



## DESCRIPTION

$V_{DS}=30V$

$V_{GS}=\pm 12V$

$I_{D(A)}=5.8A$

$R_{DS(ON)} < 59m\Omega @ V_{GS} = 2.5V$

$R_{DS(ON)} < 45m\Omega @ V_{GS} = 4.5V$

$R_{DS(ON)} < 41m\Omega @ V_{GS} = 10V$

The AM3400 is available in SOT-23 package.

## ORDERING INFORMATION

Package Type	Part Number	
SOT-23 SPQ: 3,000pcs/Reel	E3	AM3400E3R
		AM3400E3VR
Note	V: Halogen free Package R: Tape & Reel	
AiT provides all RoHS products		

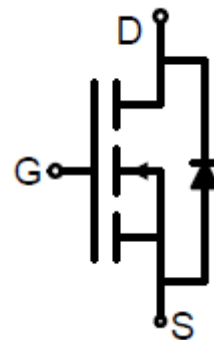
## FEATURES

- High Power and current handing capability
- Lead free product is acquired
- Surface Mount Package
- Available in SOT-23 package

## APPLICATIONS

- PWM applications
- Load switch
- Power management

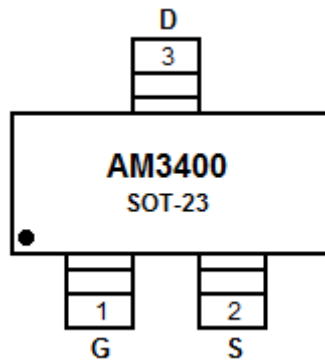
## N CHANNEL MOSFET



Schematic diagram



## PIN DESCRIPTION



Pin #	Symbol	Function
1	G	Gate
2	S	Source
3	D	Drain



## ABSOLUTE MAXIMUM RATINGS

V <sub>DS</sub> , Drain-Source Voltage	30V
V <sub>GS</sub> , Gate-Source Voltage	±12V
I <sub>D</sub> , Drain Current-Continuous	5.8A
I <sub>DM</sub> , Drain Current-Pulsed <sup>NOTE1</sup>	30A
P <sub>D</sub> , Maximum Power Dissipation	1.4W
T <sub>J</sub> , T <sub>STG</sub> , Operating Junction and Storage Temperature Range	-55°C~150°C

Stress beyond above listed "Absolute Maximum Ratings" may lead permanent damage to the device. These are stress ratings only and operations of the device at these or any other conditions beyond those indicated in the operational sections of the specifications are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

## THERMAL CHARACTERISTIC

Parameter	Symbol	Value	Units
Thermal Resistance, Junction-to-Ambient <sup>NOTE2</sup>	R <sub>θJA</sub>	89	°C/W



## ELECTRICAL CHARACTERISTICS

T<sub>A</sub>=25°C, unless otherwise noted

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
<b>Off Characteristics</b>						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250μA	30	33	-	V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = 30V, 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
<b>On Characteristics<sup>NOTE3</sup></b>						
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA	0.7	0.9	1.4	V
Drain-Source On-State Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> = 2.5V, I <sub>D</sub> = 4A	-	45	59	mΩ
		V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 2.9A	-	34	45	
		V <sub>GS</sub> = 10V, I <sub>D</sub> = 2.9A	-	31	41	
Forward Transconductance	g <sub>FS</sub>	V <sub>DS</sub> = 5V, I <sub>D</sub> = 2.9A	10	-	-	S
<b>Dynamic Characteristics<sup>NOTE4</sup></b>						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> = 15V, V <sub>GS</sub> = 0V F = 1.0 MHz	-	623	-	pF
Output Capacitance	C <sub>oss</sub>		-	99	-	
Reverse Transfer Capacitance	C <sub>rss</sub>		-	77	-	
<b>Switching Characteristics<sup>NOTE4</sup></b>						
Turn-On Delay Time	t <sub>d(on)</sub>	V <sub>DD</sub> = 15V, I <sub>D</sub> = 2.9A, V <sub>GS</sub> = 10V, R <sub>GEN</sub> = 3Ω	-	3.3	-	ns
Turn-On Rise Time	t <sub>r</sub>		-	4.8	-	
Turn-Off Delay Time	t <sub>d(off)</sub>		-	26	-	
Turn-Off Fall Time	t <sub>f</sub>		-	4	-	
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> = 15V, I <sub>D</sub> = 5.8A V <sub>GS</sub> = 4.5V	-	9.5	-	nC
Gate-Source Charge	Q <sub>gs</sub>		-	1.5	-	
Gate-Drain Charge	Q <sub>gd</sub>		-	3	-	
<b>Drain-Source Diode Characteristics</b>						
Diode Forward Voltage <sup>NOTE3</sup>	V <sub>SD</sub>	V <sub>GS</sub> = 0V, I <sub>S</sub> = 2.9A	-	0.75	1.2	V
Diode Forward Current <sup>NOTE2</sup>	I <sub>S</sub>		-	-	2.9	A

NOTE1: Repetitive Rating: Pulse width limited by maximum junction temperature

NOTE2: Surface Mounted on FR4 Board, t ≤ 10 sec.

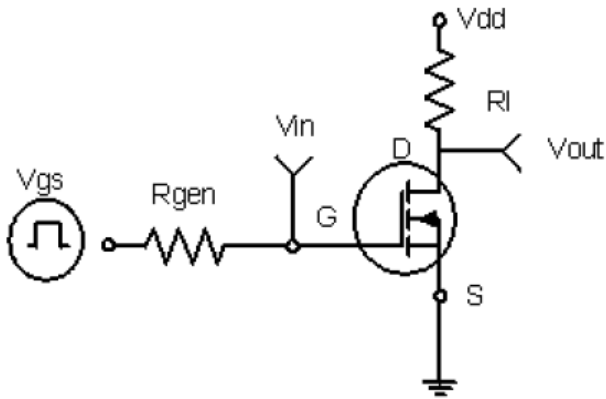
NOTE3: Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.

NOTE4: Guaranteed by design, not subject to production

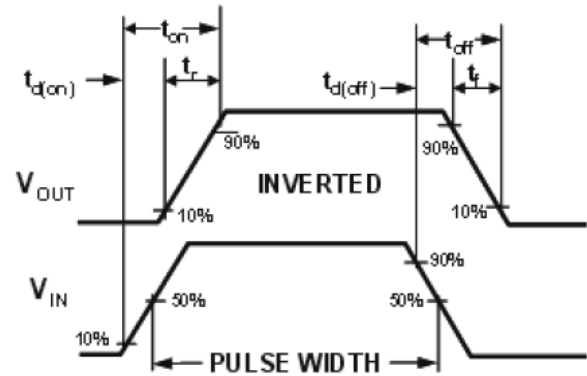


## TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

### 1. Switching Test Circuit



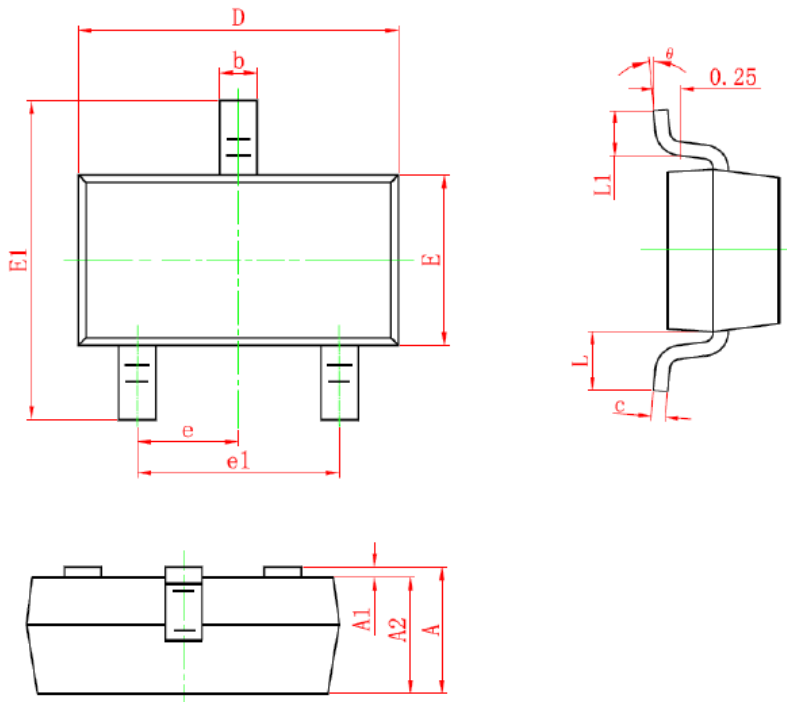
### 2. Switching Waveforms





## PACKAGE INFORMATION

Dimension in SOT-23 Package (Unit: mm)



SYMBOL	MIN.	MAX.
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
E1	2.250	2.550
e	0.950TYP	
e1	1.800	2.000
L	0.550REF	
L1	0.300	0.500
$\theta$	0°	8°



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