



DESCRIPTION

The AM3407 is available in SOT-23 package.

BVDSS	RDSON	ID
-30V	56mΩ	-4A
	78mΩ	

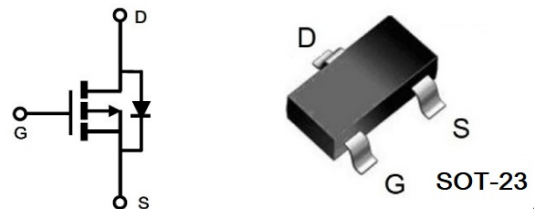
FEATURE

- $V_{DS} = -30V, I_D = -4A$
 $R_{DS(ON)} = 56m\Omega(Typ.) @ V_{GS} = -10V$
 $R_{DS(ON)} = 78m\Omega(Typ.) @ V_{GS} = -4.5V$

APPLICATION

- Portable Equipment
- Power Management
- Load Switch

PIN DESCRIPTION



ORDERING INFORMATION

Package Type	Part Number	
SOT-23 SPQ: 3,000pcs/Reel	E3	AM3407E3R
		AM3407E3VR
Note	V: Halogen free Package R: Tape & Reel	
AiT provides all RoHS products		

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

**ABSOLUTE MAXIMUM RATINGS** $T_A = 25^\circ\text{C}$, unless otherwise noted

V_{DS} , Drain-Source Voltage		-30V
V_{GS} , Gate-Source Voltage		$\pm 20\text{V}$
I_D , Continuous Drain Current ⁽¹⁾	$T_A=25^\circ\text{C}$	-4A
	$T_A=70^\circ\text{C}$	-3.2A
I_{DM} , Pulsed Drain Current ⁽²⁾		-16A
P_D , Power Dissipation ⁽¹⁾	$T_A=25^\circ\text{C}$	1.6W
	$T_A=70^\circ\text{C}$	1.0W
T_J , Operation Junction Temperature		$-55^\circ\text{C}\sim+150^\circ\text{C}$
T_{STG} , Storage Temperature Range		$-55^\circ\text{C}\sim+150^\circ\text{C}$
$R_{\theta JA}$, Thermal Resistance Junction to Ambient ⁽¹⁾	$t \leq 10\text{s}$	$80^\circ\text{C}/\text{W}$
$R_{\theta JA}$, Thermal Resistance Junction to Ambient ⁽¹⁾⁽³⁾	Steady-State	$120^\circ\text{C}/\text{W}$

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) Surface mounted on FR4 board using 1 in² pad size.

(2) Pulsed width limited by maximum junction temperature, $T_{J(MAX)}=150^\circ\text{C}$ (initial temperature $T_J=25^\circ\text{C}$).

(3) Using $\leq 10\text{s}$ junction-to-ambient thermal resistance is base on $T_{J(MAX)}=150^\circ\text{C}$.



ELECTRICAL CHARACTERISTICS

T_A = 25°C, unless otherwise stated.

Parameter	Symbol	Conditions	Min	Typ.	Max	Unit
Static Parameters						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =-250μA	-30	-	-	V
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =-250μA	-1.2	-1.5	-2	V
Gate Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V	-	-	±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-30V, V _{GS} =0V, T _J =25°C	-	-	-1	μA
		V _{DS} =-24V, V _{GS} =0V, T _J =75°C	-	-	-10	
Drain-Source On-Resistance ⁽¹⁾	R _{DS(ON)}	V _{GS} =-10V, I _D =-4A	-	56	65	mΩ
		V _{GS} =-4.5V, I _D =-3A	-	78	90	
Forward Transconductance	G _{FS}	V _{DS} =-10V, I _D =-4A	-	7.1	-	S
Diode Characteristics						
Diode Forward Voltage ⁽¹⁾	V _{SD}	I _S =-1A, V _{GS} =0V	-	-0.7	-1	V
Diode Continuous Forward Current	I _S		-	-	-4	A
Dynamic and Switching Parameters ⁽²⁾						
Total Gate Charge	Q _g	V _{DS} =-15V, I _D =-3.7A V _{GS} =-10V	-	9.8	13.8	nC
Total Gate Charge (4.5V)	Q _g		-	4.8	5.8	
Gate-Source Charge	Q _{gs}		-	1.7	2	
Gate-Drain Charge	Q _{gd}		-	2	2.8	
Input Capacitance	C _{iss}	V _{DS} =-15V, V _{GS} =0V, f=1MHz	-	510	-	pF
Output Capacitance	C _{oss}		-	48	-	
Reverse Transfer Capacitance	C _{rss}		-	31	-	
Turn-On Time	t _{d(ON)}	I _D =-1A, V _{DD} =-15V, V _{GEN} =-10V, R _G =3.3Ω	-	3.2	6	ns
	t _r		-	9.5	18	
Turn-Off Time	t _{d(OFF)}		-	16	30	
	t _f		-	5.7	11	

(1) Pulse test width ≤300μs and duty cycle ≤2%

(2) Guaranteed by design, not subject to production testing.



TYPICAL PERFORMANCE CHARACTERISTICS

Fig 1. Output Characteristics

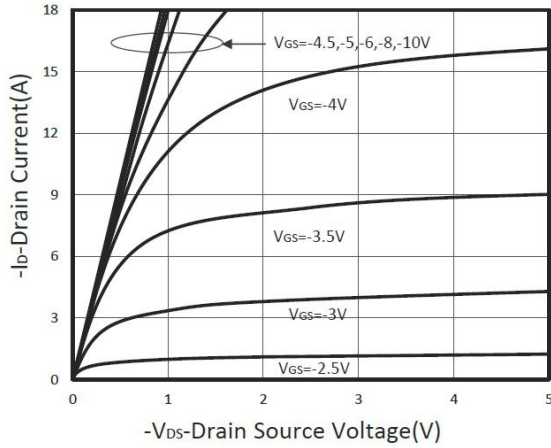


Fig 2. Drain-Source on Resistance

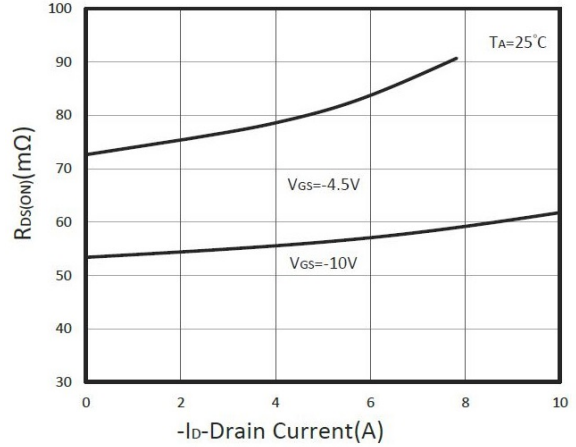


Fig 3. Gate Charge

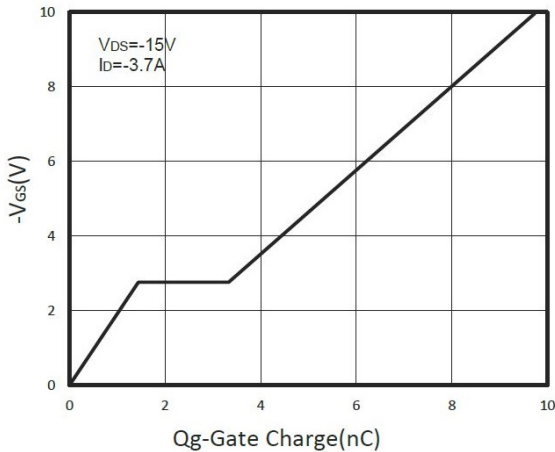


Fig 4. Capacitance

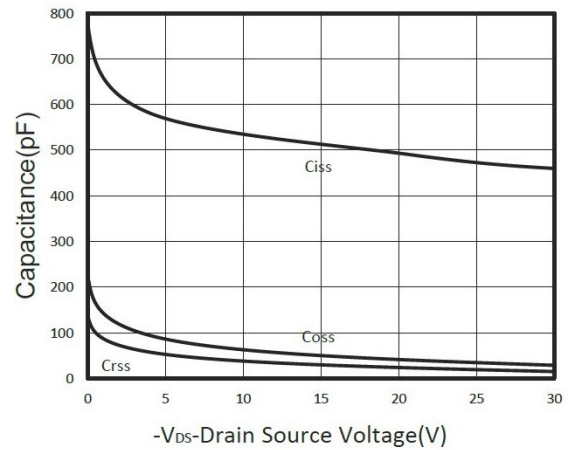


Fig 5. Gate Threshold Voltage

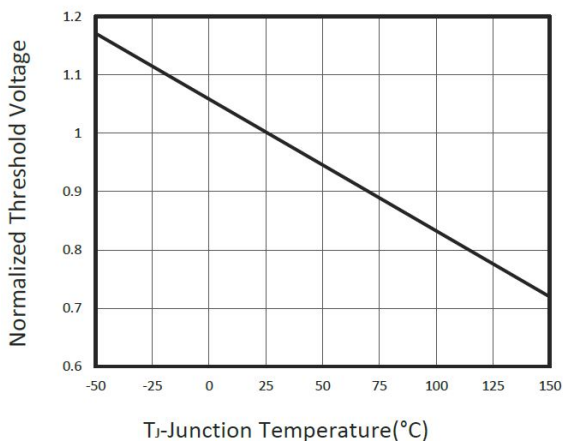


Fig 6. Power Dissipation

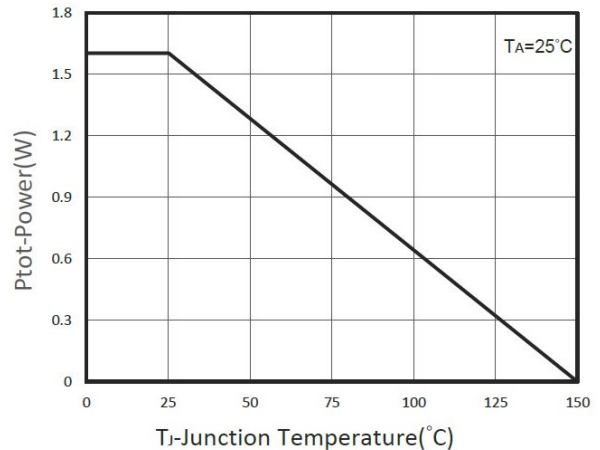




Fig 7. Drain-Source on Resistance

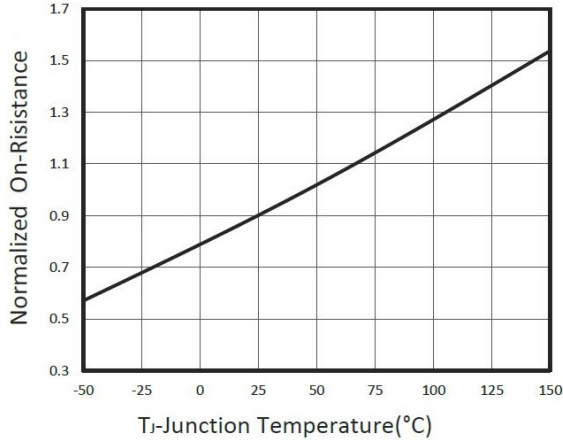


Fig 8. Drain Current vs. Tj

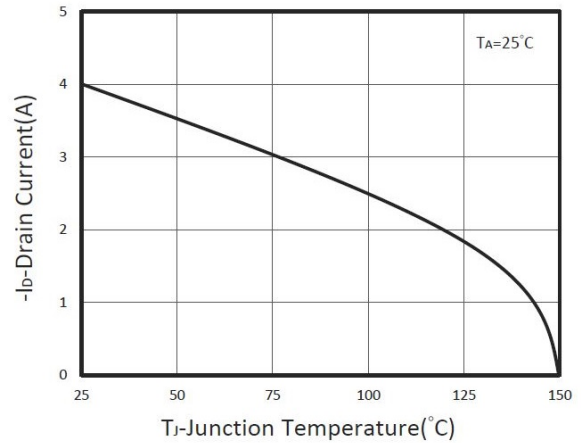


Fig 9. Maximum Safe Operation Area

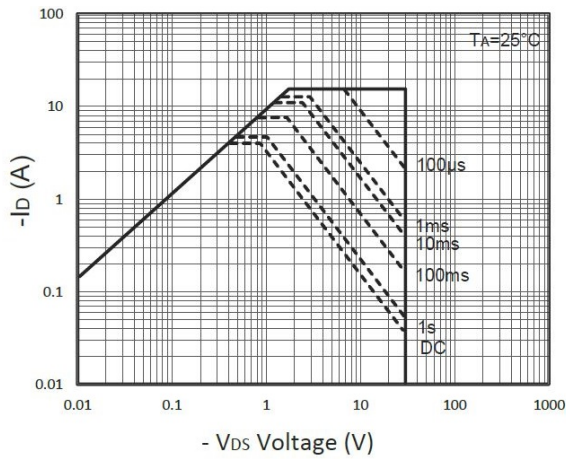


Fig 10. Thermal Transient Impedance

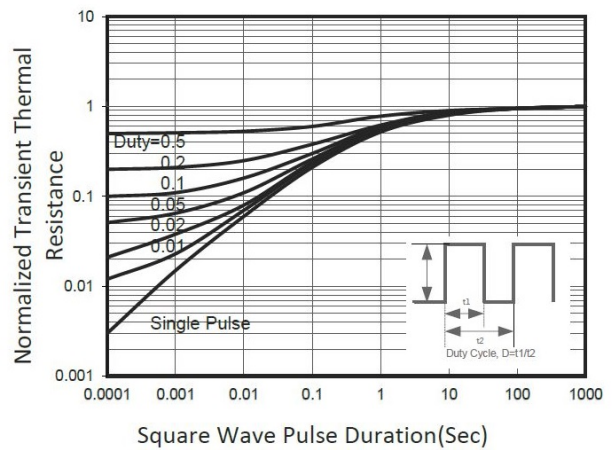


Fig 11. Gate Charge Waveform

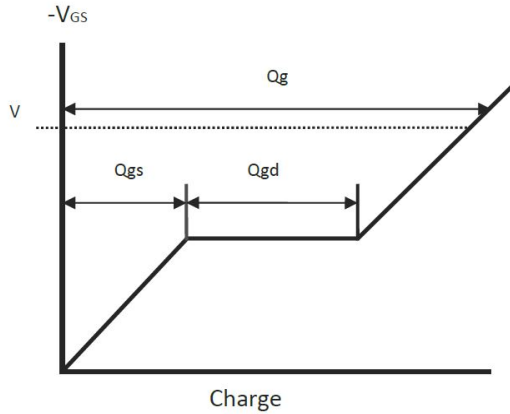
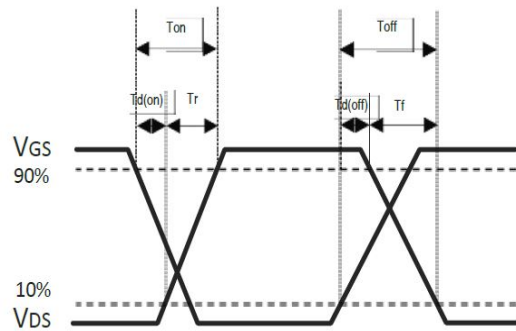


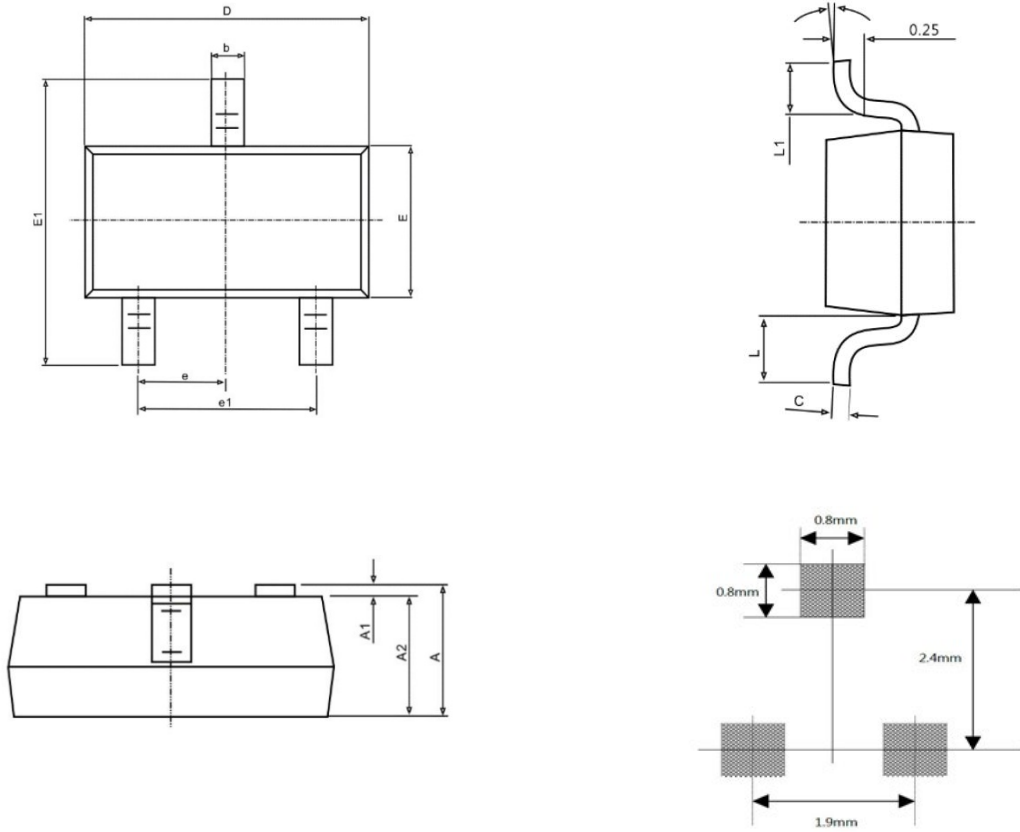
Fig 12. Switching Time Waveform





PACKAGE INFORMATION

Dimension in SOT-23 (Unit: mm)



Recommended Minimum Pad(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.	
L1	0.250	0.550
θ	0°	8°



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