

MS12N65

N-Channel Enhancement Mode Power MOSFET

Description

The MS12N65 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 gate charge (typical 52nC)
- High ruggedness
- Fast switching
- 100% avalanche tested
- Improved dv/dt capability
- RoHS compliant package

Application

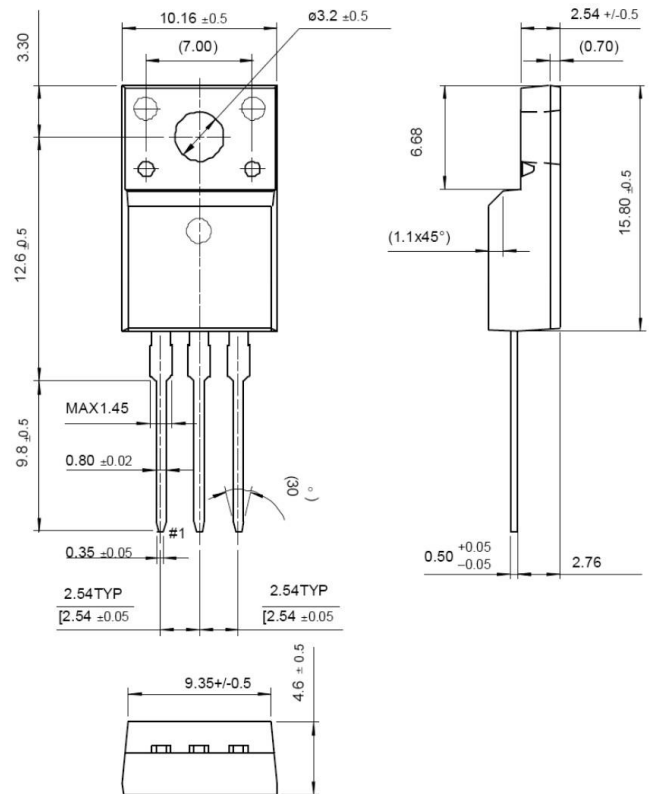
- Power Factor Correction
- LCD TV Power
- Full and Half Bridge Power

Packing Information

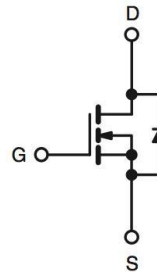
Shipping : 50/Tube ; 1,000/Box



RoHS
COMPLIANT



Graphic symbol



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

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

Symbol	Parameter	Value	Unit
V _{DS}	Drain-Source Voltage	650	V
V _{GS}	Gate-Source Voltage	±30	V
I _D	Drain Current -Continuous (TC=25°C)	12	A
	Drain Current -Continuous (TC=100°C)	7.4	A
I _{DM}	Pulsed Drain Current	48	A
E _{AS}	Single Pulsed Avalanche Energy	865	mJ
E _{AR}	Repetitive Avalanche Energy	23.1	mJ
dV/dt	Peak Diode Recovery dV/dt	4.5	V/ns

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

Symbol	Parameter	Value	Unit
P _D	Power Dissipation (TC=25°C)	231	W
	Power Dissipation (TC=100°C)	1.85	W
T _J /T _{STG}	Operating Junction and Storage Temperature	-55 to +150	°C

NOTE:

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

Thermal characteristics (Tc=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Typical thermal resistance	R _{θJA}	62.5	°C/W
	R _{thjc}	0.54	

Static Characteristics

Symbol	Test Conditions	Min	Typ.	Max.	Units
V _{GS}	V _{DS} = V _{GS} , I _D = 250μA	2.0		4.0	V
*R _{DS(ON)}	V _{GS} = 10 V, I _D = 6 A	--	0.63	0.75	Ω
BV _{DSS}	V _{GS} = 0 V, I _D = 250μA	650	710	--	V
ΔBV _{DSS} /ΔT _J	I _D =250μA, Referenced to 25°C		0.7		
I _{DSS}	V _{DS} = 650 V, V _{GS} = 0 V V _{DS} = 520 V, V _{GS} = 0 V, T _J = 125°C	--	--	10 100	uA
G _{FS}	V _{DS} = 30 V, V _{DS} = 0 V			100	S
I _{GSS}	V _{DS} = -30 V, V _{DS} = 0 V	--	--	-100	nA

Dynamic Characteristics

Symbol	Test Conditions	Min	Typ.	Max.	Units
Q _g	V _{DS} = 520 V, I _D = 12 A, V _{GS} = 10 V	--	52	--	nC
Q _{gs}		--	8.5	--	
Q _{gd}		--	20	--	
t _{d(on)}	V _{DS} = 325 V, I _D = 10 A, R _G = 25 Ω	--	30	--	ns
t _r		--	90	--	ns
t _{d(off)}		--	140	--	ns
t _f		--	90	--	ns
C _{ISS}	V _{DS} = 25 V, V _{GS} = 0 V, f=1.0MHz	--	1850	--	pF
C _{OSS}		--	180	--	pF
C _{RSS}		--	20	--	pF

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Source-Drain Diode Characteristics

Symbol	Test Conditions	Min	Typ.	Max.	Units
I_S		--	--	12	A
I_{SM}		--	--	48	
V_{SD}	$I_F = 12\text{ A}$, $V_{GS} = 0$	--	--	1.4	V
t_{rr}	$I_F = 12\text{ A}$, $V_{GS} = 0$, $dI_F/dt=100\text{A}/\mu\text{s}$	--	430	--	ns
Q_{rr}		--	5.0	--	uC

Notes:

1. Repeativity rating : pulse width limited by junction temperature
2. $I_{AS}=12\text{A}$, $V_{DD}=50\text{V}$, $R_G=25\Omega$, Starting $T_J=25^\circ\text{C}$
3. $I_{SD}\leq 12\text{A}$, $di/dt\leq 300\text{A}/\mu\text{s}$, $V_{DD}\leq BV_{DSS}$, Starting $T_J=25^\circ\text{C}$
4. Pulse Test : Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$
5. Essentially independent of operating temperature.

Ordering Information

Package	Shipping
TO-220	50 pcs/tube, 20 tubes/box, 4 boxes / carton

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