DESCRIPTION

The AM1005 is available in SOT-23 Package.

BVDSS	RDSON	ID
100V	91mΩ	4.5A

APPLICATION

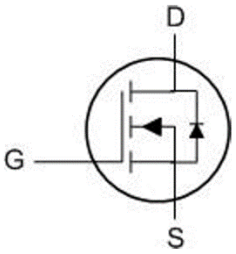
- Green Device Available
- Super Low Gate Charge
- Excellent Cdv/dt Effect Decline
- Advanced High Cell Density Trench Technology

ORDERING INFORMATION

Package Type	Part Number	
SOT-23 SPQ: 3,000pcs/Reel	E3	AM1005E3R
		AM1005E3VR
Note	R: Tape & Reel V: Halogen free Package	
AiT provides all RoHS products		

PIN DESCRIPTION

SOT-23



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		100V
V_{GS}, Gate-Source Voltage		±20V
I_D, Continuous Drain Current, V_{GS} @ 10V	T_A=25℃	4.50A
I_{DM} (1), Pulsed Drain Current		13.20A
P_D, Power Dissipation	T_A=25℃	1.50W
T_J, Operating Junction Temperature Range		-55℃~+150℃
T_{STG}, Storage Temperature Range		-55℃~+150℃
$R_{\theta JA}$ (2), Thermal Resistance from Junction to Ambient		83.30℃/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.

(1) Repetitive rating, pulse width limited by junction temperature $T_{J(MAX)}$=150°C.

(2) The data tested by surface mounted on a 1 inch2 FR-4 board with 2OZ copper, The value in any given application depends on the user's specific board design.

ELECTRICAL CHARACTERISTICS

T_J=25℃, unless otherwise specified.

Parameter	Symbol	Conditions	Min	Typ.	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=250μA	100	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}= 100V, V_{GS}=0V	-	-	1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS} =±20V, V_{DS}= 0V	-	-	±100	nA
Gate Threshold Voltage	$V_{GS\ (th)}$	V_{DS}=V_{GS}, I_D=250uA	1	1.65	2.50	V
Drain-Source On-State Resistance (1)	$R_{DS\ (on)}$	V_{GS}=10V, I_D=3A	-	91	130	mΩ
		V_{GS}=6V, I_D=2A	-	105	160	
		V_{GS}=4.50V, I_D=1A	-	120	190	
Dynamic Characteristics (2)						
Input Capacitance	C_{iss}	V_{DS}=50V, V_{GS}=0V, f=1MHz	-	200	-	pF
Output Capacitance	C_{oss}		-	35	-	
Reverse Transfer Capacitance	C_{rss}		-	2.50	-	
Switching Characteristics (2)						
Total Gate Charge	Q_g	V_{DS}=50V, V_{GS}=10V I_D=3A	-	4	-	nC
Gate-Source Charge	Q_{gs}		-	0.60	-	
Gate-Drain Charge	Q_{gd}		-	1.40	-	
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=50V, I_D=3A, R_G=3Ω, V_{GS}=10V	-	12.50	-	ns
Turn-on Rise Time	t_r		-	19.50	-	
Turn-off Delay Time	$t_{d(off)}$		-	20	-	
Turn-off Fall Time	t_f		-	29	-	
Source- Drain Diode Characteristics						
Continuous Source Drain	I_S	-	-	-	4.50	A
Body Diode Voltage (1)	V_{SD}	V_{GS}=0V, I_S=3A	-	-	1.2	V

(1) Pulse Test: PulseWidth≤300μs, Duty Cycle≤0.5%.

(2) This value is guaranteed by design hence it is not included in the production test.

TYPICAL PERFORMANCE CHARACTERISTICS

Fig 1. Output Characteristics

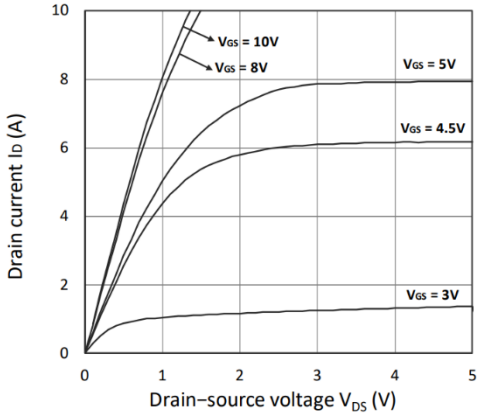


Fig 2. Transfer Characteristics

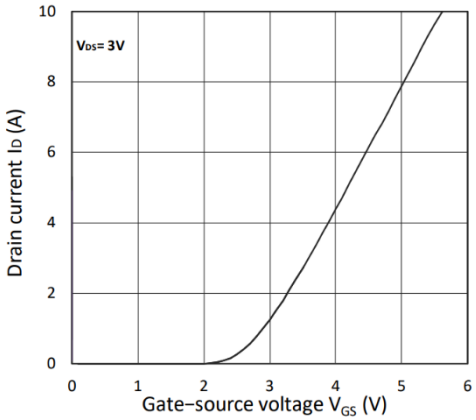


Fig 3. Forward Characteristics of Reverse

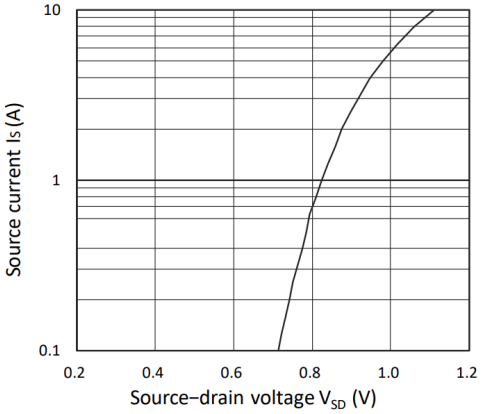


Fig 4. $R_{DS(ON)}$ vs. V_{GS}

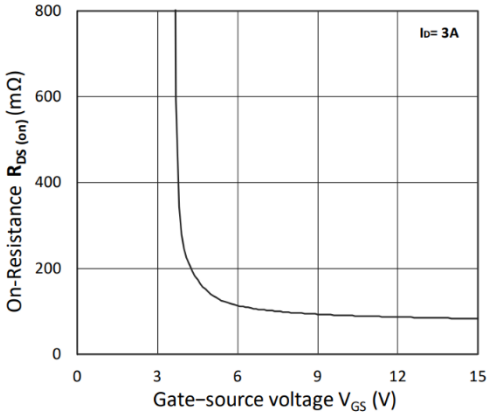


Fig 5. $R_{DS(ON)}$ vs. I_D

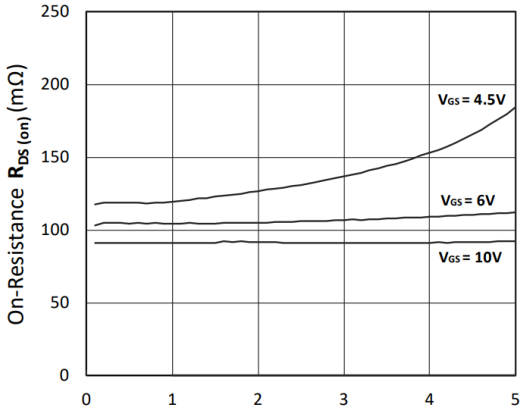


Fig 6. Normalized $R_{DS(on)}$ vs. Temperature

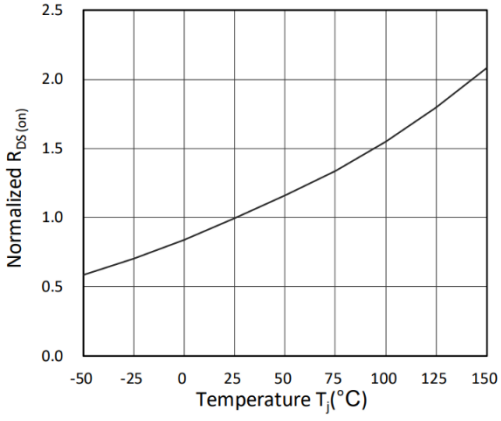


Fig 7. Capacitance Characteristics

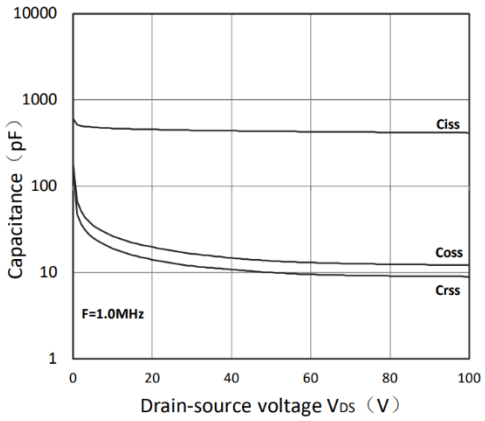
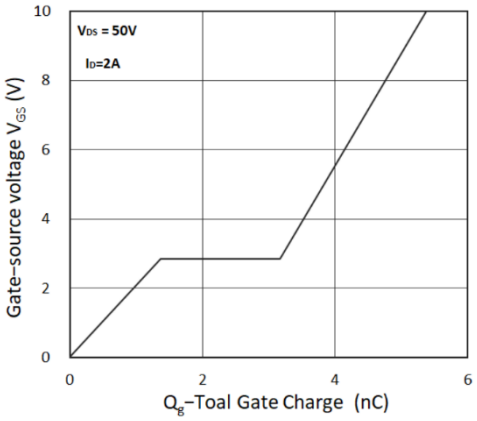
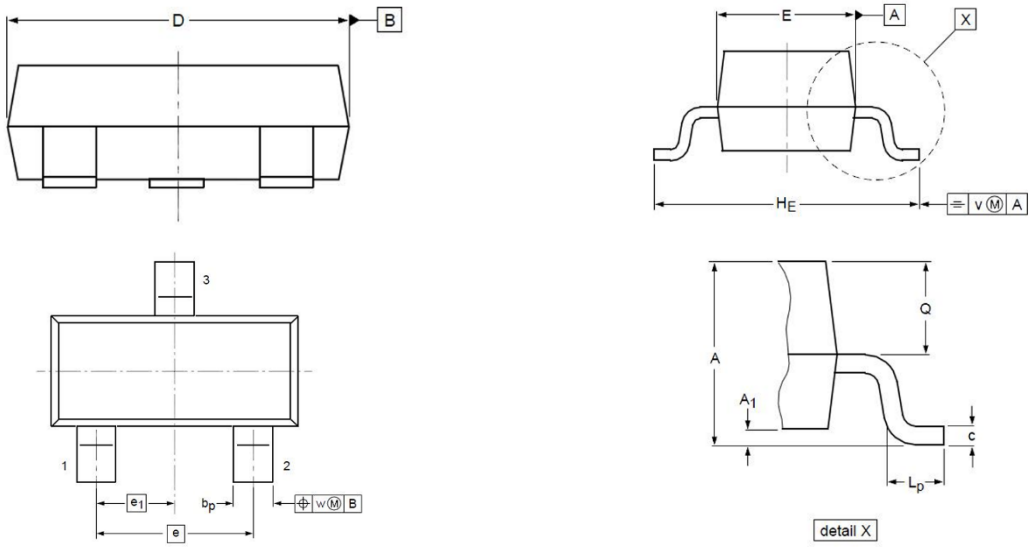


Fig 8. Gate Charge Characteristics



PACKAGE INFORMATION

Dimension in SOT-23 (Unit: mm)



Symbol	Millimeters (mm)	
	Min.	Max.
A	0.900	1.150
A1	0.010	0.100
b_p	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.	
H_E	2.250	2.550
L_p	0.300	0.500
Q	0.450	0.550
v	0.200 TYP.	
w	0.100 TYP.	

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