



## Description

The HPPMUT20V3 uses advanced trench technology to provide excellent  $R_{DS(ON)}$ . This device is suitable for use as a load switch or in PWM applications.



## General Features

$V_{DS} = -20V$ ,  $I_D = -1.8A$

$R_{DS(ON)} < 150m\Omega$  @  $V_{GS} = -4.5V$

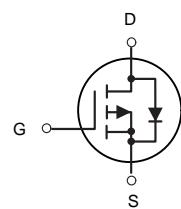
**SOT-323  
(SOT-323-3)**

## Application

Battery protection

Load switch

Uninterruptible power supply



P-Channel MOSFET

## Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
HPPMUT20V3	SOT-323(SOT-323-3)	TS1	3000

## Absolute Maximum Ratings (TA=25°C unless otherwise noted)

Symbol	Parameter	Limit	Unit
$V_{DS}$	Drain-Source Voltage	-20	V
$V_{GS}$	Gate-Source Voltage	$\pm 8$	V
$I_D$	Drain Current-Continuous	-1.8	A
$I_{DM}$	Drain Current-Pulsed (Note 1)	-3	A
$P_D$	Maximum Power Dissipation	0.29	W
$T_J, T_{STG}$	Operating Junction and Storage Temperature Range	-55 To 150	°C
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient (Note 2)	431	°C/W



**Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise noted)**

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
<b>STATIC CHARACTERISTICS</b>						
Drain-source breakdown voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = -250μA	-20			V
Zero gate voltage drain current	I <sub>DSS</sub>	V <sub>DS</sub> = -18V, V <sub>GS</sub> = 0V			-1	μA
Gate-body leakage current	I <sub>GSS</sub>	V <sub>GS</sub> = ±12V, V <sub>DS</sub> = 0V			±100	nA
Gate threshold voltage (note2)	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250μA	-0.4	-0.7	-1.0	V
Drain-source on-resistance (note2)	R <sub>DS(on)</sub>	V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -2A			150	mΩ
		V <sub>GS</sub> = -2.5V, I <sub>D</sub> = -1.0A			230	mΩ
Maximum Continuous Drain to Source Diode Forward Current	I <sub>S</sub>	--			-1.0	A
Diode forward voltage	V <sub>SD</sub>	I <sub>S</sub> =-1.0A, V <sub>GS</sub> = 0V			-1.2	V
<b>DYNAMIC CHARACTERISTICS</b> (note3)						
Input capacitance	C <sub>iss</sub>	V <sub>DS</sub> = -8V, V <sub>GS</sub> = 0V, f = 1MHz			680	pF
Output capacitance	C <sub>oss</sub>				130	pF
Reverse transfer capacitance	C <sub>rss</sub>				95	pF
<b>SWITCHING CHARACTERISTICS</b> (note3)						
Turn-on delay time	t <sub>d(on)</sub>	V <sub>GS</sub> = -4.5V, V <sub>DS</sub> = -10V, I <sub>D</sub> = -1.0A, R <sub>G</sub> = 5.1Ω			10	nS
Turn-on rise time	t <sub>r</sub>				20	nS
Turn-off delay time	t <sub>d(off)</sub>				35	nS
Turn-off fall time	t <sub>f</sub>				18	nS

Notes:

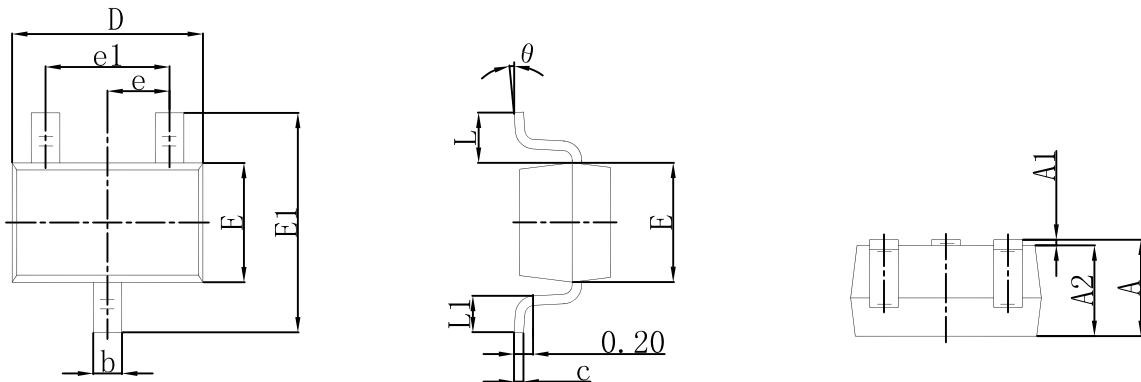
1. Surface mounted on FR4 board using the minimum recommended pad size.

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

3. These parameters have no way to verify.



### SOT-323(SOT-323-3) Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.200	0.400	0.008	0.016
c	0.080	0.150	0.003	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650 TYP		0.026 TYP	
e1	1.200	1.400	0.047	0.055
L	0.525 REF		0.021 REF	
L1	0.260	0.460	0.010	0.018
K	0°	8°	0°	8°



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