

# MMFT2406T1

## Power MOSFET

### 700 mA, 240 V, N-Channel, SOT-223

This Power MOSFET is designed for high speed, low loss power switching applications such as switching regulators, converters, solenoid and relay drivers. The device is housed in the SOT-223 package which is designed for medium power surface mount applications.

- Silicon Gate for Fast Switching Speeds
- High Voltage – 240 Vdc
- Low Drive Requirement
- The SOT-223 Package can be soldered using wave or reflow. The formed leads absorb thermal stress during soldering, eliminating the possibility of damage to the die.
- Pb-Free Packages are Available

#### MAXIMUM RATINGS (T<sub>C</sub> = 25°C unless otherwise noted)

Rating	Symbol	Value	Unit
Drain-to-Source Voltage	V <sub>DS</sub>	240	Vdc
Gate-to-Source Voltage – Continuous	V <sub>GS</sub>	±20	Vdc
Drain Current	I <sub>D</sub>	700	mAdc
Total Power Dissipation @ T <sub>A</sub> = 25°C (Note 1) Derate above 25°C	P <sub>D</sub>	1.5 12	W mW/°C
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	-65 to 150	°C

#### THERMAL CHARACTERISTICS

Rating	Symbol	Value	Unit
Thermal Resistance – Junction-to-Ambient (surface mounted) (Note 1)	R <sub>θJA</sub>	83.3	°C/W
Lead Temperature for Soldering Purposes, 1/16" from case Time in Solder Bath	T <sub>L</sub>	260 10	°C Sec

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

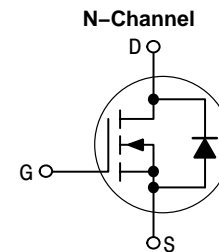
1. Device mounted on a glass epoxy printed circuit board 1.575 in x 1.575 in x 0.059 in; mounting pad for the collector lead min. 0.93 sq in.



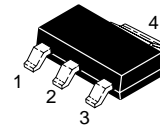
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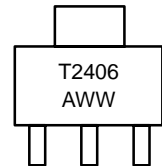
**700 mA, 240 V**  
**R<sub>DS(on)</sub> = 6.0 Ω**



#### MARKING DIAGRAM

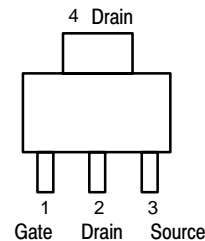


**TO-223**  
**CASE 318E**  
**STYLE 3**



A = Assembly Location  
WW = Work Week

#### PIN ASSIGNMENT



#### ORDERING INFORMATION

Device	Package	Shipping†
MMFT2406T1	SOT-223	1000 Tape & Reel
MMFT2406T1G	SOT-223 (Pb-Free)	1000 Tape & Reel
MMFT2406T3	SOT-223	4000 Tape & Reel
MMFT2406T3G	SOT-223 (Pb-Free)	2500 Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

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## ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C unless otherwise noted)

Characteristics	Symbol	Min	Max	Unit
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### OFF CHARACTERISTICS

Drain-to-Source Breakdown Voltage (V <sub>GS</sub> = 0, I <sub>D</sub> = 100 μA)	V <sub>(BR)DSS</sub>	240	–	Vdc
Zero Gate Voltage Drain Current (V <sub>DS</sub> = 120 V, V <sub>GS</sub> = 0)	I <sub>DSS</sub>	–	10	μAdc
Gate-Body Leakage Current (V <sub>GS</sub> = 15 Vdc, V <sub>DS</sub> = 0)	I <sub>GSS</sub>	–	100	nAdc

### ON CHARACTERISTICS (Note 2)

Gate Threshold Voltage (V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 1.0 mAdc)	V <sub>GS(th)</sub>	0.8	2.0	Vdc
Static Drain-to-Source On-Resistance (V <sub>GS</sub> = 2.5 Vdc, I <sub>D</sub> = 0.1 Adc) (V <sub>GS</sub> = 10 Vdc, I <sub>D</sub> = 0.5 Adc)	R <sub>DS(on)</sub>	– –	10 6.0	Ω
Drain-to-Source On-Voltage (V <sub>GS</sub> = 10 V, I <sub>D</sub> = 0.5 A)	V <sub>DS(on)</sub>	–	3.0	Vdc
Forward Transconductance (V <sub>DS</sub> = 6.0 V, I <sub>D</sub> = 0.5 A)	g <sub>FS</sub>	300	–	mmhos

### DYNAMIC CHARACTERISTICS

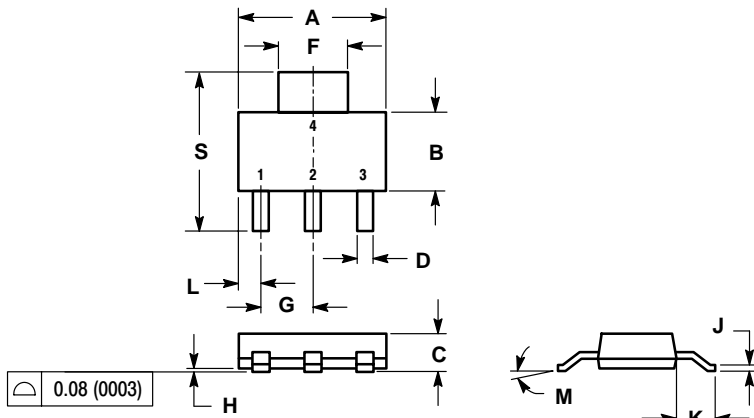
Input Capacitance	(V <sub>DS</sub> = 25 V, V <sub>GS</sub> = 0, f = 1.0 MHz)	C <sub>iss</sub>	–	125	pF
Output Capacitance		C <sub>oss</sub>	–	50	
Transfer Capacitance		C <sub>rss</sub>	–	20	

2. Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2.0%.

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## PACKAGE DIMENSIONS

SOT-223 (TO-261)  
CASE 318E-04  
ISSUE K

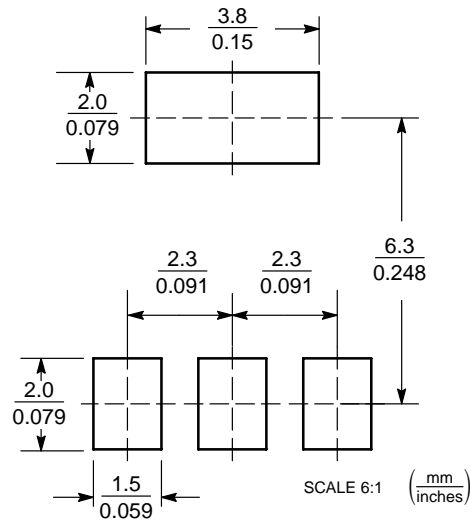


- NOTES:  
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.  
2. CONTROLLING DIMENSION: INCH.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.249	0.263	6.30	6.70
B	0.130	0.145	3.30	3.70
C	0.060	0.068	1.50	1.75
D	0.024	0.035	0.60	0.89
F	0.115	0.126	2.90	3.20
G	0.087	0.094	2.20	2.40
H	0.0008	0.0040	0.020	0.100
J	0.009	0.014	0.24	0.35
K	0.060	0.078	1.50	2.00
L	0.033	0.041	0.85	1.05
M	0°	10°	0°	10°
S	0.264	0.287	6.70	7.30

- STYLE 3:  
PIN 1. GATE  
2. DRAIN  
3. SOURCE  
4. DRAIN

### SOLDERING FOOTPRINT\*



\*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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