

MS 17N03Q8

N-Channel 30-V Logic Level Enhancement Mode MOSFET

Description

MS 17N03Q8 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

- $R_{DS(ON)} = 15\text{m}\Omega(\text{max.}) @ V_{GS} = 10\text{V}, I_D = 10\text{A}$
- Simple drive requirement
- Low on-resistance
- Fast switching speed
- RoHS compliant package

Package type : SO-8

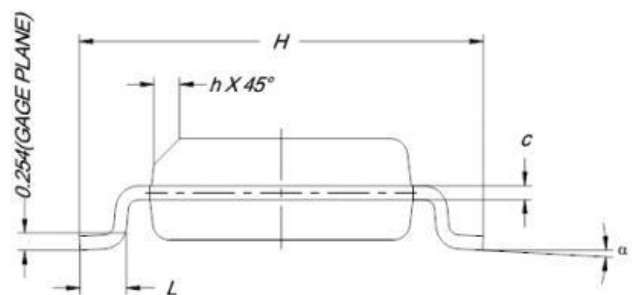
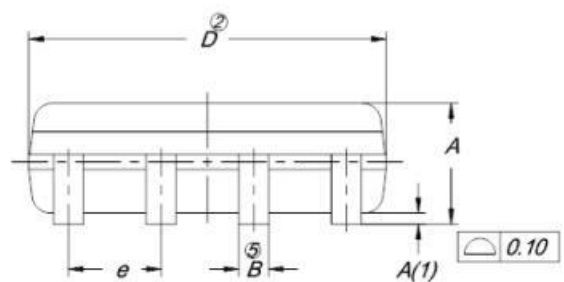
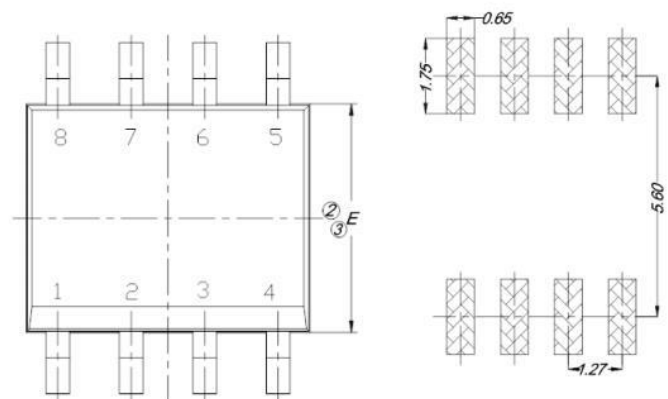
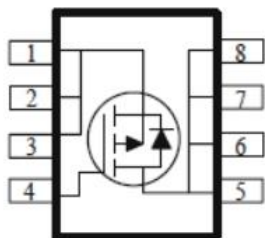
Packing & Order Information

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

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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 _{thjc}	Thermal Resistance, Junction-to-Case, max	25	°C/W
R _{thja}	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 (T_j=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	--	--	10	uA
	V _{DS} = 20 V, V _{GS} = 0 V, T _j = 125°C			25	
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	

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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	$V_{DS} = 15 V, I_D = 1 A, V_{GS} = 10 V$ $R_G = 25 \Omega, R_D = 15 \Omega$	--	11	--	ns
t_r *1.2		--	16	--	ns
$t_{d(off)}$ *1.2		--	36	--	ns
t_f *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
R_g	$V_{DS} = 15mV, V_{GS} = 0 V, f = 1.0MHz$	--	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}	$I_F = I_S, dI/dt = 100A/\mu s$	--	50	--	ns
Q_{rr}		--	2	--	uC

Notes :

1. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
2. Independent of operating temperature.
3. Pulse width limited by maximum junction temperature.

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