DESCRIPTION

The AM2317 is available in SOT-23 package.

FEATURES

- -20V/-4.6A ,
  $R_{DS(ON)}$= 48mΩ (Max.) @ V_{GS}=-4.5V
  $R_{DS(ON)}$= 70mΩ (Max.) @ V_{GS}=-2.5V
  $R_{DS(ON)}$=110mΩ(Max.) @ V_{GS}=-1.8V
- Reliable and Rugged
- Available in SOT-23 Package

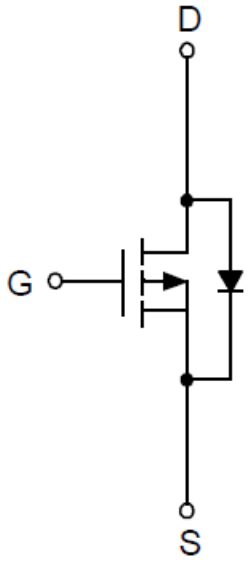
ORDERING INFORMATION

Package Type	Part Number	
SOT-23 SPQ: 3,000pcs/Reel	E3	AM2317E3R
		AM2317E3VR
Note	V: Halogen free Package R: Tape & Reel	
AiT provides all RoHS products		

APPLICATIONS

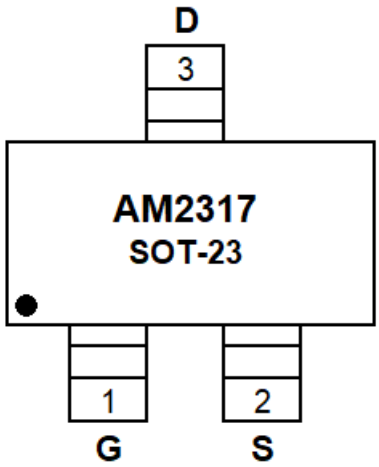
- Power Management in Notebook Computer, Portable Equipment and Battery Powered Systems.

TYPICAL APPLICATION



P-Channel MOSFET

PIN DESCRIPTION



Top View

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

ABSOLUTE MAXIMUM RATINGS

T_A = 25°C, unless otherwise noted

V_{DSS}, Drain-Source Voltage		-20V
V_{GSS}, Gate-Source Voltage		±12V
I_D*, Continuous Drain Current	T_A = 25°C	-4.6A
	T_A= 70°C	-3.7A
I_{DM}*, 300us Pulsed Drain Current	T_A = 25°C	-18.6A
	T_A= 70°C	-14.9A
I_S*, Diode Continuous Forward Current		-1A
T_J, Maximum Junction Temperature		150°C
T_{STG}, Storage Temperature Range		−55°C ~ +150°C
P_D*, Maximum Power Dissipation	T_A = 25°C	1.56W
	T_A= 70°C	1.0W
$R_{\theta JA}$*, Thermal Resistance-Junction to Ambient	t ≤ 10s	80°C/W
	Steady state	120°C/W
$R_{\theta JL}$, Thermal Resistance-Junction to Lead	Steady state	52°C/W

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.

NOTE: *Surface Mounted on 1in^2 pad area, t ≤ 10sec.

ELECTRICAL CHARACTERISTICS

T_A = 25°C, unless otherwise noted

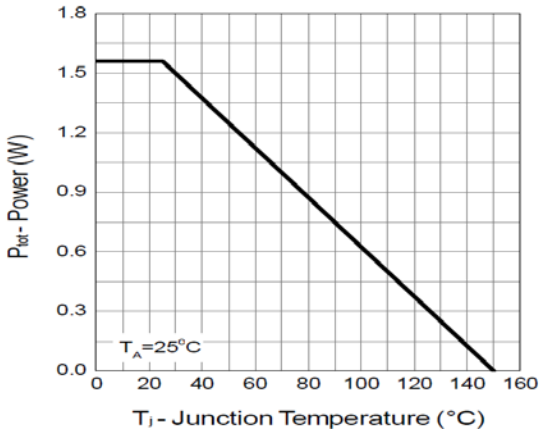
Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V, I_{DS}=-250μA	-20	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-16V, V_{GS}=0V	-	-	-1	μA
		T_J=85°C	-	-	-30	
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_{DS}=-250μA	-0.5	-0.7	-1	V
Gate Leakage Current	I_{GSS}	V_{GS}=±12V, V_{DS}=0V	-	-	±100	nA
Drain-Source On-State Resistance	$R_{DS(ON)}$NOTE1	V_{GS}=-4.5V, I_{DS}=-4.6A	-	38	48	mΩ
		V_{GS}=-2.5V, I_{DS}=-2.9A	-	52	70	
		V_{GS}=-1.8V, I_{DS}=-1.5A	-	76	110	
Diode Forward Voltage	V_{SD}NOTE1	I_{SD}=-1A, V_{GS}=0V	-	-0.7	-1	V
Gate Charge CharacteristicsNOTE2						
Total Gate Charge	Q_g	V_{DS}=-10V, V_{GS}=-4.5V, I_{DS}=-4.6A	-	6.8	-	nC
Gate-Source Charge	Q_{gs}		-	0.8	-	
Gate-Drain Charge	Q_{gd}		-	2.5	-	
Dynamic CharacteristicsNOTE2						
Gate Resistance	R_G	V_{GS}=0V, V_{DS}=0V, f=1MHz	-	3.6	-	Ω
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=-10V, Frequency=1.0MHz	-	590	-	pF
Output Capacitance	C_{oss}		-	122	-	
Reverse Transfer Capacitance	C_{rss}		-	92	-	
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=-10V, R_L=10Ω, I_{DS}=-1A, V_{GEN}=-4.5V, R_G=6Ω	-	7.2	-	ns
Turn-on Rise Time	t_r		-	13.4	-	
Turn-off Delay Time	$t_{d(off)}$		-	26	-	
Turn-off Fall Time	t_f		-	17	-	
Reverse Recovery Time	t_{rr}	I_{SD}=-4.6A, dI_{SD}/dt =100A/μs	-	18	-	ns
Reverse Recovery Charge	Q_{rr}		-	7	-	nC

NOTE1: Pulse test ; pulse width ≤ 300μs, duty cycle ≤ 2%.

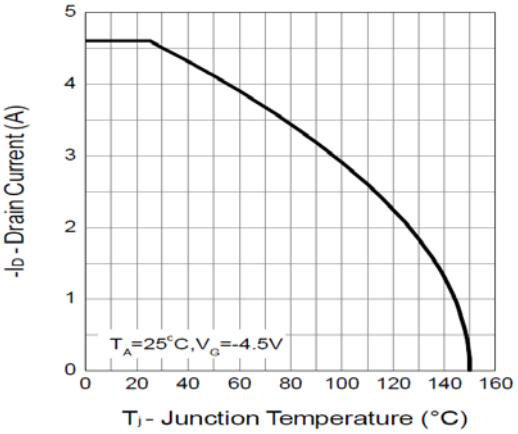
NOTE2: Guaranteed by design, not subject to production testing.

TYPICAL ELECTRICAL CHARACTERISTICS

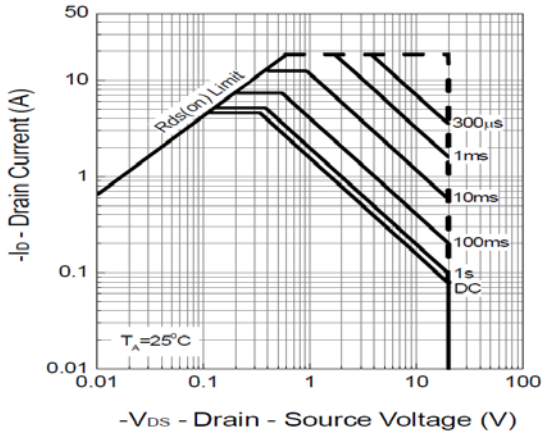
1. Power Dissipation



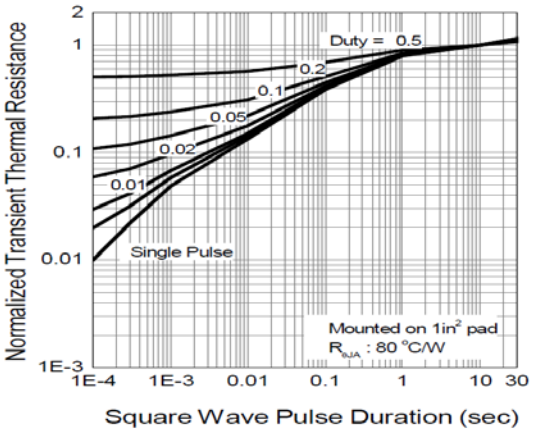
2. Drain Current



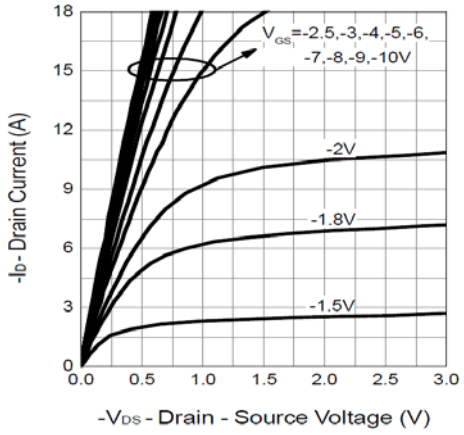
3. Safe Operation Area



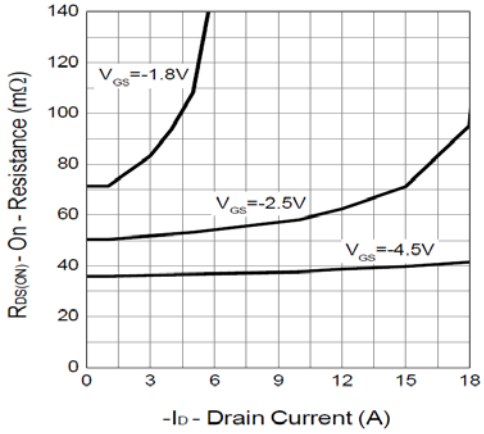
4. Thermal Transient Impedance



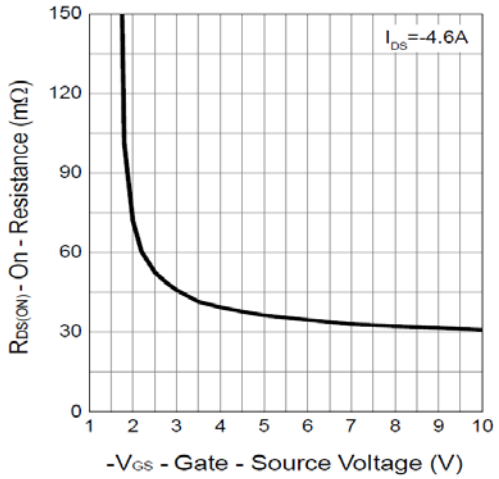
5. Output Characteristics



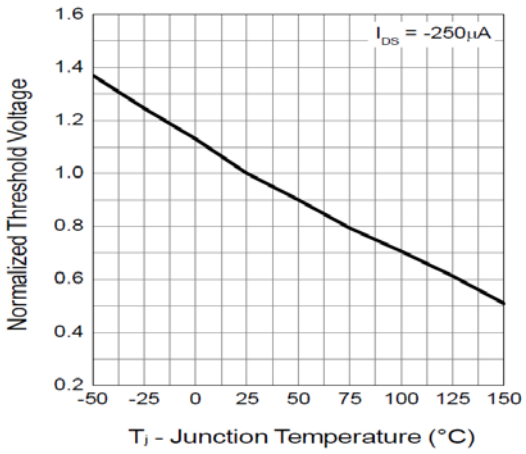
6. Drain-Source On Resistance



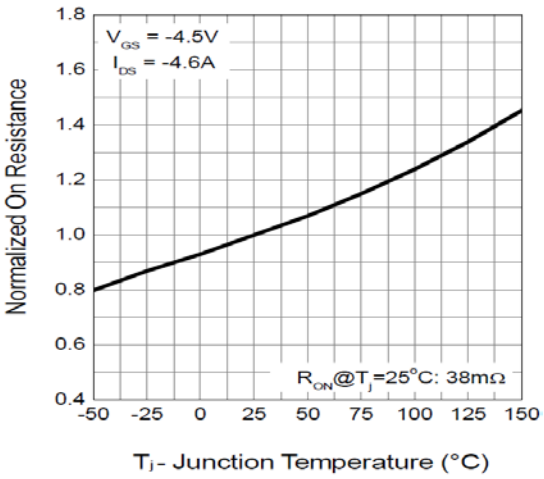
7. Gate-Source On Resistance



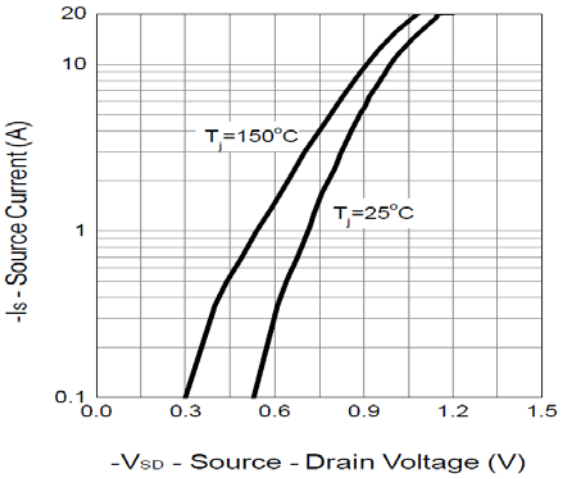
8. Gate Threshold Voltage



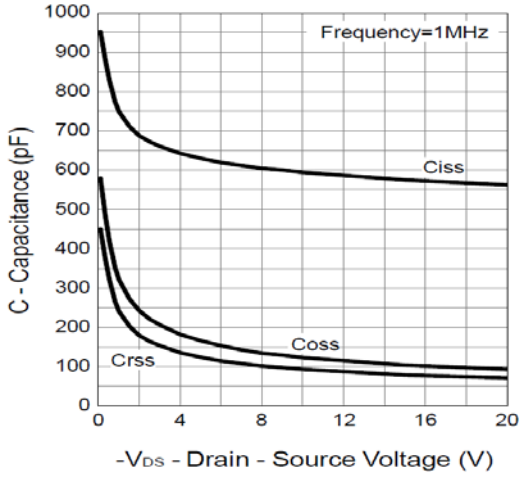
9. Drain-Source On Resistance



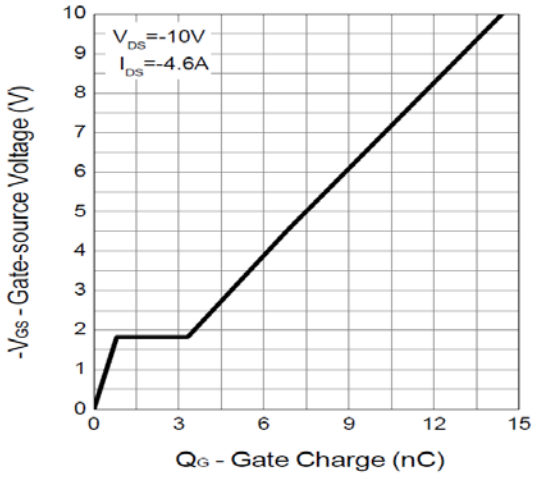
10. Source-Drain Diode Forward



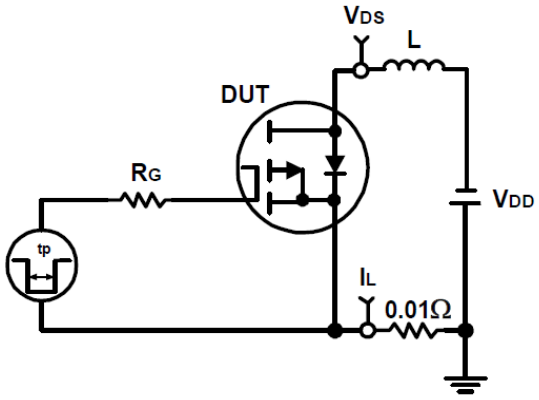
11. Capacitance

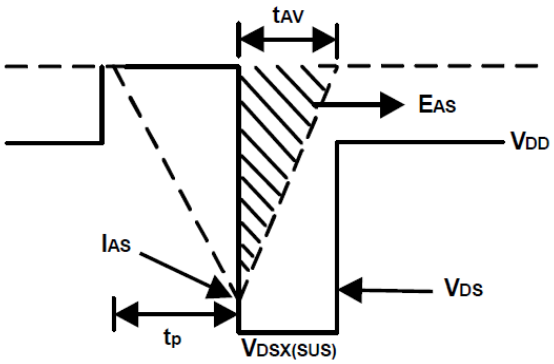


12. Gate Charge

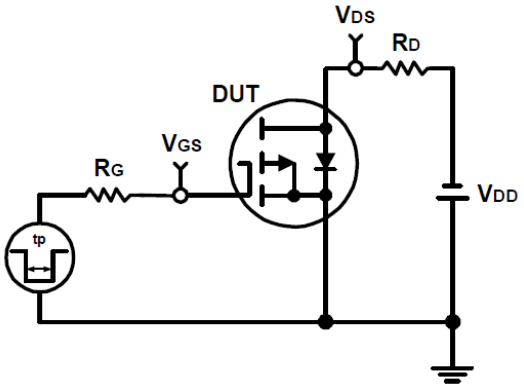


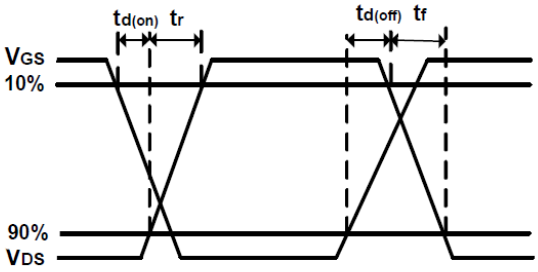
Avalanche Test Circuit and Waveforms





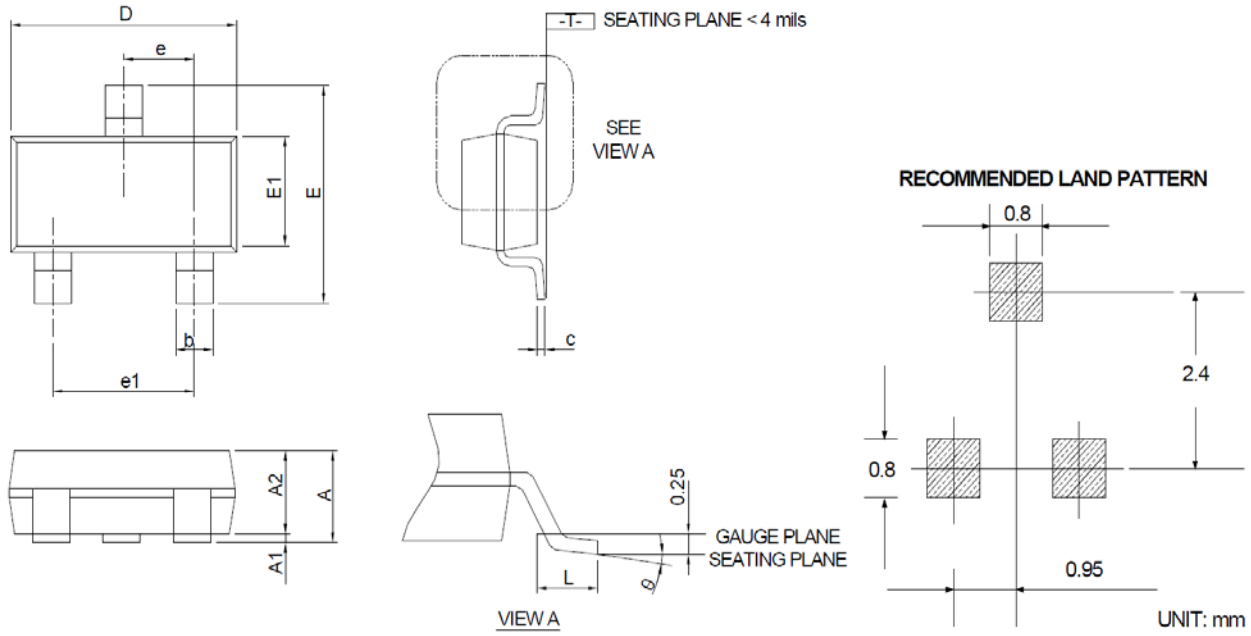
Switching Time Test Circuit and Waveforms





PACKAGE INFORMATION

Dimension in SOT-23 Package (Unit: mm)



Symbol	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	-	1.20	-	0.047
A1	0.00	0.08	0.000	0.003
A2	0.90	1.12	0.035	0.044
b	0.30	0.50	0.012	0.020
c	0.08	0.22	0.003	0.009
D	2.70	3.10	0.106	0.122
E	2.60	3.00	0.102	0.118
E1	1.40	1.80	0.055	0.071
e	0.95 BSC		0.037 BSC	
e1	1.90 BSC		0.075 BSC	
L	0.30	0.60	0.012	0.024
θ	0°	8°	0°	8°

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