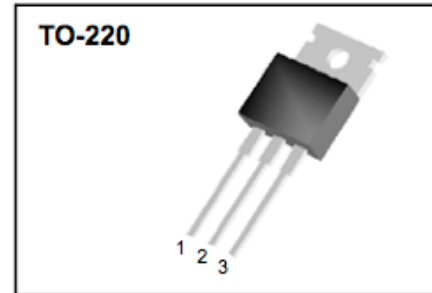
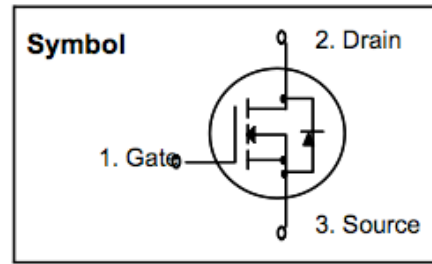


MS75N75 75V N-Channel MOSFET

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)



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

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

Symbol	Parameter	Value	Unit
V _{DSS}	Drain-Source Voltage	75	V
I _D	Drain Current -Continuous (T _c =25°C)	75	A
	Drain Current -Continuous (T _c =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
d _v /d _t	Peak Diode Recovery dv/dt	7.0	V/ns
P _D	Power Dissipation (T _c =25°C)	190	W
	- Derate above 25°C	1.27	W/°C
T _J ,T _{STG}	Operating and Storage Temperature Range	-55 to + 175	°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

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	

Electrical Characteristics (T_c=25°C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min	Type	Max	Units
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Off Characteristics

BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0\text{ V}, I_D=250\mu\text{A}$	75	--	--	V
$\Delta BV_{DSS} / \Delta T_J$	Breakdown Voltage Temperature Coefficient	$I_D=250\mu\text{A}$, Referenced to 25°C	--	0.08	--	V/°C
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=75\text{ V}, V_{GS}=0\text{ V}$	--	--	10	μA
		$V_{DS}=60\text{ V}, V_C=125^\circ\text{C}$	--	--	100	μA
I_{GSSF}	Gate-Body Leakage Current, Forward	$V_{GS}=20\text{ V}, V_{DS}=0\text{ V}$	--	--	100	nA
I_{GSSR}	Gate-Body Leakage Current, Reverse	$V_{GS}=-20\text{ V}, V_{DS}=0\text{ V}$	--	--	-100	nA

On Characteristics

V_{GS}	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$	2.0	--	4.0	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10\text{ V}, I_D=37.5\text{ A}$	--	0.014	0.017	Ω

Dynamic Characteristics

C_{iss}	Input Capacitance	$V_{DS}=25\text{ V}, V_{GS}=0\text{ V},$ $f=1.0\text{ MHz}$	--	3000	--	pF
C_{oss}	Output Capacitance		--	1100	--	pF
C_{rss}	Reverse Transfer Capacitance		--	250	--	pF

Switching Characteristics

$t_{d(on)}$	Turn-On Time	$V_{DS}=37.5\text{ V}, I_D=75\text{ A},$ $R_G=25\Omega$	--	25	60	ns
t_r	Turn-On Rise Time		--	300	700	ns
$t_{d(off)}$	Turn-Off Delay Time		--	150	310	ns
t_f	Turn-Off Fall Time		--	180	370	ns
Q_g	Total Gate Charge	$V_{DS}=60\text{ V}, I_D=10\text{ A},$ $V_{GS}=75\text{ V}$	--	85	110	nC
Q_{gs}	Gate-Source Charge		--	15	--	nC
Q_{gd}	Gate-Drain Charge		--	40	--	nC

Source-Drain Diode Maximum Ratings and Characteristics

I_S	Continuous Source-Drain Diode Forward Current	--	--	75	A		
I_{SM}	Pulsed Source-Drain Diode Forward Current	--	--	300			
V_{SD}	Source-Drain Diode Forward Voltage	$I_S=75A, V_{GS}=0V$		--	--	1.5	V
t_{rr}	Reverse Recovery Time	$I_S=75 A, V_{GS}= 0V$		--	90	--	ns
Q_{rr}	Reverse Recovery Charge	$di_F/dt=100A/\mu s$		--	250	--	μC

Notes;

1. Repeativity rating : pulse width limited by junction temperature
2. $L = 0.32mH, I_{AS} = 75A, V_{DD} = 25V, R_G = 25\Omega, \text{Starting } T_J = 25^\circ C$
3. $I_{SD} \leq 75A, di/dt \leq 300A/us, V_{DD} \leq B_{VDSS}, \text{Starting } T_J = 25^\circ C$
4. Pulse Test : Pulse Width $\leq 300us, \text{Duty Cycle } \leq 2\%$
5. Essentially independent of operating temperature.