



DESCRIPTION

The AM2317B is available in SOT-23 Package.

BVDSS	RDSON	ID
-20V	31mΩ	-5.3A

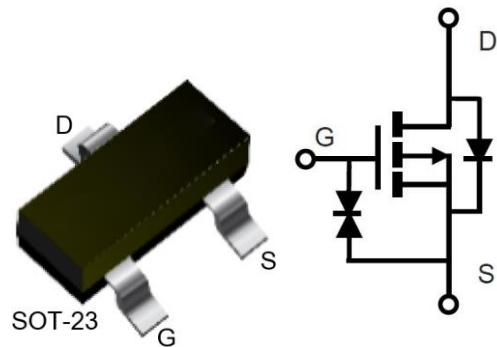
FEATURE

- $V_{DS}=-20V, I_D=-5.3A$
 $R_{DS(ON)}=31m\Omega$ (Typ.) @ $V_{GS}=-4.5V$
 $R_{DS(ON)}=40m\Omega$ (Typ.) @ $V_{GS}=-2.5V$
 $R_{DS(ON)}=50m\Omega$ (Typ.) @ $V_{GS}=-1.8V$
 $R_{DS(ON)}=60m\Omega$ (Typ.) @ $V_{GS}=-1.5V$
- ESD Protected
- 1.5V Low Gate Drive Applications

APPLICATIONS

- Portable Equipment
- Power Management

PIN DESCRIPTION



ORDERING INFORMATION

Package Type	Part Number	
SOT-23 SPQ: 3,000pcs/ Reel	E3	AM2317BE3R
		AM2317BE3VR
Note	R: Tape & Reel V: Halogen free Package	
AiT provides all RoHS products		

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



ABSOLUTE MAXIMUM RATINGS

T_A = 25°C, unless otherwise noted.

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V _{DSS}	-20	V
Gate-Source Voltage		V _{GSS}	±8	V
Continuous Drain Current	T _A = 25°C	I _D	-5.3	A
	T _A = 70°C		-4.2	A
Pulsed Drain Current ⁽¹⁾		I _{DM}	-21.2	A
Power Dissipation ⁽²⁾	T _A = 25°C	P _D	1.6	W
	T _A = 70°C		1	W
Operation Junction Temperature		T _J	-55 ~ +150	°C
Storage Temperature Range		T _{STG}	-55 ~ +150	°C

Stresses above may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions beyond those indicated in the Electrical Characteristics are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

(1) Pulsed width limited by maximum junction temperature, T_{J(MAX)} = 150°C.

(2) The value of R_{θJA} is measured with the device mounted on 1in2 FR-4 board in a still air environment with maximum junction temperature T_{J(MAX)} = 150°C (initial temperature T_A = 25°C).

THERMAL CHARACTERISTICS

Parameter		Symbol	Max	Unit
Thermal Resistance Junction to Ambient ⁽²⁾	t ≤ 10s	R _{θJA}	80	°C/W
Thermal Resistance Junction to Ambient ⁽²⁾⁽³⁾	Steady-State		120	

(2) The value of R_{θJA} is measured with the device mounted on 1in2 FR-4 board in a still air environment with maximum junction temperature T_{J(MAX)} = 150°C (initial temperature T_A = 25°C).

(3) T_{J(MAX)} = 150°C, using junction-to-case thermal resistance (R_{θJC}) is more useful in additional heat sinking is used.



ELECTRICAL CHARACTERISTICS

T_A = 25°C, unless otherwise specified.

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static Parameters						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250uA	-20	-	-	V
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} = V _{GS} , I _D =250uA	-0.3	-0.5	-1	V
Gate Leakage Current	I _{GSS}	V _{DS} = 0V, V _{GS} =±8V	-	-	±10	μA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-20V, V _{GS} =0V T _J =25°C	-	-	-1	μA
		V _{DS} =-16V, V _{GS} =0V , T _J =75°C	-	-	-10	
Drain-source On-Resistance	R _{DS(ON)}	V _{GS} =-4.5V, I _D =-5.3A	-	31	35	mΩ
		V _{GS} =-2.5V, I _D =-4.0A	-	40	45	
		V _{GS} =-1.8V, I _D =-2.0A	-	50	57	
		V _{GS} =-1.5V, I _D =-1.2A	-	60	70	
Forward Transconductance	G _{FS}	V _{DS} =-10V, I _D =-4.5A	-	16	-	S
Diode Characteristics						
Diode Forward Voltage	V _{SD}	I _S =- 1A, V _{GS} =0V	-	-0.7	-1	V
Diode Continuous Current	I _S	-	-	-	-2.7	A
Dynamic and Switching Parameters						
Total Gate Charge	Q _g	V _{DS} =-10V, V _{GS} =-4.5V, I _D =-4.5A	-	9.3	13	nC
Gate-Source Charge	Q _{gs}		-	1.5	2.1	
Gate-Drain Charge	Q _{gd}		-	2.5	3.5	
Input Capacitance	Q _{iSS}	V _{DS} =-10V, V _{GS} =0V, f=1MHz	-	825	-	pF
Output Capacitance	Q _{oSS}		-	120	-	
Reverse Transfer Capacitance	Q _{rSS}		-	82	-	
Turn-On Time	t _{d(ON)}	V _{DD} =-10V, V _{GEN} =-4.5V R _G =3.3Ω, I _D =-1A	-	10.2	19	nS
	t _r		-	18	34	
Turn-Off Time	t _{d(OFF)}		-	46	87	
	t _f		-	14	27	



TYPICAL PERFORMANCE CHARACTERISTICS

Fig.1 Output Characteristics

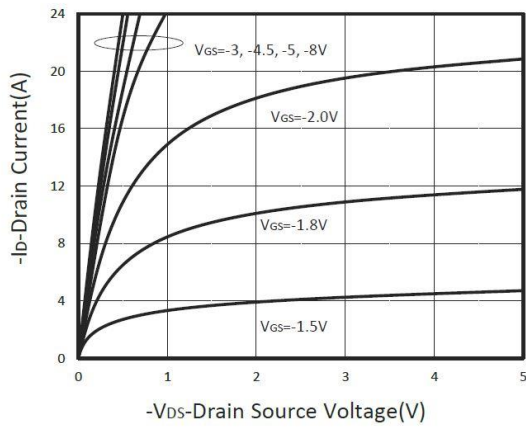


Fig.2 Drain-Source On Resistance

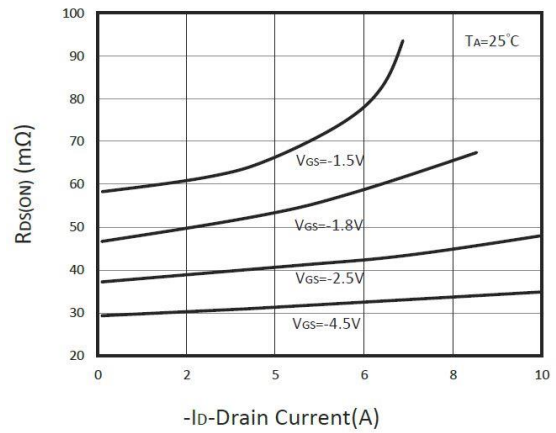


Fig.3 Gate Charge

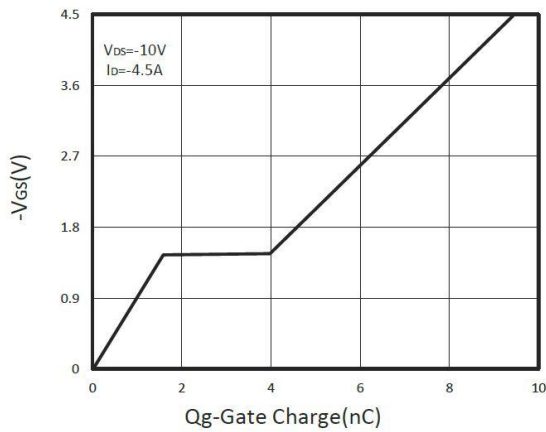


Fig.4 Capacitance

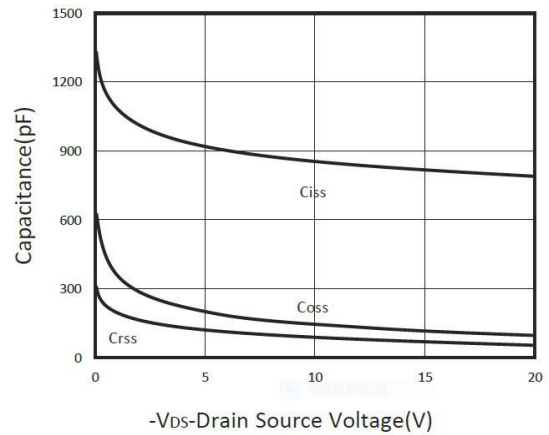


Fig.5 Gate Threshold Voltage

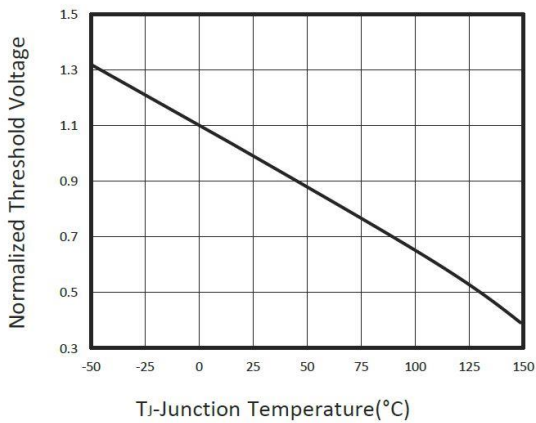


Fig.6 Power Dissipation

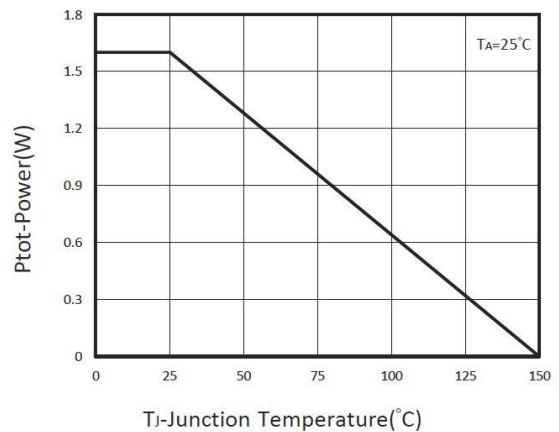




Fig.7 $R_{DS(ON)}$ Vs. T_J

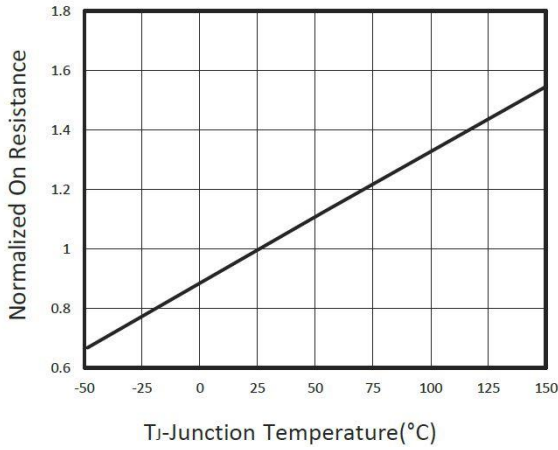


Fig.8 Drain Current Vs. T_J

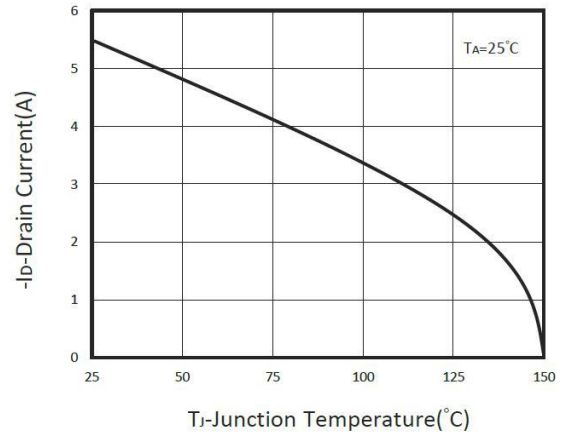


Fig.9 Maximum Safe Operation Area

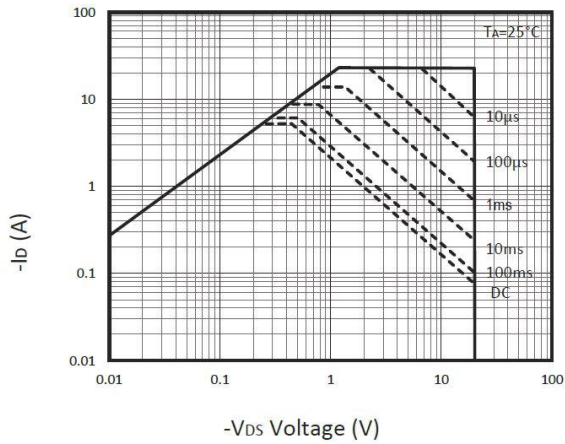


Fig.10 Thermal Transient Impedance

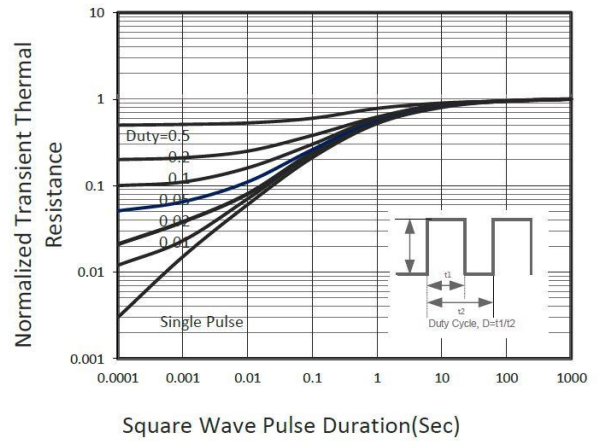


Fig.11 Gate Charge Waveform

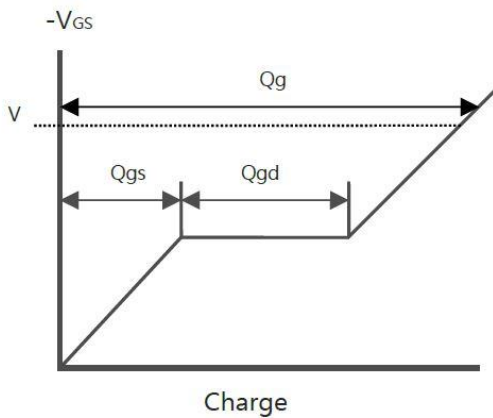
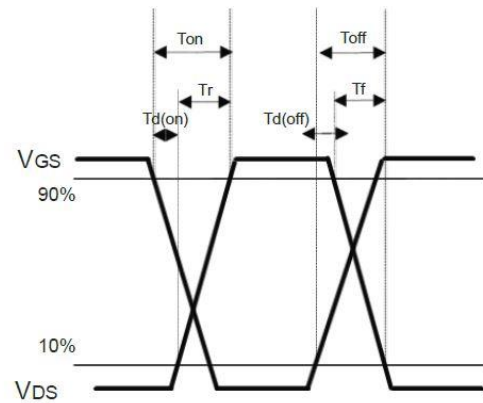


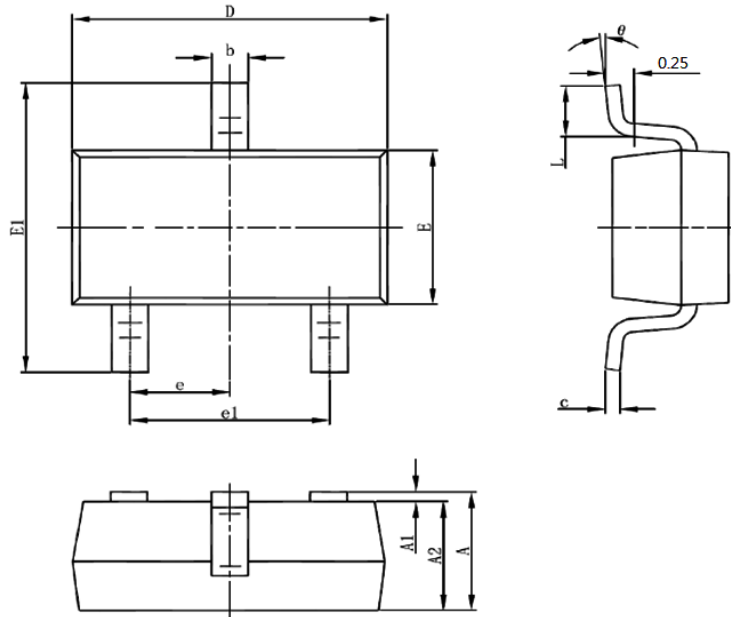
Fig.12 Switching Time Waveform





PACKAGE INFORMATION

Dimension in SOT-23 (Unit: mm)



Symbol	MILLIMETERS	
	Min.	Max.
A	1.000	1.300
A1	0.000	0.100
A2	1.000	1.200
b	0.300	0.500
c	0.047	0.207
D	2.800	3.000
E	1.500	1.700
E1	2.600	3.000
e	0.950 (TYP)	
e1	1.900 (TYP)	
L	0.250	0.550
θ	0°	8°



IMPORTANT NOTICE

AiT Semiconductor Inc. (AiT) reserves the right to make changes to any its product, specifications, to discontinue any integrated circuit product or service without notice, and advises its customers to obtain the latest version of relevant information to verify, before placing orders, that the information being relied on is current.

AiT Semiconductor Inc. integrated circuit products are not designed, intended, authorized, or warranted to be suitable for use in life support applications, devices or systems or other critical applications. Use of AiT products in such applications is understood to be fully at the risk of the customer. As used herein may involve potential risks of death, personal injury, or server property, or environmental damage. In order to minimize risks associated with the customer's applications, the customer should provide adequate design and operating safeguards.

AiT Semiconductor Inc. assumes to no liability to customer product design or application support. AiT warrants the performance of its products of the specifications applicable at the time of sale.