



December 2007 **PRELIMINARY**

MM75N75K
75V 85A 9.5mΩ
N-CHANNEL MOSFET
RoHS Compliant

PRODUCT FEATURES

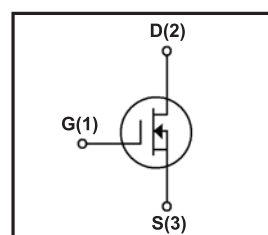
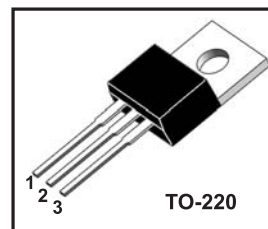
- Low On-Resistance
- High Pulse Current
- High Operating Temperature
- Fully Avalanche Rated
- Fast Switching

DESCRIPTION

This N-channel MOSFET from MacMic utilizes advanced processing techniques to achieve higher current density and low on-resistance. It can withstand high energy pulse in the avalanche case and has fast switching speed. It can be widely used for high efficiency switch mode power supply.

APPLICATIONS

- DC Motor Control
- DC-DC Converters
- Automotive Environment



ABSOLUTE MAXIMUM RATINGS

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

Symbol	Parameter	Test Conditions	Max.	Unit
V_{DSS}	Drain-Source Voltage	$I_D=250\mu\text{A}$, $V_{\text{GS}}=0\text{V}$	75	V
V_{GSS}	Gate-Source Voltage		± 20	V
I_D	Continuous Drain Current	$V_{\text{GS}}=10\text{V}$	85	A
		$T_C=100^{\circ}\text{C}$, $V_{\text{GS}}=10\text{V}$	75	A
I_{DM}	Drain Current	Pulsed ①	320	A
T_J	Operating Junction Temperature		-55 to +175	$^{\circ}\text{C}$

ELECTRICAL AND THERMAL CHARACTERISTICS

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

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{DSS}	Drain-Source Leakage Current ($V_{\text{GS}}=0\text{V}$)	$V_{\text{DS}}=75\text{V}$, $T_C=25^{\circ}\text{C}$	--	--	1	μA
		$V_{\text{DS}}=75\text{V}$, $T_C=125^{\circ}\text{C}$	--	--	10	μA
I_{GSS}	Gate-Source Leakage Current	$V_{\text{DS}}=0$, $V_{\text{GS}}=\pm 20\text{V}$	--	--	± 100	nA
$R_{\text{DS(on)}}$	Static Drain-Source On-Resistance	$V_{\text{GS}}=10\text{V}$, $I_D=40\text{A}$	--	9.5	12	mΩ
$V_{\text{GS(th)}}$	Gate Threshold Voltage	$V_{\text{DS}}=V_{\text{GS}}$, $I_D=250\mu\text{A}$	2	3	4	V
$t_{\text{d(on)}}$	Turn-On Delay Time	$V_{\text{DD}}=38\text{V}$, $I_D=43\text{A}$	--	20	--	ns
t_r	Rise Time	$R_G=4.7\Omega$, $V_{\text{GS}}=10\text{V}$	--	30	--	ns
$t_{\text{d(off)}}$	Turn-Off Delay Time	Pulse Width $\leq 400\mu\text{s}$	--	50	--	ns
t_f	Fall Time	Duty Cycle $\leq 2\%$	--	40	--	ns
$R_{\theta\text{JC}}$	Junction-to-Case		--	--	0.5	$^{\circ}\text{C}/\text{W}$

Notes: ① Repetitive rating: Pulse width limited by maximum junction temperature.

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