DESCRIPTION

The AM03P10 is available in SOT-23 Package.

BVDSS	RDSON	ID
-100V	180mΩ	-3A

APPLICATION

- Battery Switch
- Battery Protection
- PWM applications
- Power Management

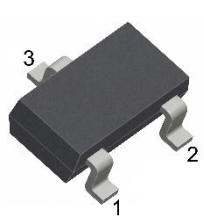
ORDERING INFORMATION

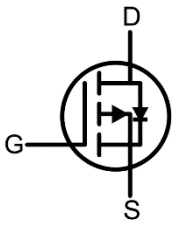
Package Type	Part Number	
SOT-23 SPQ: 3,000pcs/Reel	E3	AM03P10E3R
Note	R: Tape & Reel	
AiT provides all RoHS products		

FEATURE

- $R_{DS(ON)}$, Typ= 180mΩ@V_{GS}=10V
- Super Low Gate Charge
- 100% EAS Guaranteed
- Green Device Available
- Excellent CdV/dt effect decline
- Advanced high cell density Trench technology

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}	-100	V
Gate-to-Source Voltage		V_{GS}	±20	V
Continuous Drain Current[1]		I_D	-3	A
Continuous Drain Current[1]	T_C = 100°C		-1.2	
Continuous Drain Current[1]			-0.75	
Continuous Drain Current[1]	T_C = 85°C		-0.6	
Pulsed Drain Current[2]		I_{DM}	-6	A
Single Pulse Avalanche Energy[3]		EAS	14.5	mJ
Avalanche Current		I_{AS}	-4.5	A
Power Dissipation[4]		P_D	10	W
			2	
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55 to 150	℃
Thermal Resistance Junction to Ambient[1]		$R_{\theta JA}$	72	℃/W
Thermal Resistance Junction to Case[1]		$R_{\theta JC}$	8	℃/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_J= 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=-250μA	-100	-	-	V
Drain to Source Leakage Current	I_{DSS}	V_{DS}=-80V, V_{GS}=0V	-	-	-1	μA
		V_{DS}=-80V, V_{GS}=0V, T_J=85°C	-	-	-30	
Gate to Source Leakage Current	I_{GSS}	V_{GS} = ±20V, V_{DS}=0V	-	-	±100	nA
Drain-to-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=-10V, I_D=-3A	-	180	220	mΩ
		V_{GS}=-4.5V, I_D=-2A	-	210	255	
Gate Threshold Voltage	$V_{GS(TH)}$	V_{DS} = V_{GS}, I_D = -250μA	-1.2	-	-2.5	V
Dynamic Characteristics						
Gate Resistance	R_G	V_{DS}=0V, V_{GS}=0V, f=1MHz	-	13	-	Ω
Input Capacitance	C_{iss}	V_{DS}=-30V, V_{GS}=0V, f=1MHz	-	1228	-	pF
Output Capacitance	C_{oss}		-	41	-	
Reverse Transfer Capacitance	C_{rss}		-	29	-	
Total Gate Charge (-10V)	Q_g	V_{DS}=-50V, V_{GS}=-10V, I_D=-2A	-	19	-	nC
Gate-Source Charge	Q_{gs}		-	3.4	-	
Gate-Drain Charge	Q_{gd}		-	2.9	-	
Switching Characteristics						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=-30V, V_{GS}=-10V, R_G=3.3Ω, I_D=-1A	-	9	-	ns
Rise Time	t_r		-	6	-	
Turn-Off Delay Time	$t_{d(off)}$		-	39	-	
Fall Time	t_f		-	33	-	
Drain-Source Body Diode Characteristics						
Diode Forward Voltage	V_{SD}	I_S=-1A, V_{GS}=0V	-	-	-1.2	V
Continuous Source Current[1,5]	I_S	V_G=V_D=0V, Force Current	-	-	3	A

TYPICAL PERFORMANCE CHARACTERISTICS

Fig1. Typical Output Characteristics

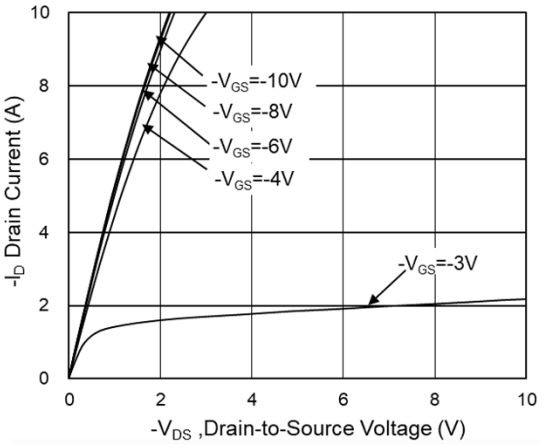


Fig 2. On-Resistance vs G-S Voltage

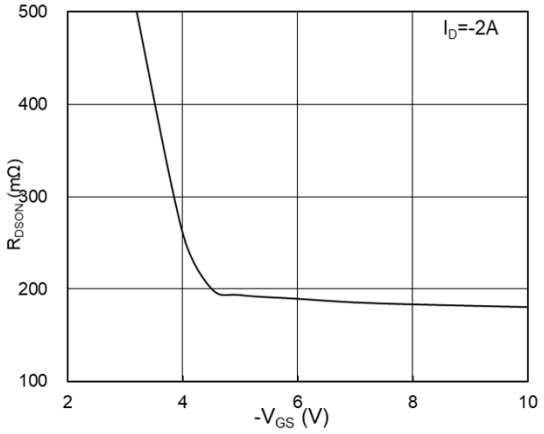


Fig 3. Source Drain Forward Characteristics

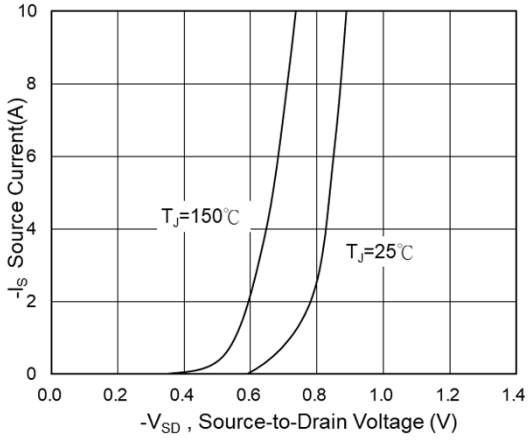


Fig 4. Gate-Charge Characteristics

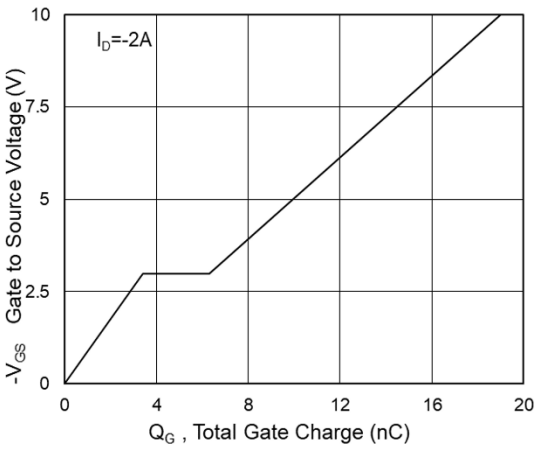


Fig 5. Normalized $V_{GS(th)}$ vs T_J

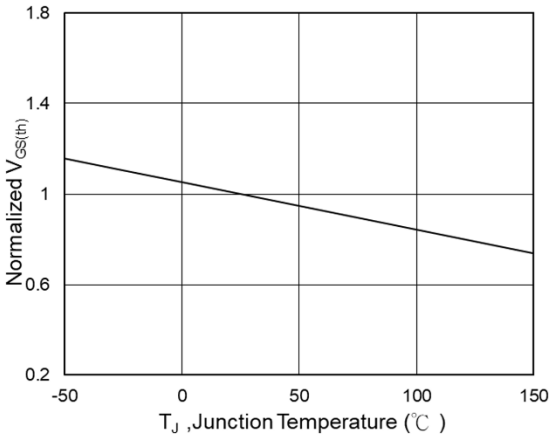


Fig 6. Normalized R_{DSON} vs T_J

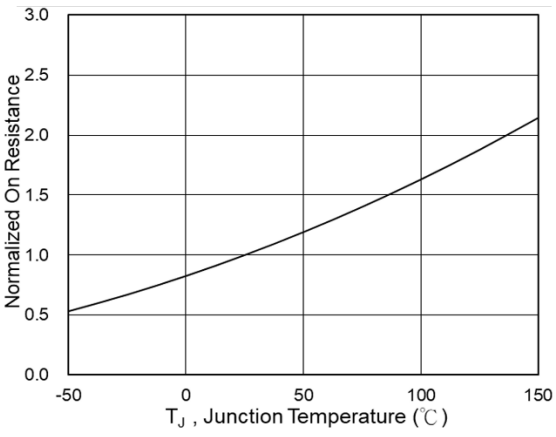


Fig7. Capacitance Characteristics

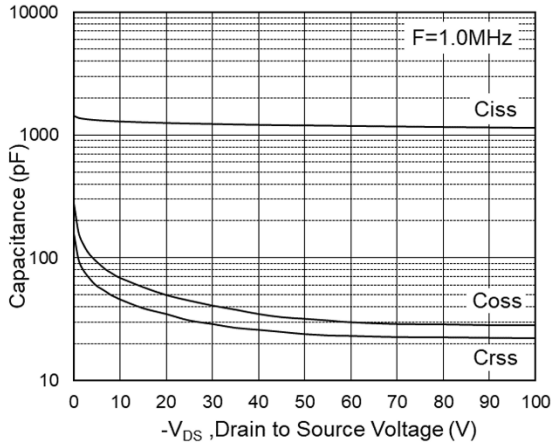


Fig 8. Safe Operating Area

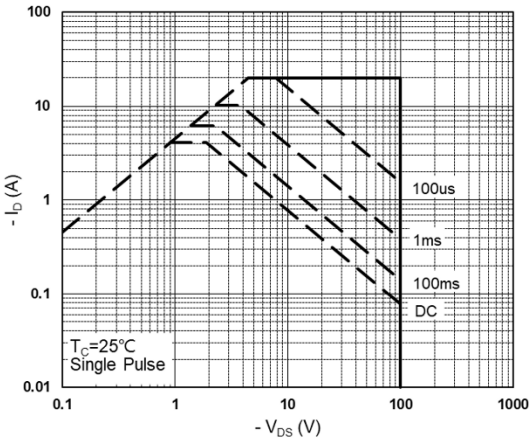


Fig 9. Normalized Maximum Transient Thermal Impedance

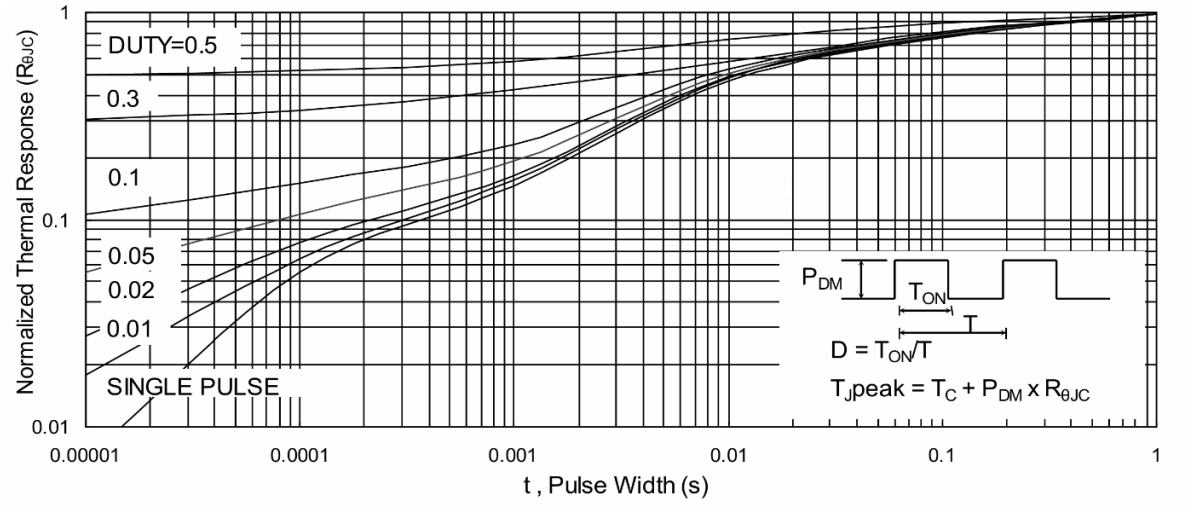


Fig 10. Switching Time Waveform

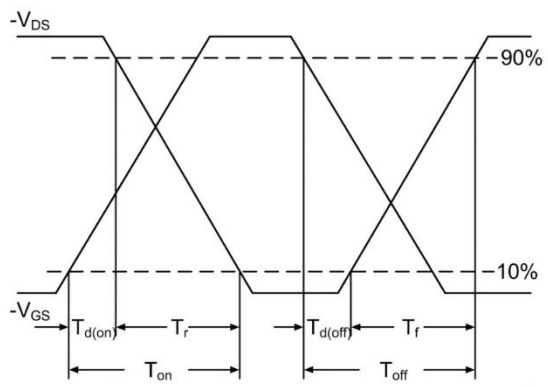
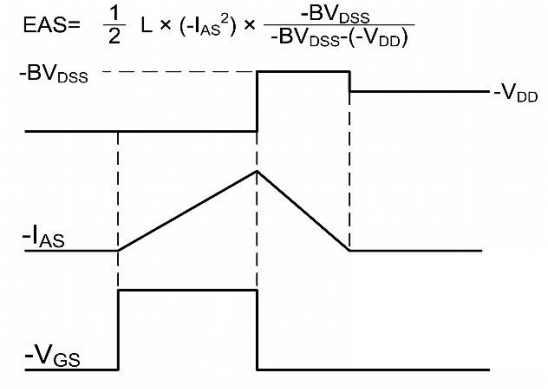
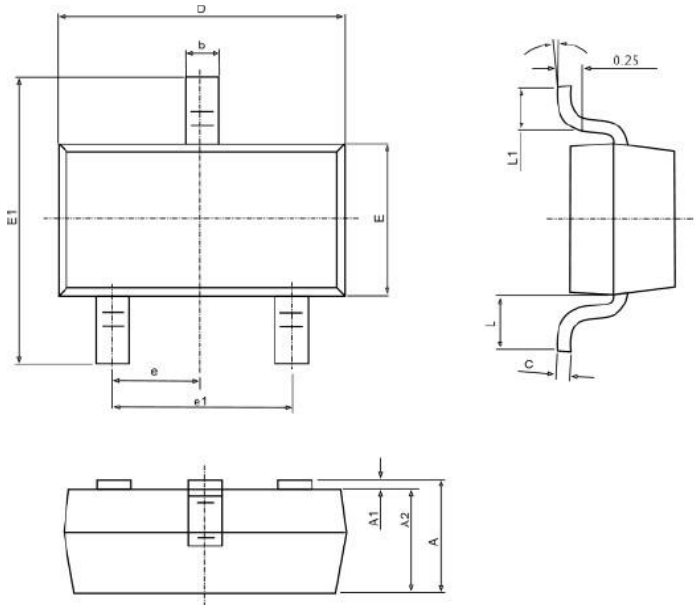


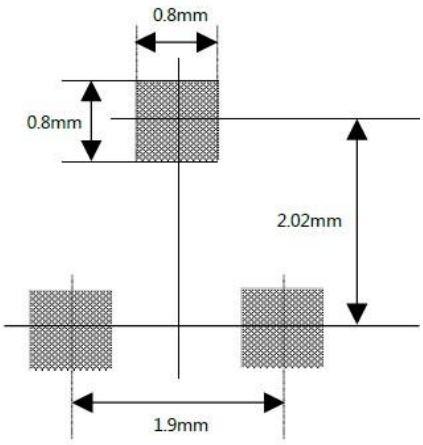
Fig 11. Unclamped Inductive Waveform



PACKAGE INFORMATION

Dimension in SOT-23 (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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