

**DESCRIPTION**

The AM2302 is available in SOT-23S Package.

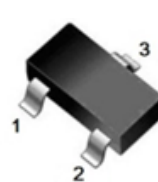
BVDSS	RDSON	ID
20V	45mΩ	3A

ORDERING INFORMATION

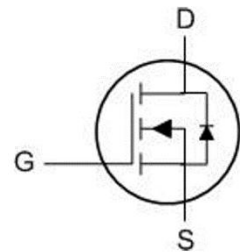
Package Type	Part Number	
SOT-23S SPQ: 3,000pcs/Reel	E3S	AM2302E3SR
		AM2302E3SVR
Note	R: Tape & Reel	
	V: Halogen free Package	
AiT provides all RoHS products		

APPLICATION

- Green Device Available
- Super Low Gate Charge
- Excellent Cdv/dt effect decline
- Advanced High Cell Density Trench Technology

PIN DESCRIPTION

SOT-23S



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

ABSOLUTE MAXIMUM RATINGS

T_A=25°C Unless otherwise noted

V _{DS} , Drain-Source Voltage		20V
V _{GS} , Gate-Source Voltage		±12V
I _D ⁽¹⁾ , Continuous Drain Current, V _{GS} @ 10V	T _A =25°C	3A
	T _A =70°C	1.20A
I _{DM} ⁽²⁾ , Pulsed Drain Current		12A
P _D ⁽³⁾ , Total Power Dissipation	T _A =25°C	0.85W
T _J , Operating Junction Temperature Range		-55°C~+150°C
T _{STG} , Storage Temperature Range		-55°C~+150°C
R _{θJA} *, Thermal Resistance Junction-Ambient		162°C/W

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.

* Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature



ELECTRICAL CHARACTERISTICS

T_A=25°C, unless otherwise specified.

Parameter	Symbol	Conditions	Min	Typ.	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250μA	20	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 20V, V _{GS} =0V	-	-	1	μA
Gate to Body Leakage Current	I _{GSS}	V _{GS} =±12V, V _{DS} = 0V	-	-	±100	nA
On Characteristics						
Gate Threshold Voltage	V _{GS (th)}	V _{DS} =V _{GS} , I _D =250uA	0.40	0.70	1	V
Static Drain-Source On-Resistance*	R _{DS (on)}	V _{GS} =4.5V, I _D =3A	-	45	55	mΩ
		V _{GS} =2.5V, I _D =2A	-	62	85	
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =10V, V _{GS} =0V, f=1MHz	-	184	-	pF
Output Capacitance	C _{oss}		-	38	-	
Reverse Transfer Capacitance	C _{rss}		-	28	-	
Total Gate Charge	Q _g	V _{DS} =10V, V _{GS} =4.5V I _D =3A	-	2.70	-	nC
Gate-Source Charge	Q _{gs}		-	0.40	-	
Gate-Drain (“Miller”) Charge	Q _{gd}		-	0.50	-	
Switching Characteristics						
Turn-on Delay Time	t _{d(on)}	V _{DS} =10V, I _D =3A, R _{GEN} =3V, V _{GS} =4.5V	-	8	-	ns
Turn-on Rise Time	t _r		-	27	-	
Turn-off Delay Time	t _{d(off)}		-	26	-	
Turn-off Fall Time	t _f		-	33	-	
Drain-Source Diode Characteristics and Maximum Ratings						
Maximum Continuous Drain to Source Diode Forward Current	I _S	-	-	-	3	A
Maximum Pulsed Drain to Source Diode Forward Current	I _{SM}	-	-	-	12	A
Drain to Source Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =3A	-	-	1.2	V

* Pulse Test: PulseWidth≤300μs, Duty Cycle≤0.5%



TYPICAL PERFORMANCE CHARACTERISTICS

Fig 1. Output Characteristics

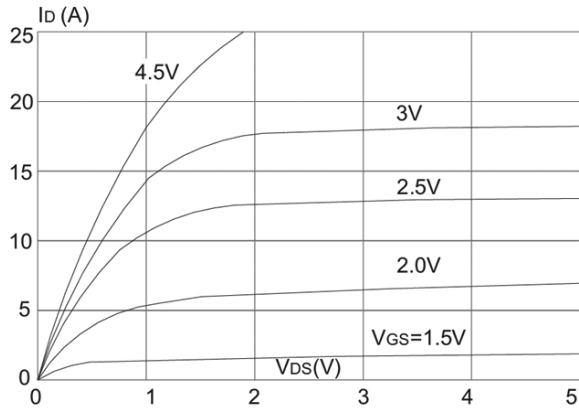


Fig 2. Typical Transfer Characteristics

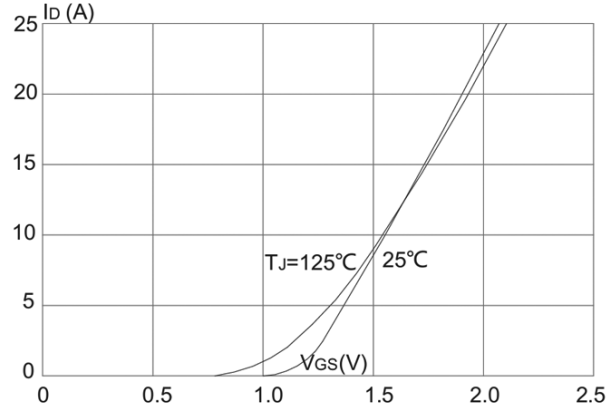


Fig 3. On-resistance vs. Drain Current

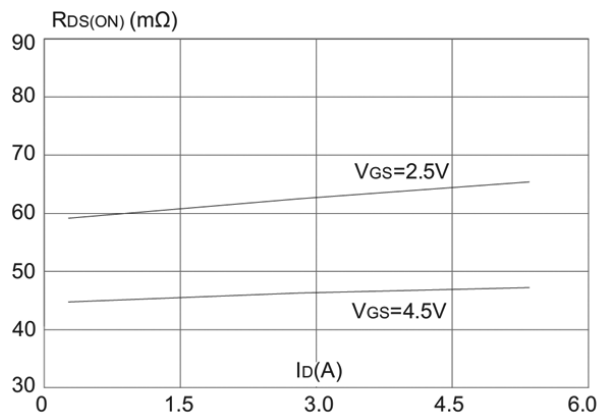


Fig 4. Body Diode Characteristics

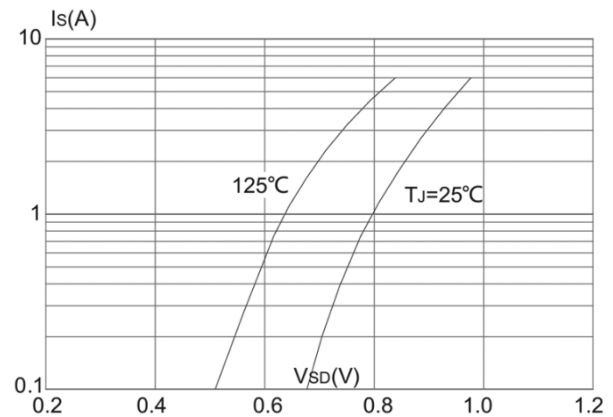


Fig 5. Gate Charge Characteristics

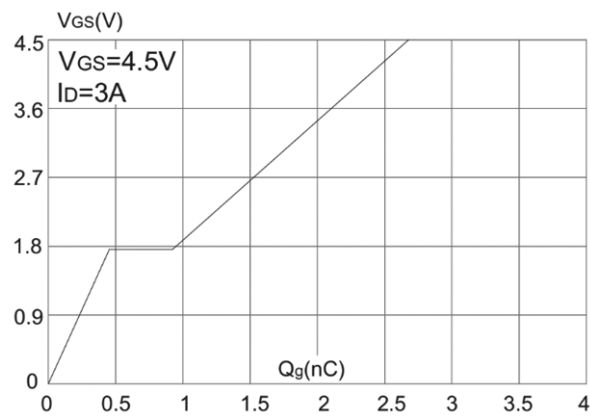


Fig 6. Capacitance Characteristics

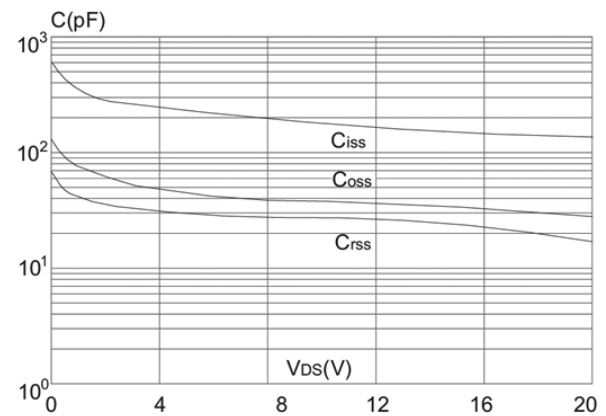




Fig 7. Normalized Breakdown Voltage vs.
Junction Temperature

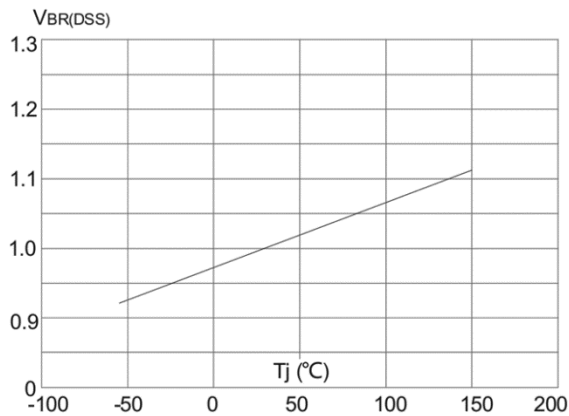


Fig 8. Normalized on Resistance vs.
Junction Temperature

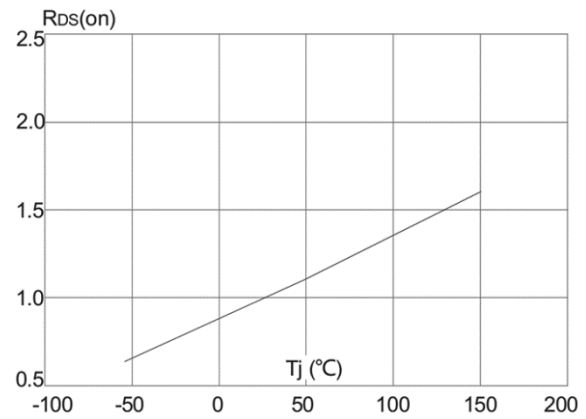


Fig 9. Maximum Safe Operating Area

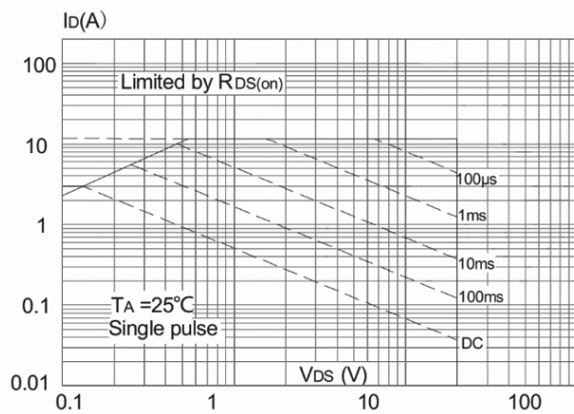


Fig 10. Maximum Continuous Drain Current

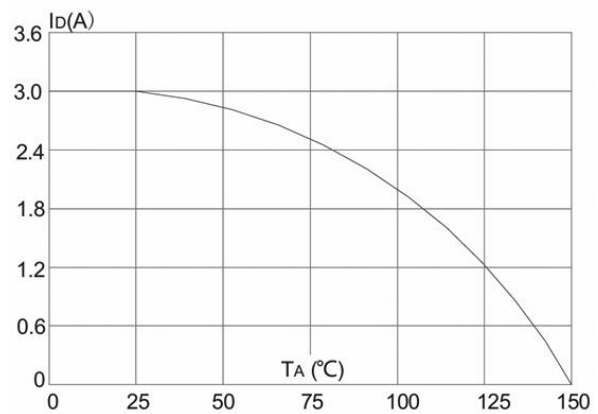
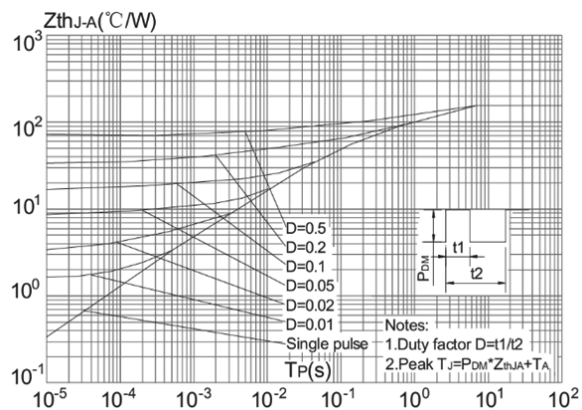


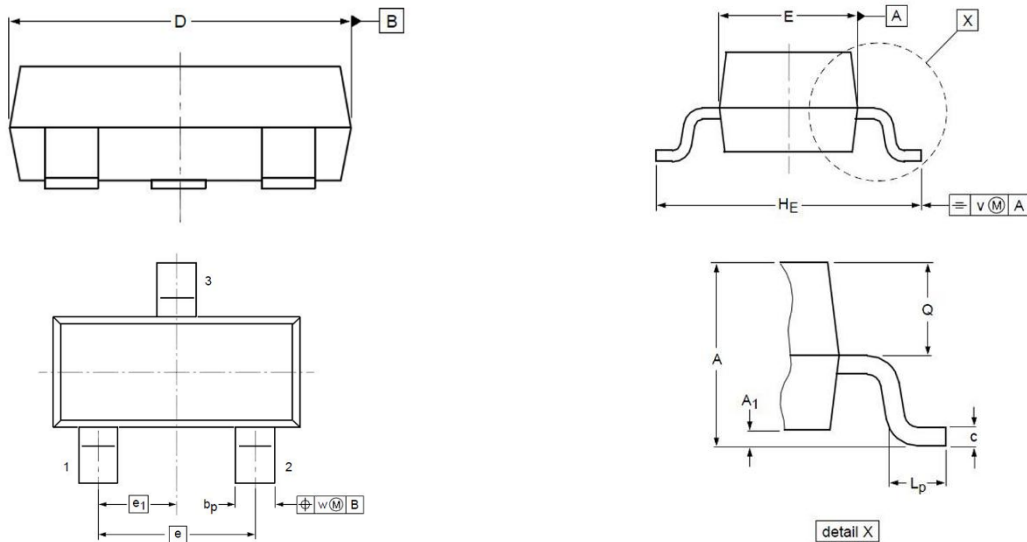
Fig 11. Maximum Effective Transient Thermal
Impedance, Junction-to-Ambient





PACKAGE INFORMATION

Dimension in SOT-23 (Unit: mm)



Symbol	Millimeters (mm)	
	Min.	Max.
A	0.900	1.150
A1	0.010	0.100
bp	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
e	1.900 TYP.	
e1	0.950 TYP.	
HE	2.250	2.550
Lp	0.300	0.500
Q	0.450	0.550
v	0.200 TYP.	
w	0.100 TYP.	



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