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

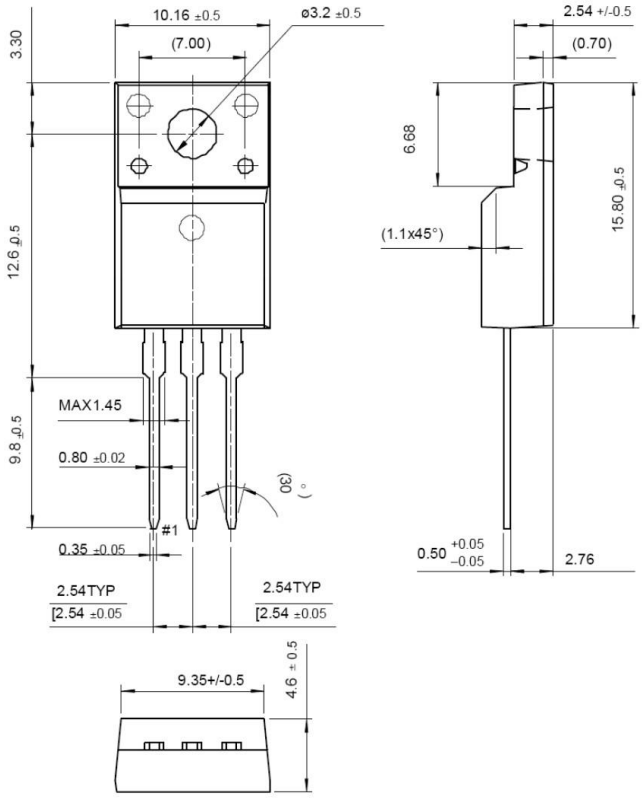
Application

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

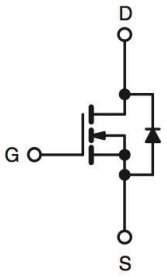
Packing Information

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	RθJA	62.5	°C/W
	Rthjc	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
$\Delta BV_{DSS}/\Delta T_J$	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
tf		--	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}	IF = 12 A , V_{GS} = 0	--	--	1.4	V
t_{rr}	IF = 12 A , V_{GS} = 0 , dIF/dt=100A/μs	--	430	--	ns
Q_{rr}		--	5.0	--	uC

Notes:

1. Repeativity rating : pulse width limited by junction temperature
2. I_{AS}=12A, V_{DD}=50V, R_G=25Ω, Starting TJ =25°C
3. I_{SD}≤12A, di/dt≤300A/μs, V_{DD}≤BV_{DSS} , Starting TJ =25 °C
4. Pulse Test : Pulse Width ≤ 300us, Duty Cycle ≤ 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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