

HFS11N40

400V N-Channel MOSFET

FEATURES

- Originative New Design
- Superior Avalanche Rugged Technology
- Robust Gate Oxide Technology
- Very Low Intrinsic Capacitances
- Excellent Switching Characteristics
- Unrivalled Gate Charge : 35 nC (Typ.)
- Extended Safe Operating Area
- Lower $R_{DS(ON)}$: 0.38 Ω (Typ.) @ $V_{GS}=10V$
- 100% Avalanche Tested

$$BV_{DSS} = 400 \text{ V}$$

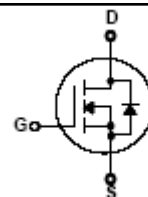
$$R_{DS(on) \text{ typ}} = 0.38 \Omega$$

$$I_D = 11.4 \text{ A}$$

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1.Gate 2. Drain 3. Source



Absolute Maximum Ratings $T_C=25^\circ\text{C}$ unless otherwise specified

Symbol	Parameter	Value	Units
V_{DSS}	Drain-Source Voltage	400	V
I_D	Drain Current – Continuous ($T_C = 25^\circ\text{C}$)	11.4*	A
	Drain Current – Continuous ($T_C = 100^\circ\text{C}$)	7.2*	A
I_{DM}	Drain Current – Pulsed (Note 1)	45.6*	A
V_{GS}	Gate-Source Voltage	± 30	V
E_{AS}	Single Pulsed Avalanche Energy (Note 2)	520	mJ
I_{AR}	Avalanche Current (Note 1)	11.4	A
E_{AR}	Repetitive Avalanche Energy (Note 1)	14.7	mJ
dv/dt	Peak Diode Recovery dv/dt (Note 3)	4.5	V/ns
P_D	Power Dissipation ($T_C = 25^\circ\text{C}$) – Derate above 25°C	50	W
		0.4	W/ $^\circ\text{C}$
T_J, T_{STG}	Operating and Storage Temperature Range	-55 to +150	$^\circ\text{C}$
T_L	Maximum lead temperature for soldering purposes, 1/8" from case for 5 seconds	300	$^\circ\text{C}$

* Drain current limited by maximum junction temperature

Thermal Resistance Characteristics

Symbol	Parameter	Typ.	Max.	Units
$R_{\theta JC}$	Junction-to-Case	--	2.5	$^\circ\text{C}/\text{W}$
$R_{\theta JA}$	Junction-to-Ambient	--	62.5	

Typical Characteristics

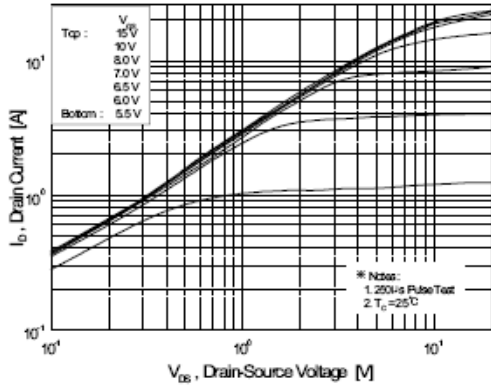


Figure 1. On Region Characteristics

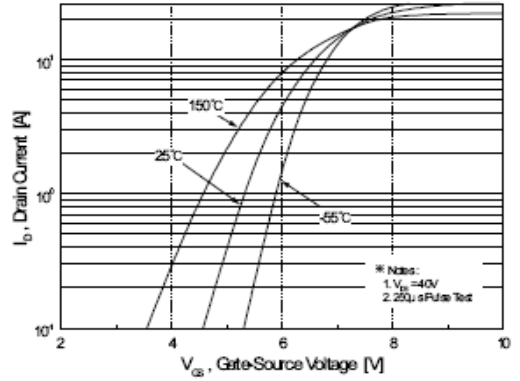


Figure 2. Transfer Characteristics

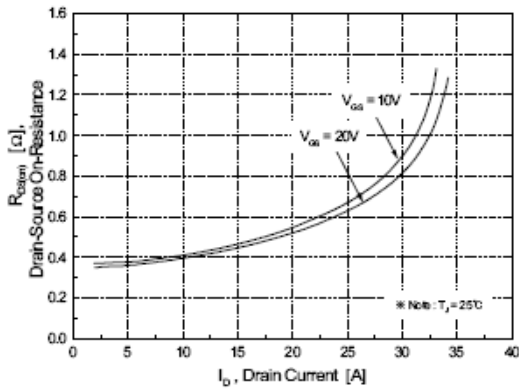


Figure 3. On Resistance Variation vs Drain Current and Gate Voltage

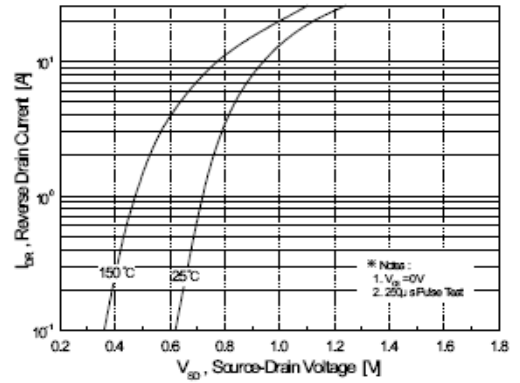


Figure 4. Body Diode Forward Voltage Variation with Source Current and Temperature

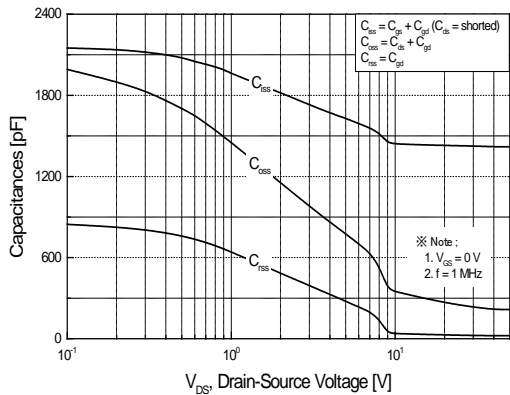


Figure 5. Capacitance Characteristics

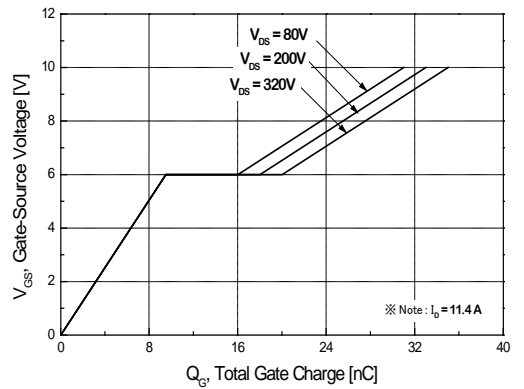


Figure 6. Gate Charge Characteristics

Fig 12. Gate Charge Test Circuit & Waveform

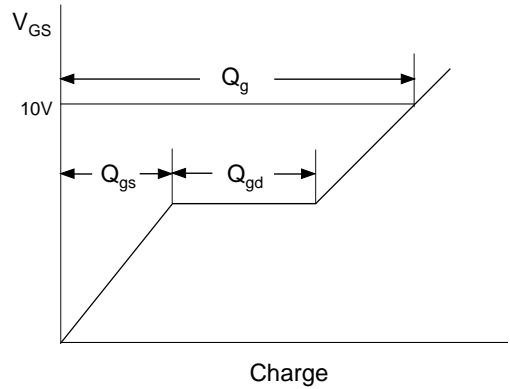
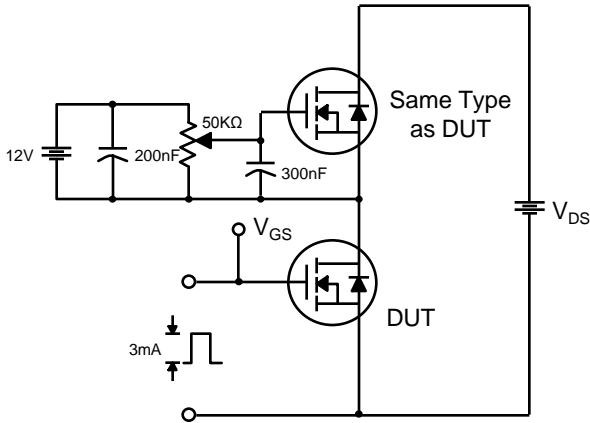


Fig 13. Resistive Switching Test Circuit & Waveforms

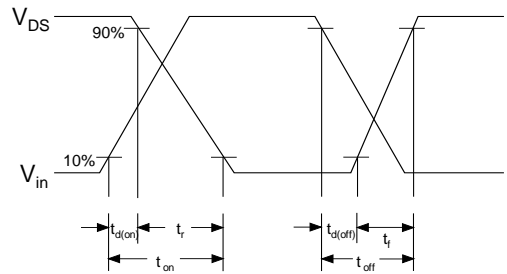
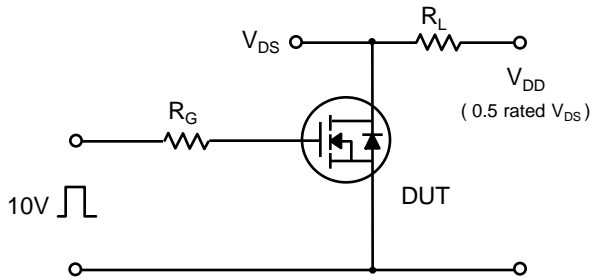


Fig 14. Unclamped Inductive Switching Test Circuit & Waveforms

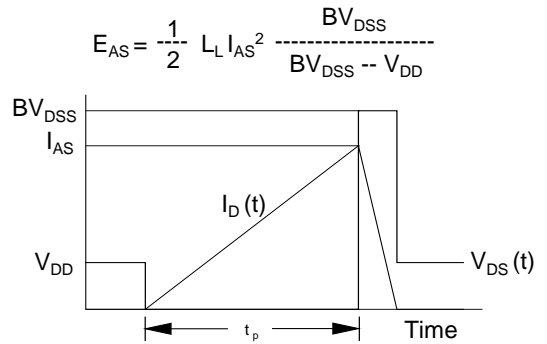
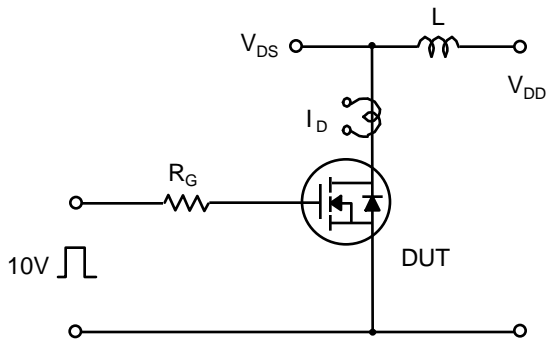


Fig 15. Peak Diode Recovery dv/dt Test Circuit & Waveforms



Package Dimension

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