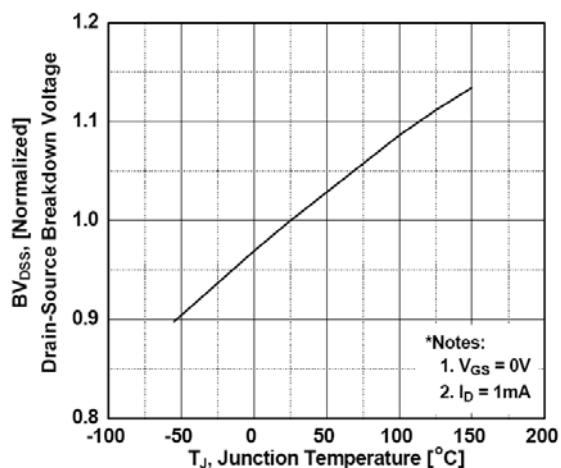


Figure 8. On-Resistance Variation vs. Temperature

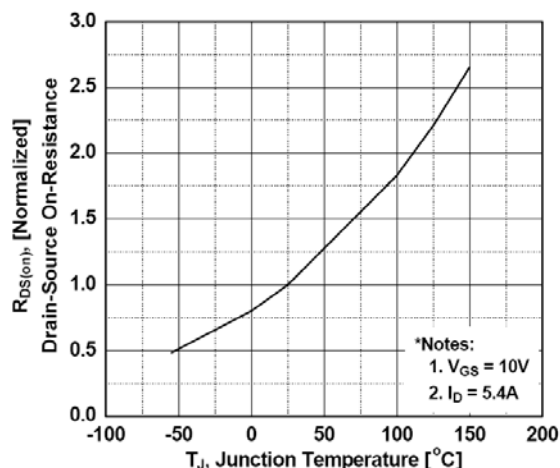


Figure 9. Maximum Safe Operating Area

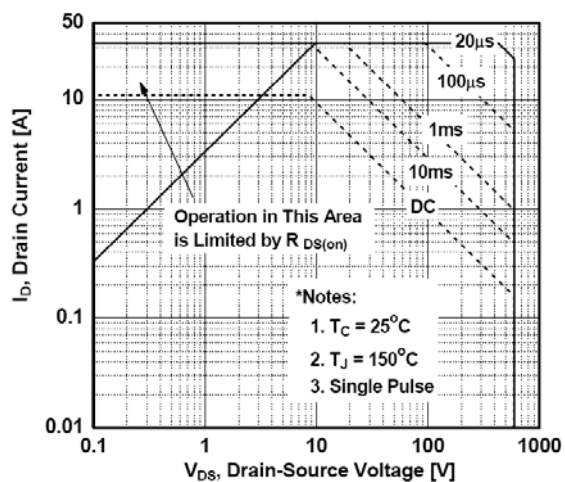


Figure 10. Maximum Drain Current vs. Case Temperature

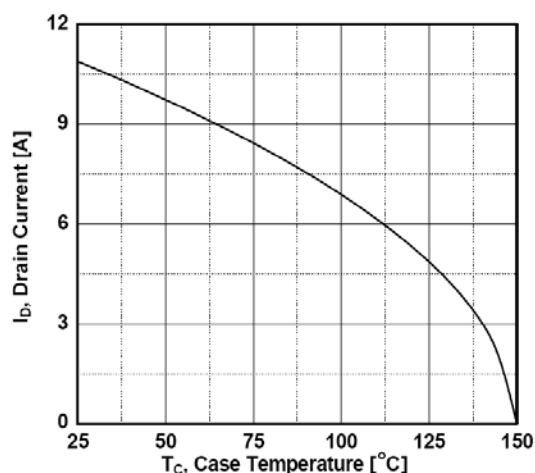
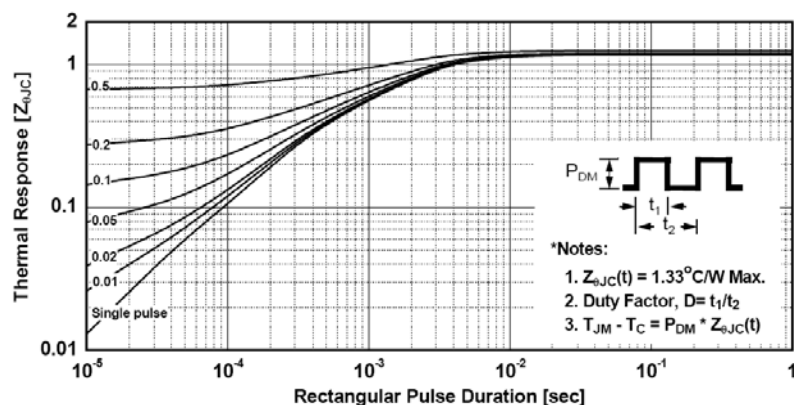


Figure 11. Transient Thermal Response Curve





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Fig 12. Gate Charge Test Circuit & Waveform

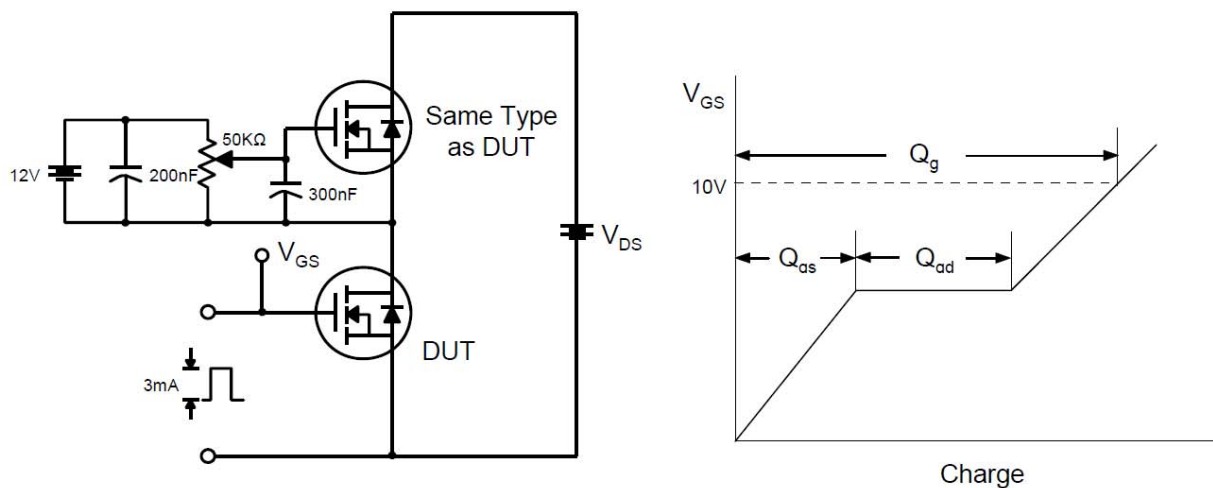


Fig 13. Resistive Switching Test Circuit & Waveforms

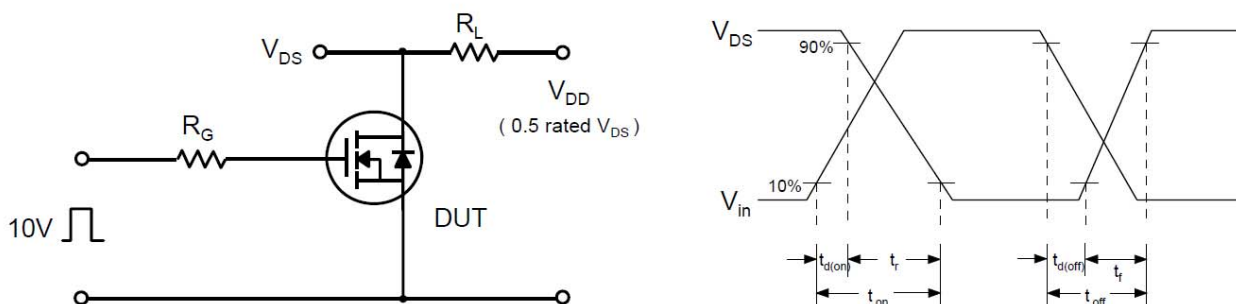
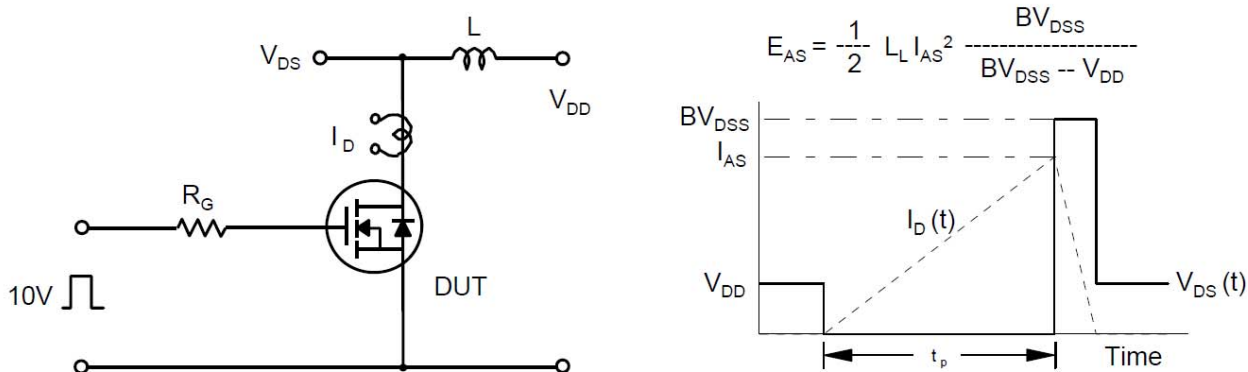


Fig 14. Unclamped Inductive Switching Test Circuit & Waveforms





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Fig 15. Peak Diode Recovery dv/dt Test Circuit & Waveforms

