MS75N75

75V N-Channel MOSFET

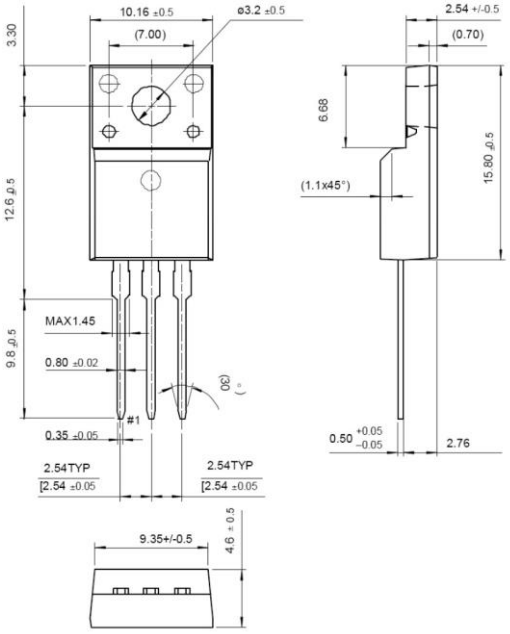
Features

- RDS(on) (Max 0.017 Ω)@VGS=10V
- Gate Charge (Typical 85nC)
- Improved dv/dt Capability, High Ruggedness
- 100% Avalanche Tested
- Maximum Junction Temperature Range (175°C)
- RoHS compliant package

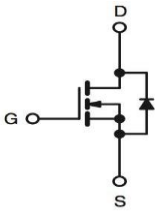
Packing & Order Information

50/Tube ; 1,000/Box

RoHS COMPLIANT



Graphic symbol



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Absolute Maximum Ratings (Tc=25°C unless otherwise specified)

Symbol	Parameter	Value	Unit
V_{DSS}	Drain-Source Voltage	75	V
I_D	Drain Current -Continuous (TC=25°C)	75	A
	Drain Current -Continuous (TC=100°C)	52.5	A
I_{DM}	Drain Current –Pulsed	300	A
V_{GS}	Gate-Source Voltage	±20	V
E_{AS}	Single Pulsed Avalanche Energy	1350	mJ
E_{AR}	Repetitive Avalanche Energy	9	mJ
dv/dt	Peak Diode Recovery dv/dt	7.0	V/ns
P_D	Power Dissipation (TC=25°C) - Derate above 25°C	190	W
		1.27	W/°C
T_J/T_{STG}	Operating and Storage Temperature Range	-55 to +150	°C
T_L	Maximum lead temperature for soldering purposes, 1/8" from case for 5 seconds	300	°C

●Drain current limited by maximum junction temperature

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Thermal Resistance Characteristics

Symbol	Parameter	Typ.	Max.	Units
$R_{\theta JC}$	Junction-to-Case	--	1.43	°C/W
$R_{\theta JA}$	Junction-to-Ambient	--	62.5	

On Characteristics

Symbol	Parameter	Test Conditions	Min	Typ.	Max.	Units
V_{GS}	Gate Threshold Voltage	V_{DS} = V_{GS},I_D = 250μA	2.0	--	4.0	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS} = 10 V,I_D = 3.75 A	--	0.014	0.017	Ω

Off Characteristics

Symbol	Parameter	Test Conditions	Min	Typ.	Max.	Units
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS} = 0 V , I_D = 250μA	75	--	--	V
ΔBV_{DSS} /ΔT_J	Breakdown Voltage Temperature Coefficient	I_D = 250μA, Referenced to 25°C	--	0.08	--	V/°C
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = 75 V , V_{GS} = 0 V V_{DS} = 60 V , V_C = 125°C	--	--	10 100	μA
I_{GSSF}	Gate-Body Leakage Current,Forward	V_{GS} = 20 V , V_{DS} = 0 V	--	--	100	μA
I_{GSSR}	Gate-Body Leakage Current,Reverse	V_{GS} = -20 V , V_{DS} = 0 V	--	--	-100	nA

Dynamic Characteristics

Symbol	Parameter	Test Conditions	Min	Typ.	Max.	Units
C_{ISS}	Input Capacitance	V_{DS} = 25 V, V_{GS} = 0 V, f = 1.0MHz	--	3000	--	pF
C_{OSS}	Coss Output Capacitance		--	1100	--	pF
C_{RSS}	Crss Reverse Transfer Capacitance		--	250	--	pF

Switching Characteristics

Symbol	Parameter	Test Conditions	Min	Typ.	Max.	Units
$t_{d(on)}$	Turn-On Time	V_{DS} = 37.5 V, I_D = 75 A, R_G = 25 Ω	--	25	60	ns
t_r	Turn-On Rise Time		--	300	700	ns
$t_{d(off)}$	Turn-Off Delay Time		--	150	310	ns
tf	Turn-Off Fall Time		--	180	370	ns
Q_g	Total Gate Charge	V_{DS} = 60 V,I_D = 10 A, V_{GS} = 75 V	--	85	110	nC
Q_{gs}	Gate-Source Charge		--	15	--	nC
Q_{gd}	Gate-Drain Charge		--	40	--	nC

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Source-Drain Diode Maximum Ratings and Characteristics						
Symbol	**Parameter**	**Test Conditions**	**Min**	**Typ.**	**Max.**	**Units**
I_S	Continuous Source-Drain Diode Forward Current		--	--	75	A
I_{SM}	ISM Pulsed Source-Drain Diode Forward Current		--	--	300	
V_{SD}	Source-Drain Diode Forward Voltage	I_S = 75 A , V_{GS} = 0 V	--	--	1.5	V
t_{rr}	Reverse Recovery Time	I_S = 75 A , V_{GS} = 0 V diF/dt=100A/μs	--	90	--	ns
Q_{rr}	Reverse Recovery Charge		--	250	--	μC

Notes:

1. Repeativity rating : pulse width limited by junction temperature
2. L = 0.32mH, I_{AS} =75A, V_{DD} = 25V, R_G = 25Ω , Starting TJ = 25°C
3. I_{SD} ≤ 75A, di/dt ≤ 300A/us, VDD ≤ BVDSS, Starting TJ = 25°C
4. Pulse Test : Pulse Width ≤ 300us, Duty Cycle ≤ 2%
5. Essentially independent of operating temperature.

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