Preliminary_MS17N03Q8

N-Channel Logic Level Enhancement Mode MOSFET

Description

MS17N03Q8 provides the designer with the best combination of fast switching, ruggedized device design, ultra low on-resistance and cost effectiveness.

The SOP-8 package is universally preferred for all commercial-industrial surface mount applications and suited for low voltage applications such as DC/DC converters.

Features

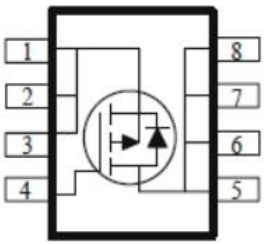
- RDS(ON)=15mΩ(max.)@VGS=10V, ID=10A
- Simple drive requirement
- Low on-resistance
- Fast switching speed
- RoHS compliant package

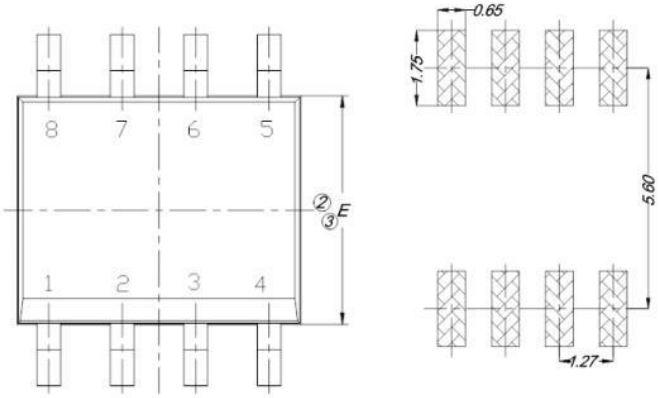
Packing & Order Information

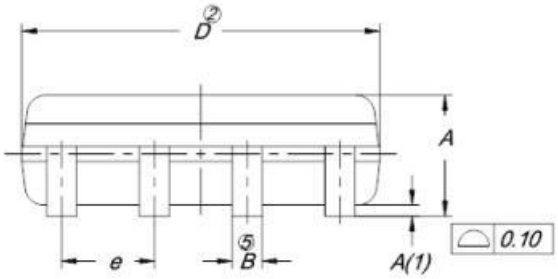
3,000/Reel

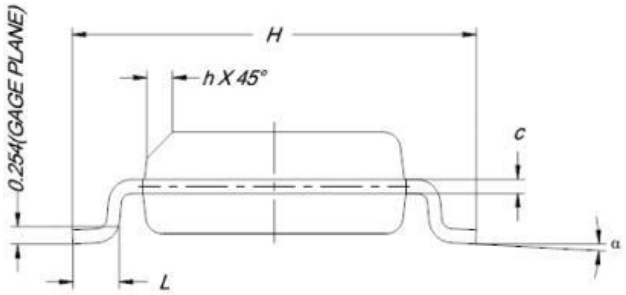
RoHS
COMPLIANT

Graphic symbol









DIM.	MILLIMETERS		
	MIN.	NOM.	MAX.
A	1.35	1.55	1.75
A(1)	0.10	0.18	0.25
B	0.38	0.45	0.51
C	0.19	0.22	0.25
D	4.80	4.90	5.00
E	3.80	3.90	4.00
e	1.27 BSC		
H	5.80	6.00	6.20
L	0.50	0.72	0.93
α	0°	4°	8°
h	0.25	0.38	0.50

Preliminary_MS17N03Q8

N-Channel Logic Level Enhancement Mode MOSFET

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

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

Symbol	Parameter	Value	Unit
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	Drain Current -Continuous (TC=25°C)	10	A
	Drain Current -Continuous (TC=100°C)	8	A
I_{DM}	Pulsed Drain Current (Note 1)	40	A
I_{AS}	Avalanche Current	12	A
E_{AS}	Avalanche Energy @ L=0.1mH , I_D=10A , R_G=25Ω	5	mJ
E_{AR}	Repetitive Avalanche Energy @ L=0.005mH (Note 2)	2.5	mJ
P_D	Power Dissipation (T_A=25°C) (Note 3)	3	W
	Power Dissipation (T_A=100°C)	1.5	W
T_J/T_{STG}	Operating Junction and Storage Temperature Range	-55 to +175	°C

100% UIS testing in condition of V_D=15V , L=0.1mH , V_G=10V, I_L=10A, Rated V_{DS}=30V N-CH

Thermal Data

Symbol	Parameter	Max.	Units
R_{thj-c}	Thermal Resistance, Junction-to-Case, max	25	°C/W
R_{thj-a}	Thermal Resistance, Junction-to-Ambient, max	50*3	

Note:

1. Pulse width limited by maximum junction temperature.
2. Duty cycle≤ 1%
3. Surface mounted on 1 in2 copper pad of FR-4 board, 125°C/W when mounted on minimum copper pad.

Characteristics (Tj=25°C, unless otherwise specified)

Symbol	Test Conditions	Min	Typ.	Max.	Units
$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	1	1.5	3	V
BV_{DSS}	V_{GS} = 0 V , I_D = 250μA	30	--	--	V
G_{FS} *1	V_{DS} = 5 V, I_D = 10 A	--	80	--	S
I_{GSS}	V_{GS} = ±20	--	--	±100	nA
I_{DSS}	V_{DS} = 24 V , V_{GS} = 0 V V_{DS} = 20 V , V_{GS} = 0 V , T_j = 125°C	--	--	10 25	uA
$I_{D(ON)}$ *1	V_{GS} = 10 V , I_D = 10 A	10	--	--	A
$R_{DS(ON)}$ *1	V_{GS} = 10 V , I_D = 10 A	--	13	15	mΩ
	V_{GS} = 4.5 V , I_D = 6 A	--	20	25	

Preliminary_MS17N03Q8

N-Channel Logic Level Enhancement Mode MOSFET

Dynamic					
Symbol	**Test Conditions**	**Min**	**Typ.**	**Max.**	**Units**
Q_g(V_{GS}=10V) *1.2	V_{DS} = 15 V, I_D = 10 A , V_{GS} = 10 V	--	11	--	nC
Q_{gs}(V_{GS}=4.5V) *1.2		--	6	--	nC
Q_{gs} *1.2			1.2		nC
Q_{gd} *1.2		--	3.3	--	nC
$t_{d(on)}$ *1.2	V_{DS} = 15 V, I_D =1 A , V_{GS} = 10 V R_G = 25 Ω , R_D =15 Ω	--	11	--	ns
t_r *1.2		--	16	--	ns
$t_{d(off)}$ *1.2		--	36	--	ns
tf *1.2		--	20	--	ns
C_{ISS}	V_{DS} = 15 V, V_{GS} = 0 V, f = 1.0MHz	--	1115	--	pF
C_{OSS}		--	116	--	pF
C_{RSS}		--	82	--	pF
Rg	V_{DS} = 15mV, V_{GS} = 0 V, f = 1.0MHz	--	2	--	Ω

Source-Drain Diode					
Symbol	**Test Conditions**	**Min**	**Typ.**	**Max.**	**Units**
I_S *1		--	--	2.3	A
I_{SM} *3		--	--	9.2	
V_{SD} *1	I_F = I_S , V_{GS} = 0 V	--	--	102	V
t_{rr}	I_F = I_S , dI/dt = 100A/μs	--	50	--	ns
Q_{rr}		--	2	--	uC

Notes:

1. Pulse Test: Pulse Width ≤300μs, Duty Cycle ≤2%.
2. Independent of operating temperature.
3. Pulse width limited by maximum junction temperature.

Preliminary_MS17N03Q8

N-Channel Logic Level Enhancement
Mode 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.