MS8N60

N-Channel Enhancement Mode Power MOSFET

Description

The MS8N60 is a N-channel enhancement-mode MOSFET , providing the designer with the best combination of fast switching, ruggedized device design, low on-resistance and cost effectiveness. The TO-220 package is universally preferred for all commercial-industrial applications

Features

- Low On Resistance
- Simple Drive Requirement
- Low Gate Charge
- Fast Switching Characteristic
- RoHS compliant package

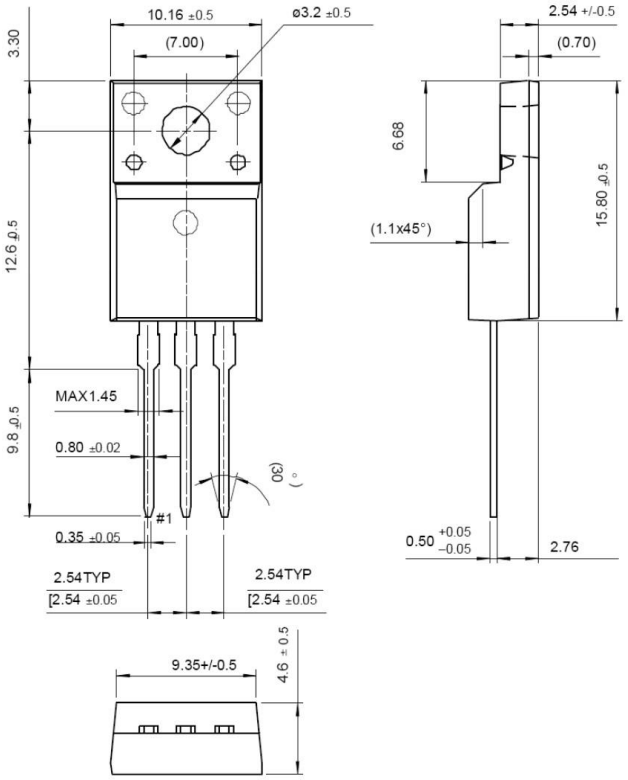
Application

- Adapter
- Switching Mode Power Supply

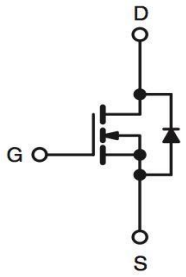
Packing & Order Information

50/Tube ; 1,000/Box

RoHS
COMPLIANT



Graphic symbol



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Absolute Maximum Ratings

Symbol	Parameter	Value	Unit
V_{DSS}	Drain-Source Voltage	600	V
V_{GS}	Gate-Source Voltage	±30	V
I_D	Drain Current -Continuous (TC=25°C)	7.5	A
	Drain Current -Continuous (TC=100°C)	4.5	A
I_{DM}	Drain Current Pulsed	30	A
I_{AR}	Avalanche Current	7.5	V
E_{AS}	Single Pulsed Avalanche Energy	230	mJ
E_{AR}	Repetitive Avalanche Energy	14.7	mJ
dv/dt	Peak Diode Recovery dv/dt	4.5	V/ns

• Drain current limited by maximum junction temperature

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Absolute Maximum Ratings			
Symbol	**Parameter**	**Value**	**Unit**
T_L	Maximum Temperature for Soldering @ Lead at 0.125 in(0.318mm) from case for 10 seconds	300	°C
P_D	Total Power Dissipation(@TC = 25 °C) 44 W	147	W
	Derating Factor above 25 °C	1.18	W/°C
T_{STG}	Operating and Storage Temperature	-55 to +150	°C
T_J	Storage Temperature	150	°C

Note:

1.Repetitive rating; pulse width limited by maximum junction temperature.

2. I_{AS}≤7.5A, V_{DD}=50V, L=7.5mH, V_G=10V, starting TJ=+25°C.

3. I_{SD}≤7.5A, dI/dt≤200A/μs, VDD≤BVDSS, starting TJ=+25°C.

Thermal Characteristics					
Symbol	**Parameter**	**Min.**	**Typ.**	**Max.**	**Units**
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case	--	--	0.85	°C/W
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	--	--	62.5	

Static ChaStatic Characteristics						
Symbol	**Parameter**	**Test Conditions**	**Min**	**Typ.**	**Max.**	**Units**
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS} = 0 V , I_D = 250μA	600	--	--	V
		Tj = 150°C	--	650	--	V
ΔBV_{DSS} /ΔT_J	Breakdown Voltage Temperature Coefficient	I_D = 250μA, Referenced to 25°C	--	0.65	--	V/°C
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = 250 uA	2.0	--	4.0	V
I_{DSS}	Drain-Source Leakage Current	V_{DS} = 600 V , V_{GS} = 0 V V_{DS} = 480 V , T_C = 125°C	--	--	1 10	uA
I_{GSS}	Gate-Body Leakage, Forward	V_{GS} = ±30	--	--	±100	nA
$R_{DS(ON)}$	Static Drain-Source On-state Resistance	V_{GS} = 10 V , I_D = 3.75 V	--	1.08	1.2	Ω

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Dynamic Characteristics

Symbol	Parameter	Test Conditions	Min	Typ.	Max.	Units
Q_g	Total Gate Charge	V_{DD} = 300 V,I_D = 6 A, V_{GS} = 10 V	--	31.3	--	nC
Q_{gs}	Gate-Source Charge		--	6.9	--	nC
Q_{gd}	Gate-Drain Charge (Miller Charge)		--	14	--	nC
C_{ISS}	Input Capacitance	V_{DS} = 25 V, V_{GS} = 0 V, f = 1.0MHz	--	1482	--	pF
C_{OSS}	Output Capacitance		--	121.7	--	pF
C_{RSS}	Reverse Transfer Capacitance		--	14	--	pF
$t_{d(on)}$	Turn-On Time	V_{DS} = 300 V, I_D = 6 A, V_{GS} = 10 V, R_G = 10 Ω	--	14.2	--	ns
t_r	Rise Time		--	11.8	--	ns
$t_{d(off)}$	Turn-Off Delay Time		--	40.1	--	ns
tf	Fall Time		--	18.8	--	ns

Source-Drain Diode

Symbol	Parameter	Test Conditions	Min	Typ.	Max.	Units
I_S		V_D = V_G = 0, V_S = 1.3 V	--	--	7.5	A
I_{SM}			--	--	30	
V_{SD}		I_S = 7.5 A , V_{GS} = 0 V	--	--	1.5	V
t_{rr}		I_F = 6 A , V_{GS} = 0 V diF/dt=100A/μs	--	504.9	--	ns
Q_{rr}			--	47.59	--	uC

*Pulse Test : Pulse Width ≤300μs, Duty Cycle≤2%

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