

MS 12N65

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-220AB 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

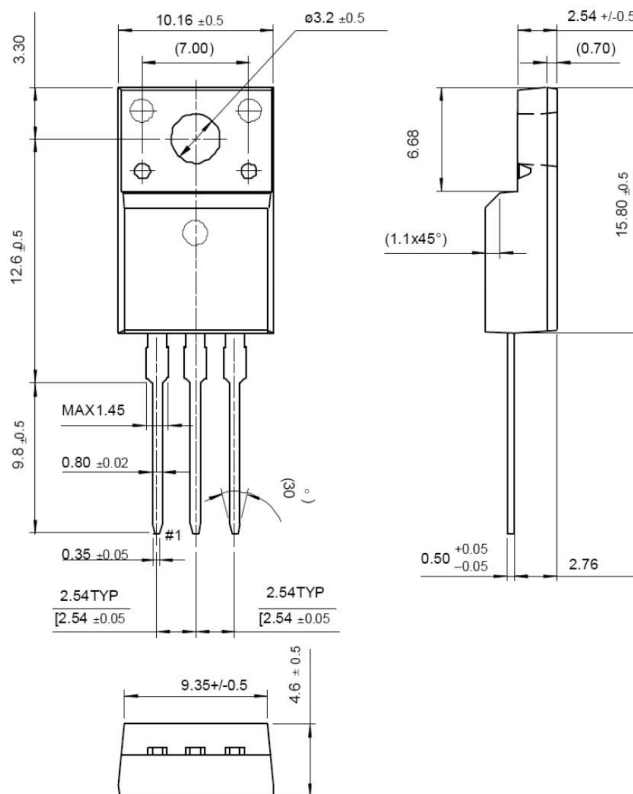
Application

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

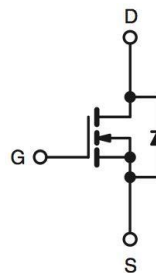
Package type : TO-220AB

Packing Information

Shipping : 50/Tube ; 1,000/Box



Graphic symbol



**RoHS
COMPLIANT**

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

MS 12N65

N-Channel Enhancement Mode Power MOSFET

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	--	--	10	uA
	V _{DS} = 520 V, V _{GS} = 0 V, T _J = 125°C			100	
G _{FS}	V _{DS} = 30 V, V _{GS} = 0 V			100	S
I _{GSS}	V _{DS} = -30 V, V _{GS} = 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

MS 12N65

N-Channel Enhancement Mode Power MOSFET

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}	$I_F = 12\text{ A}, V_{GS} = 0, di/dt=100\text{A}/\mu\text{s}$	--	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

MS 12N65

N-Channel Enhancement Mode Power MOSFET

Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE

WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Bruckewell Technology Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Bruckewell"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Bruckewell makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Bruckewell disclaims

- (i) Any and all liability arising out of the application or use of any product.
- (ii) Any and all liability, including without limitation special, consequential or incidental damages.
- (iii) Any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Bruckewell's knowledge of typical requirements that are often placed on Bruckewell products in generic applications.

Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and/or specifications may vary in different applications and performance may vary over time.

Product specifications do not expand or otherwise modify Bruckewell's terms and conditions of purchase, including but not limited to the warranty expressed therein.