

# MSD50N10

## N-Channel 100-V (D-S) MOSFET

### Description

The MSD50N10 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-252 package is universally preferred for all commercial-industrial applications

### Features

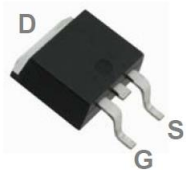
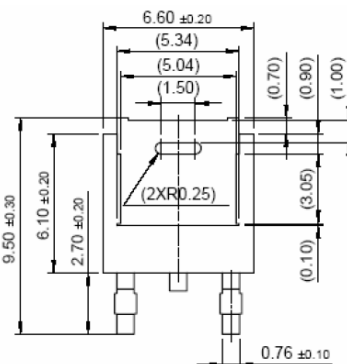
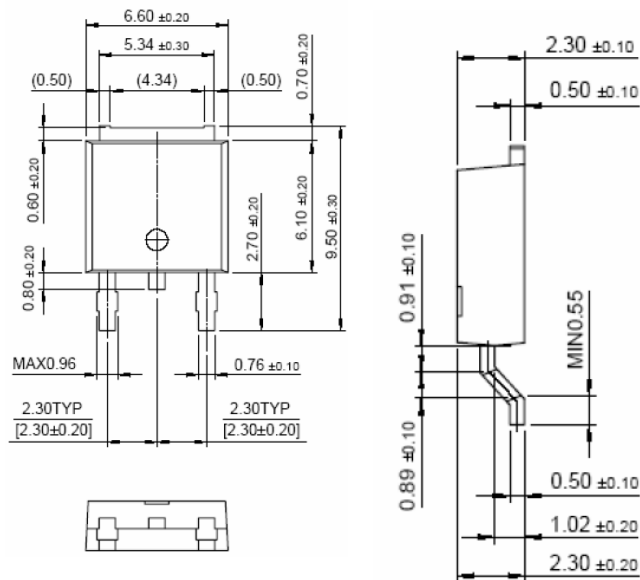
- Low RDS(on) provides higher efficiency and extends battery life
- Low thermal impedance copper lead frame DPAK saves board space
- Fast switching speed
- High performance trench technology
- RoHS compliant package

**Package type :** TO-252

### Packing & Order Information

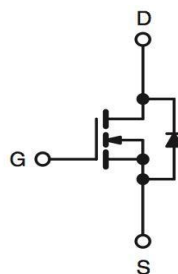
Part No./ T : 2,500/Reel

Part No./ R : 80/Tube , 4,000/Box



**RoHS  
COMPLIANT**

Graphic symbol



## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

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

Symbol	Parameter	Value	Unit
V <sub>DS</sub>	Drain-Source Voltage	100	V
V <sub>GS</sub>	Gate-Source Voltage	±20	V
I <sub>D</sub>	Continuous Drain Current (TC=25°C)	44	A
I <sub>DM</sub>	Pulsed Drain Current	36	A

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### N-Channel 100-V (D-S) MOSFET

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

Symbol	Parameter	Value	Unit
I <sub>S</sub>	Continuous Source Current (Diode Conduction)	30	A
T <sub>J</sub> , T <sub>stg</sub>	Operating Junction and Storage Temperature	-55~+175	°C
PW	Power Dissipation@ TC=25°C	50	W

Note:

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

#### Thermal Resistance Characteristics (Tc=25°C unless otherwise noted)

Symbol	Parameter	Value	Units
R <sub>θJC</sub>	Maximum Resistance, Junction-to-Case	3	°C/W
R <sub>θJA</sub>	Maximum Resistance, Junction-to- Ambient	50	

#### Static Characteristics

Symbol	Test Conditions	Min	Typ.	Max.	Units
V <sub>GS</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA	1.0	--	--	V
R <sub>DS(ON)</sub>	V <sub>GS</sub> = 10 V, I <sub>D</sub> = 2 A V <sub>GS</sub> = 5.5 V, I <sub>D</sub> = 2 A	--	--	18 23	mΩ
V <sub>SD</sub>	I <sub>S</sub> = 2 A, V <sub>GS</sub> = 0 V	--	1.1	--	V
I <sub>DSS</sub>	V <sub>DS</sub> = 80 V, V <sub>GS</sub> = 0 V V <sub>DS</sub> = 80 V, V <sub>GS</sub> = 0 V, T <sub>J</sub> = 125°C	--	--	1 25	uA
I <sub>D(ON)</sub>	V <sub>DS</sub> = 5 V, V <sub>GS</sub> = 10 V	34	--	--	A
I <sub>GSS</sub>	V <sub>GS</sub> = ±20, V <sub>DS</sub> = 0 V	--	--	±100	nA
G <sub>FS</sub>	V <sub>DS</sub> = 40 V, I <sub>D</sub> = 2 A	--	4.4	--	S

#### Dynamic Characteristics

Symbol	Test Conditions	Min	Typ.	Max.	Units
t <sub>d(on)</sub>	V <sub>DD</sub> = 100 V, I <sub>D</sub> = 9 A, R <sub>L</sub> = 25 Ω, V <sub>GEN</sub> = 10 V	--	24	--	ns
t <sub>r</sub>		--	31	--	ns
t <sub>d(off)</sub>		--	136	--	ns
t <sub>f</sub>		--	50	--	ns
Q <sub>g</sub>	V <sub>DS</sub> = 25 V, I <sub>D</sub> = 2 A, V <sub>GS</sub> = 10 V	--	50	--	nC
Q <sub>gs</sub>		--	11	--	nC
Q <sub>gd</sub>		--	36	--	

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#### Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE

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