

60V N-Channel MOSFET

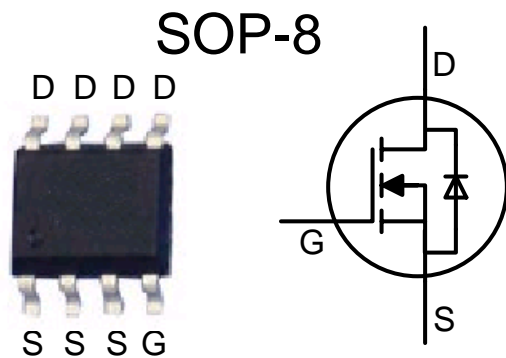
General Features

- Fast Switching Speed
- RoHS Compliant
- Halogen-free available

BV_{DSS}	$R_{DS(ON)}$ (Typ.)	I_D
60V	8.5m Ω	20A

Applications

- Power Management in Inverter System
- Synchronous Rectification



Ordering Information

Part Number	Package	Marking	Remark
FTE08N06G	SOP-8	08N06G	Halogen Free

Absolute Maximum Ratings

$T_A=25^{\circ}\text{C}$ unless otherwise specified

Symbol	Parameter		Rating	Unit
V _{DSS}	Drain-Source Voltage ^[1]		60	V
V _{GS}	Gate –Source Voltage		±25	V
I _D	Continuous Drain Current	T _C =25 °C	20	A
		T _C =100 °C	14	A
I _{DP}	300us Pulsed Drain Current Tested ^[2]		40	A
P _D	Power Dissipation		5.2	W
	Derating Factor above 25 °C		0.04	W/°C
T _J and T _{STG}	Operating and Storage Temperature Range		-55 ~ 150	°C

*Drain Current limited by Maximum Junction Temperature.

Caution: Stresses greater than those listed in the “Absolute Maximum Ratings” may cause permanent damage to the device.

Thermal Characteristics

Symbol	Parameter	Rating	Unit
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case	24	$^{\circ}\text{C}/\text{W}$
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	85	

Electrical Characteristics

OFF Characteristics (TA=25 °C unless otherwise noted)

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
BV _{DSS}	Drain-Source Breakdown Voltage	60	--	--	V	V _{GS} =0V, I _D =250 μA
I _{DSS}	Zero Gate Voltage Drain Current	--	--	1	μA	V _{DS} =48V, V _{GS} =0V,
I _{GSS}	Gate Leakage Current	--	--	100	nA	V _{GS} =20V, V _{DS} =0V
		--	--	-100	nA	V _{GS} =-20V, V _{DS} =0V

On Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
R _{DS(ON)}	Drain-Source On-Resistance ^[3]	--	8.5	10	mΩ	V _{GS} =10V, I _D =20A
V _{GS(TH)}	Gate Threshold Voltage	2	--	4	V	V _{DS} = V _{GS} , I _D =250 μA
GFS	Forward Transconductance	--	--	--	S	V _{DS} =30V, I _D =20A

Dynamic Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
R _G	Gate Resistance	--	1.6	--	Ω	V _{GS} =0V, V _{DS} =0V, f=1MHz
C _{iss}	Input Capacitance	--	--	--	pF	V _{GS} =0V, V _{DS} =30V, f=1MHz
C _{oss}	Output Capacitance	--	--	--		
C _{rss}	Reverse Transfer Capacitance	--	--	--		
Q _g	Total Gate Charge	--	--	--	nC	V _{DS} =30V, V _{GS} =10V, I _D =20A
Q _{gs}	Gate-Source Charge	--	--	--		
Q _{gd}	Gate-Drain Charge	--	--	--		

Resistive Switch Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
t _{d(on)}	Turn-On Delay Time	--	--	--	ns	V _{DD} =50V, R _L =30Ω I _D =20.0A, V _{GS} =10V R _G =6Ω
t _r	Turn-On Rise Time	--	--	--		
t _{d(off)}	Turn-Off Delay Time	--	--	--		
t _f	Turn-Off Fall Time	--	--	--		

Source-Drain Diode Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
I_{SD}	Continuous Source Current(Body Diode)	--	--	20	A	Integral P-N diode in MOSFET
I_{SM}	Maximum Pulsed Current(Body Diode)	--	--	40	A	
V_{SD}	Diode Forward Voltage	--	--	1.3	V	$I_{SD}=20A, V_{GS}=0V$
t_{rr}	Reverse Recovery Time	--	--	--	ns	$I_{SD}=20A,$ $dI_{SD}/dt=100A/\mu A$
Q_{rr}	Reverse Recovery Charge	--	--	--	nC	

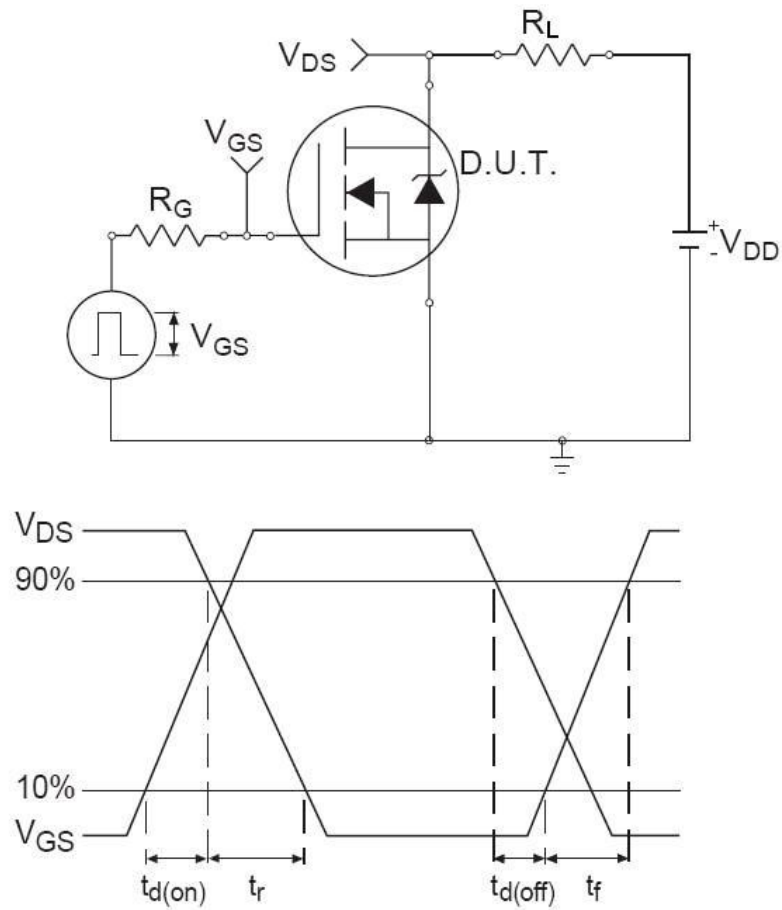
NOTE:

[1] $T_J=+25^{\circ}C$ to $+150^{\circ}C$

[2] Repetitive rating, pulse width limited by maximum junction temperature.

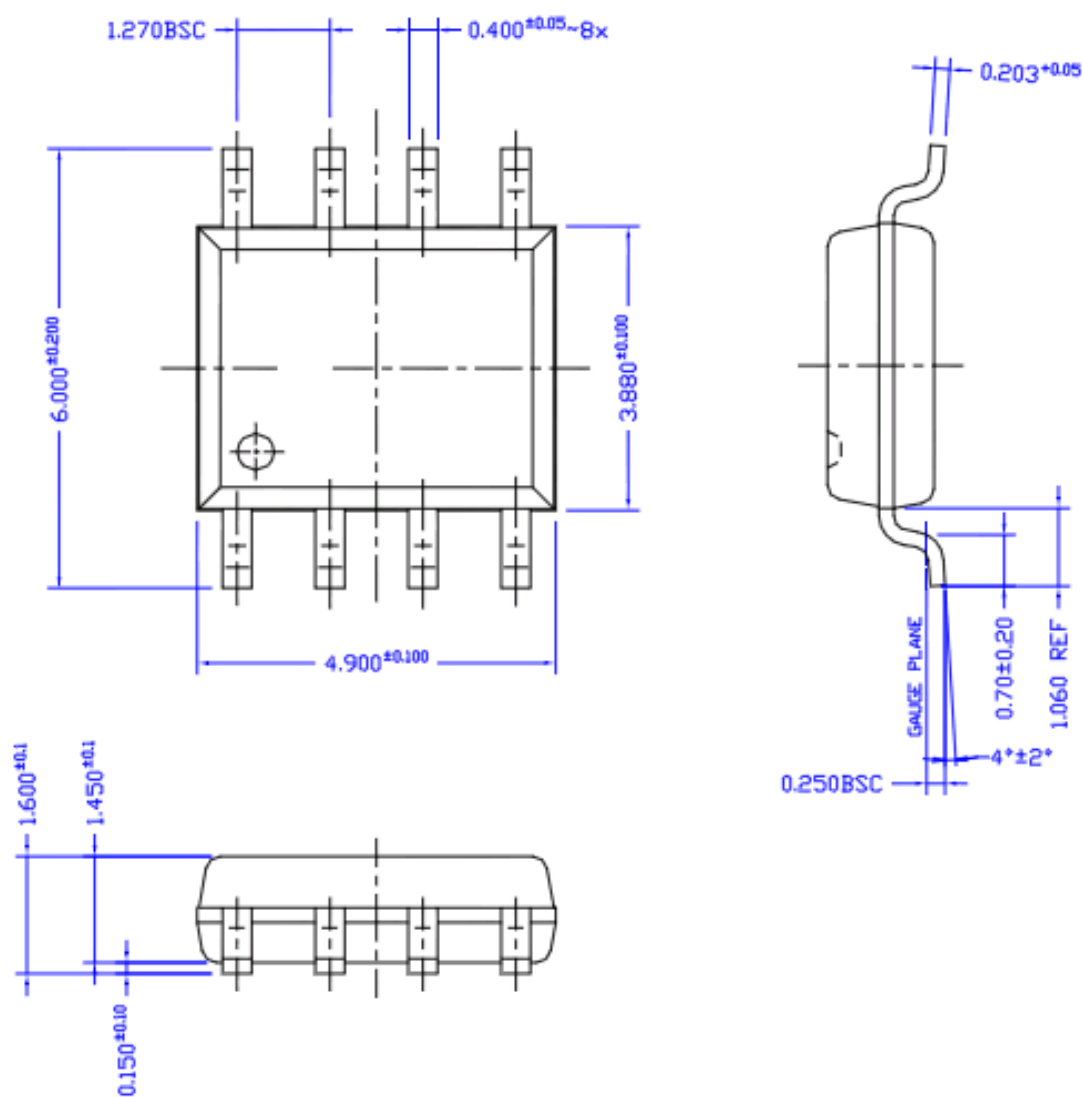
[3] Pulse width $\leq 380\mu s$; duty cycle $\leq 2\%$.

Switching Time Test Circuit and Waveforms



Package Dimensions

SOP-8



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