

**DESCRIPTION**

The AM3005 is available in SOT-23 Packages.

BVDSS	RDSON	ID
30V	1Ω@4V	0.5A

APPLICATION

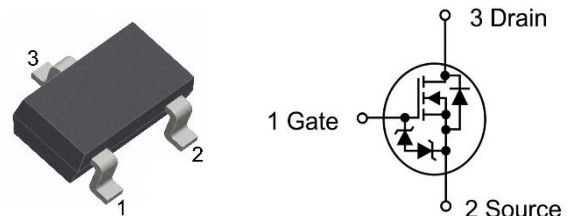
- Level shifters
- Level switches
- Low side load switches
- Portable applications

ORDERING INFORMATION

Package Type	Part Number	
SOT-23 SPQ: 3,000pcs/Reel	E3	AM3005E3VR
Note	V: Halogen Free R: Tape & Reel	
AiT provides all RoHS products		

FEATURE

- $R_{DS(ON)}$, Typ= 1Ω@V_{GS}=4V
- Low gate voltage threshold (V_{GS(th)}) to facilitate drive circuit design
- Low gate charge for fast switching
- ESD protected gate
- Minimum breakdown voltage rating of 30V

PIN DESCRIPTION

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

ABSOLUTE MAXIMUM RATINGS

T_A = 25°C, unless otherwise specified.

Parameter		Symbol	Value	Unit
Drain-to-Source Voltage		V _{DS}	30	V
Gate-to-Source Voltage		V _{GS}	±20	V
Continuous Drain Current ¹		I _D	0.5	A
Continuous Drain Current	T _A = 85°C		0.37	
Continuous Drain Current ¹ t<10s			0.56	
Continuous Drain Current ¹ t<10s	T _A = 85°C		0.4	
Pulsed Drain Current (tp=10μs)		I _{DM}	1.7	A
Continuous Source Current (Body Diode)		I _S	1	A
Power Dissipation ¹	Steady State	P _D	0.69	W
	t < 5s		0.83	
Operating Junction and Storage Temperature Range		T _J , T _{STG}	-55 to 150	°C
Thermal Resistance Junction to Case	Steady State ¹	R _{ΘJA}	180	°C/W
	t < 10s ¹		150	°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.



ELECTRICAL CHARACTERISTICS

T_A = 25°C, unless otherwise specified.

Parameter	Symbol	Conditions	Min	Typ.	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =100μA	30	-	-	V
Drain-Source Breakdown Voltage Temperature Coefficient	BV _{DSS} /T _J	-	-	40	-	mV/°C
Drain to Source Leakage Current	I _{DSS}	V _{DS} =30V, V _{GS} =0V	-	-	1	μA
Gate to Source Leakage Current	I _{GSS}	V _{GS} = ±10V, V _{DS} =0V	-	-	±1	μA
Drain-to-Source On-Resistance	R _{DS(ON)}	V _{GS} =4.0V, I _D =10mA	-	1	1.5	Ω
		V _{GS} =2.5V, I _D =10mA	-	1.5	2	
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} = V _{GS} , I _D = 250μA	0.8	-	1.6	V
Negative Threshold Temperature Coefficient	V _{GS(TH)} /T _J	-	-	3.4	-	mV/°C
Forward Transconductance	g _{fs}	V _{DS} =3.0V, I _D =10mA	-	0.33	-	S
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = 5V f = 1.0MHz	-	41	-	pF
Output Capacitance	C _{oss}		-	12	-	
Reverse Transfer Capacitance	C _{rss}		-	8.1	-	
Switching Characteristics						
Turn-on Delay Time	t _{d(on)}	V _{GS} =4.5V, V _{DD} =5V, I _D =0.1A, R _G =50Ω	-	16.7	-	ns
Rise Time	t _r		-	47.9	-	
Turn-Off Delay Time	t _{d(off)}		-	65.1	-	
Fall Time	t _f		-	64.2	-	
Drain-Source Body Diode Characteristics						
Diode Forward Voltage	V _{SD}	I _S =10mA, V _{GS} =0V	-	0.65	0.7	V
Reverse Recovery Time	T _{rr}	I _S =10mA, V _{GS} =0V, di/dt=8A/us	-	14	-	ns

Notes:

- 1.Surface-mounted on FR4 board using 1 in sq pad size: (Cu area = 1.127 in sq [1 oz] including traces).
- 2.Pulse Test: Pulse Width ≤300 μs, Duty Cycle ≤2.0%.



TYPICAL PERFORMANCE CHARACTERISTICS

Fig1. On-Region Characteristics

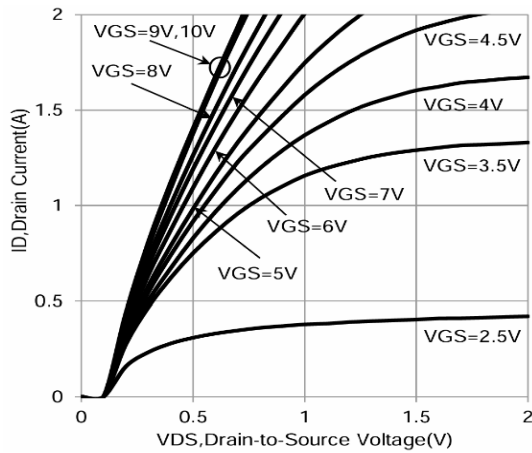


Fig 2. Typical Transfer Characteristics

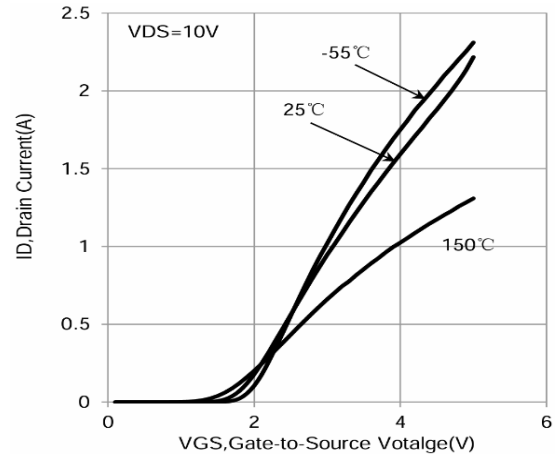


Fig 3. $R_{DS(ON)}$ vs. V_{GS}

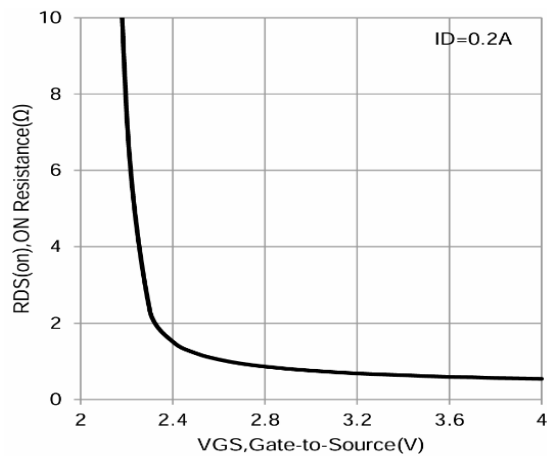


Fig 4. $R_{DS(ON)}$ vs. I_D

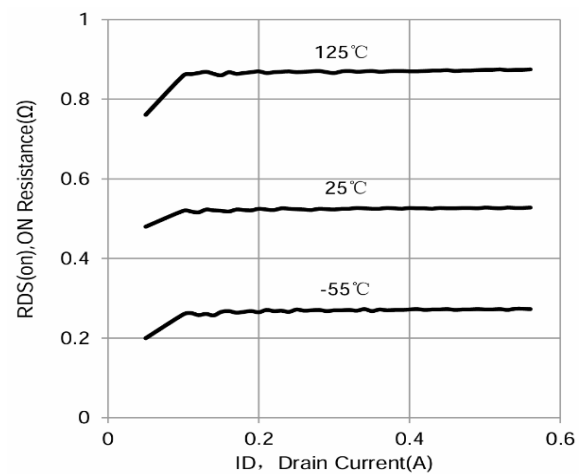


Fig 5. $R_{DS(ON)}$ vs. Temperature

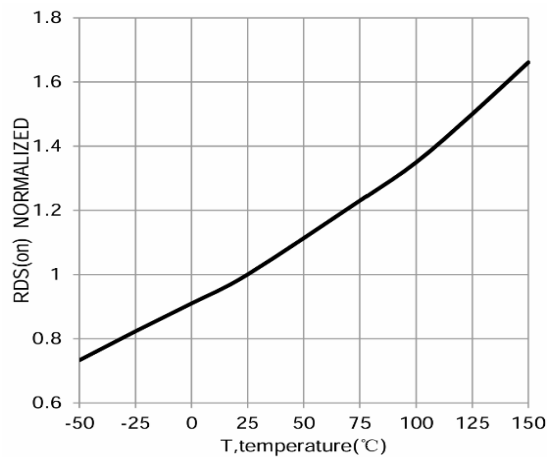


Fig 6. I_{DSS} vs. V_{DS}

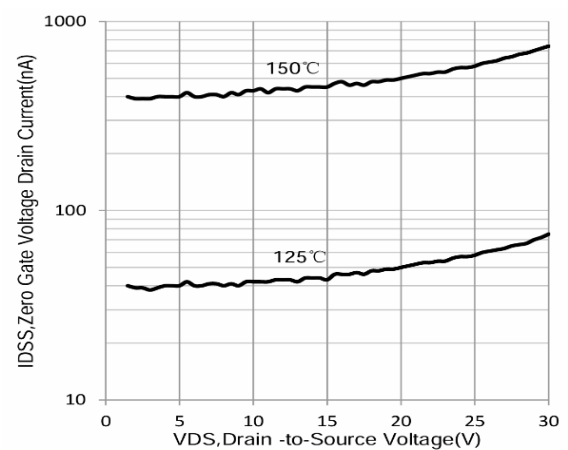




Fig 7. Capacitance Variation

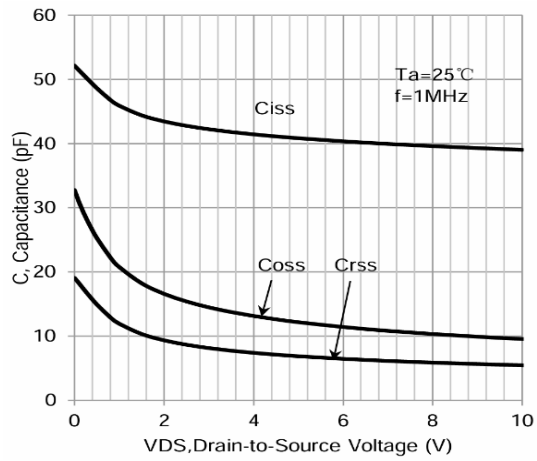
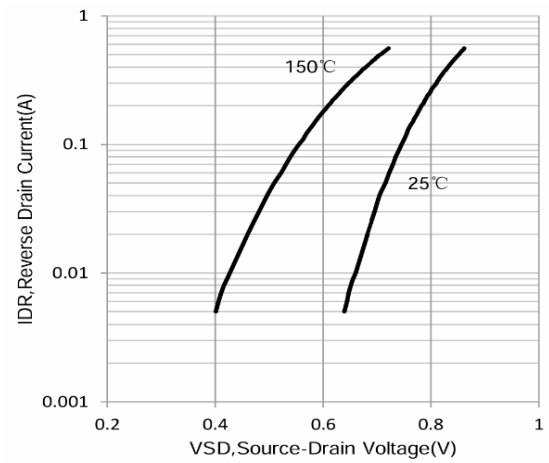


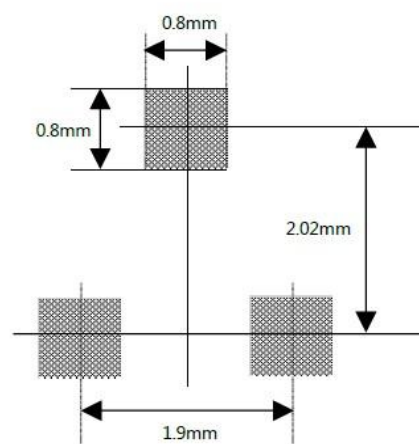
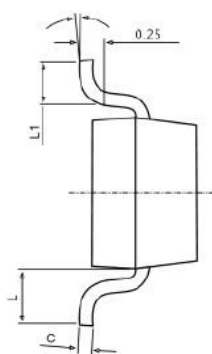
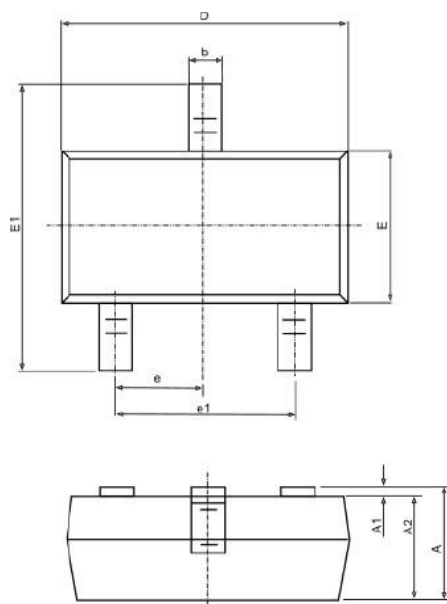
Fig 8. Diode Forward Characteristics





PACKAGE INFORMATION

Dimension in SOT-26 (Unit: mm)



Recommended Land Pattern

Symbol	Millimeters	
	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	0.950 TYP	
e1	1.800	2.000
L	0.550 REF.	
L1	0.300	0.500
θ	0°	8°



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