



DESCRIPTION

AM3134 is the N-Channel enhancement mode power field effect transistors are using trench DMOS technology. This advanced trench technology devices are well suited for high efficiency fast switching applications, low in-line power loss needed in small outline surface mount package.

AM3134 is available in SOT-723 package.

FEATURES

- $V_{DS} = 20V, I_D = 0.8A$
 $R_{DS(ON)} = 200m\Omega(Typ.)@V_{GS} = 4.5V$
 $R_{DS(ON)} = 300m\Omega(Typ.)@V_{GS} = 2.5V$
 $R_{DS(ON)} = 500m\Omega(Typ.)@V_{GS} = 1.8V$
 $R_{DS(ON)} = 800m\Omega(Typ.)@V_{GS} = 1.5V$
- Fast Switch
- Low Gate Drive Applications
- Low Input Capacitance
- Available in SOT-723 package

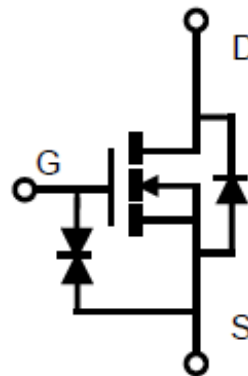
ORDER INFORMATION

Package Type	Part Number	
SOT-723 SPQ: 8,000pcs/Reel	VM3	AM3134VM3R
		AM3134VM3VR
Note	V: Halogen free Package R: Tape & Reel	
AiT provides all RoHS free products		

APPLICATION

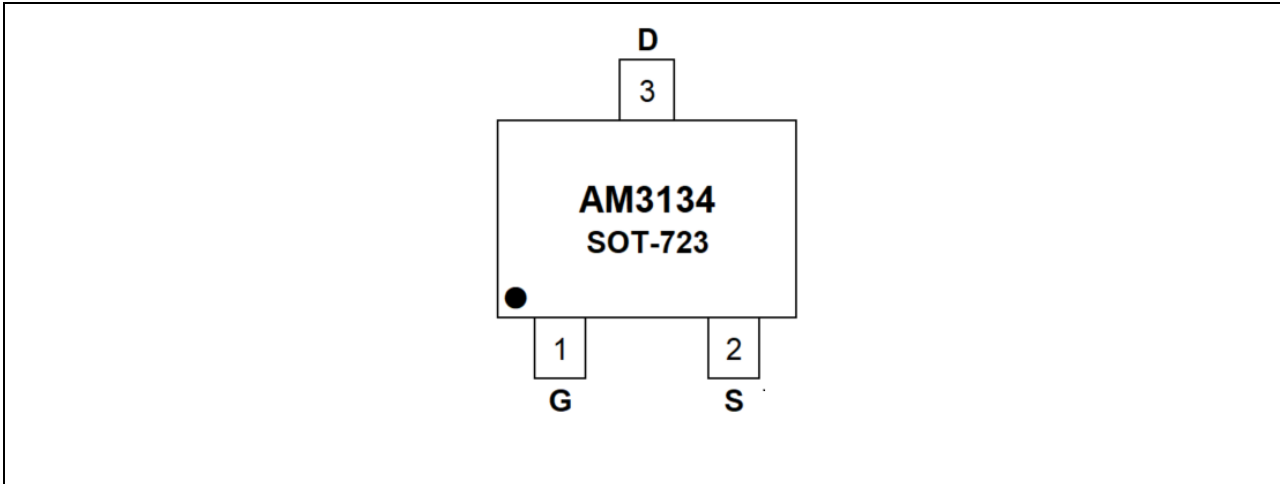
- Hand-Held Instruments
- Load Switch
- Battery Protection

PIN CONFIGURATION





PIN DESCRIPTION



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



ABSOLUTE MAXIMUM RATINGS

T_A = 25°C, unless otherwise noted

V _{DSS} , Drain-Source Voltage		20V
V _{GSS} , Gate-Source Voltage		±8V
I _D , Continuous Drain Current	T _A =25°C	0.8A
	T _A =70°C	0.7A
I _{DM} , Pulsed Drain Current ^{NOTE1}		3.2A
P _D , Power Dissipation ^{NOTE2}	T _A =25°C	0.3W
	T _A =70°C	0.2W
T _J , Operation Junction Temperature		-55°C~150°C
T _{STG} , Storage Temperature Range		-55°C~150°C

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 is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

THERMAL RESISTANCE

Parameter		Symbol	Typ.	Max.	Unit
Thermal Resistance Junction to Ambient ^{NOTE3}	t ≤ 10s	R _{θJA}	-	-	°C/W
Thermal Resistance Junction to Ambient ^{NOTE3}	Steady-State		-	280	



ELECTRICAL CHARACTERISTICS

T_A = 25°C, unless otherwise noted

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static Parameters						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250μA	20	-	-	V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.3	0.5	0.85	V
Gate Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±8V	-	-	±20	μA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =20V, V _{GS} =0V, T _J =25°C	-	-	1	μA
		V _{DS} =16V, V _{GS} =0V, T _J =75°C	-	-	10	
Drain-Source On-Resistance ^{NOTE4}	R _{DS(ON)}	V _{GS} =4.5V, I _D =0.5A	-	200	300	mΩ
		V _{GS} =2.5V, I _D =0.4A	-	300	450	
		V _{GS} =1.8V, I _D =0.2A	-	500	700	
		V _{GS} =1.5V, I _D =0.1A	-	800	1200	
Source-Drain Diode						
Diode Forward Voltage ^{NOTE2}	V _{SD}	I _S =1A, V _{GS} =0V	-	-	1.0	V
Continuous Source Current	I _S		-	-	0.8	A
Dynamic and Switching Parameters						
Total Gate Charge	Q _g	V _{DS} =10V, V _{GS} =4.5V I _D =0.8A	-	1	1.3	nC
Gate-Source Charge	Q _{gs}		-	0.26	0.33	
Gate-Drain Charge	Q _{gd}		-	0.2	0.27	
Input Capacitance	C _{iss}	V _{DS} =10V, V _{GS} =0V f=1MHz	-	39	46	pF
Output Capacitance	C _{oss}		-	14	18	
Reverse Transfer Capacitance	C _{rss}		-	6	7.8	
Turn-On Time ^{NOTE5}	t _{d(on)}	V _{DD} =10V, V _{GEN} =4.5V, R _G =10Ω, I _D =0.5A	-	5	-	ns
	t _r		-	3.5	-	
Turn-Off Time ^{NOTE5}	t _{d(off)}		-	14	-	
	t _f		-	6	-	

NOTE1: The value of R_{θJA} is measured with the device in a still air environment with maximum junction temperature T_{J(MAX)}= 150°C (Initial temperature T_A=25°C).

NOTE2: The T_{J(MAX)}=150°C, using junction-to-ambient thermal resistance.

NOTE3: Surface-mounted on FR-4 board using 1 sq-in pad, 2 oz Cu, in a still air environment with T_A=25°C.

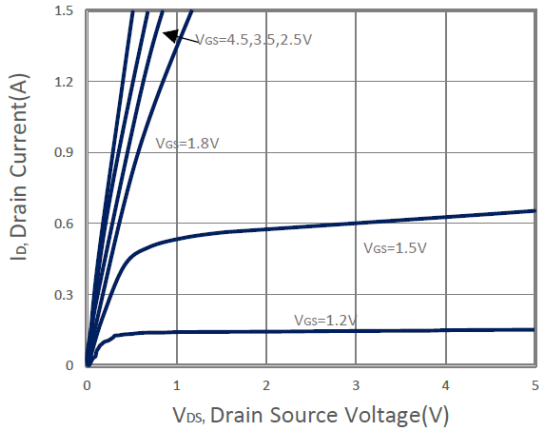
NOTE4: The data tested by pulsed, pulse width ≤ 300us, duty cycle ≤ 2%

NOTE5: Pulsed width limited by maximum junction temperature.

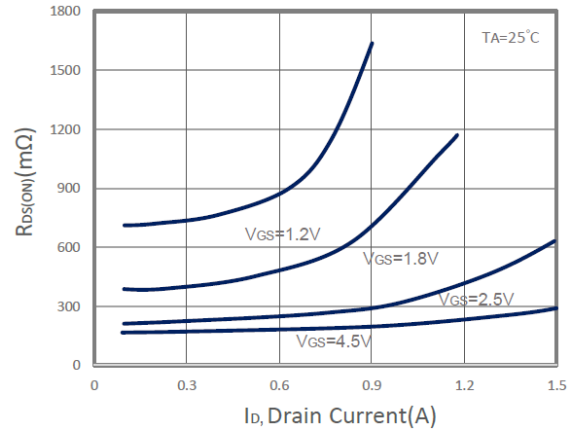


TYPICAL PERFORMANCE CHARACTERISTICS

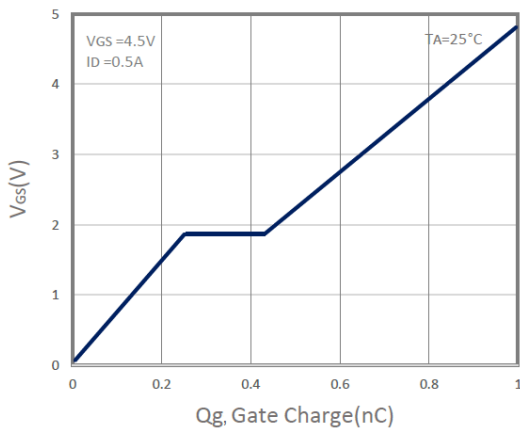
1. Output Characteristics



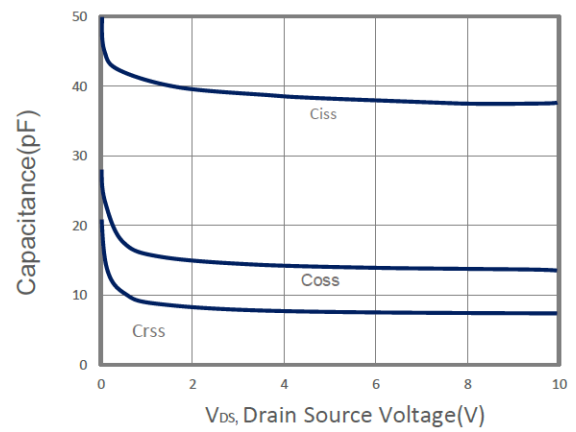
2. Drain-Source On Resistance



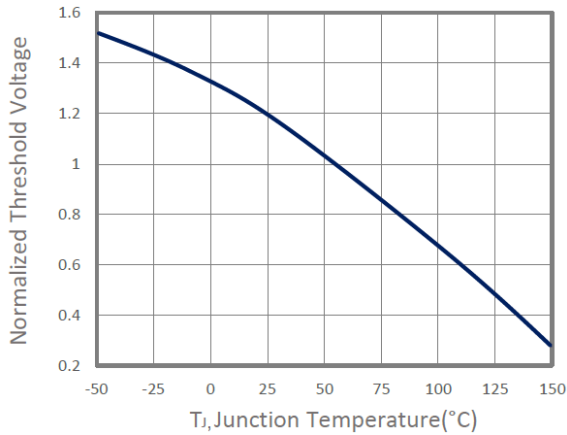
3. Gate Charge



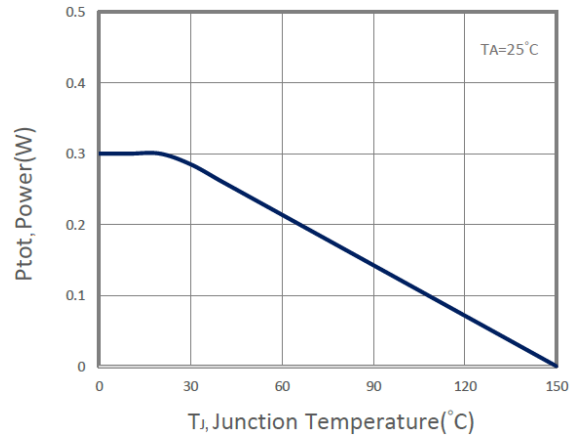
4. Capacitance



5. Gate Threshold Voltage

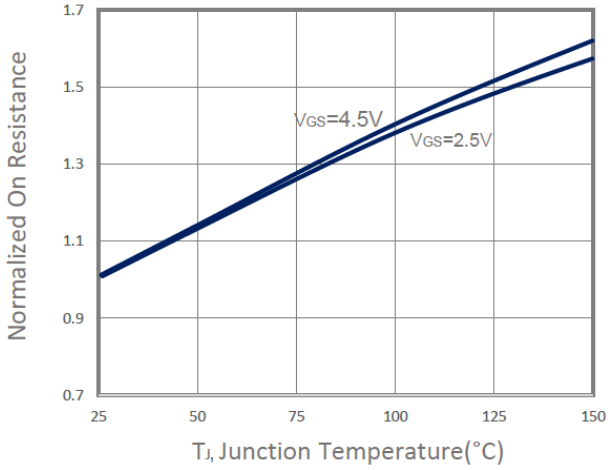


6. Power Dissipation

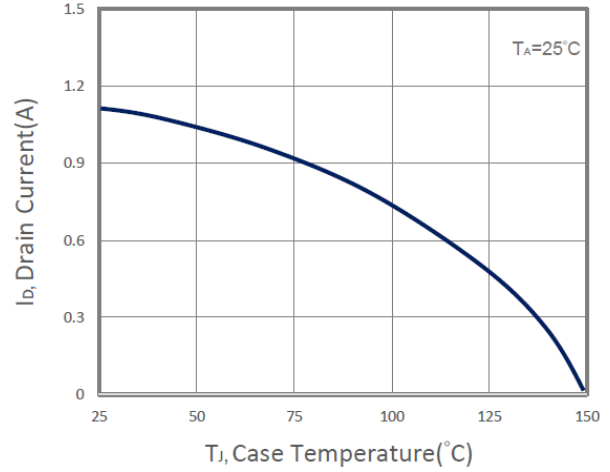




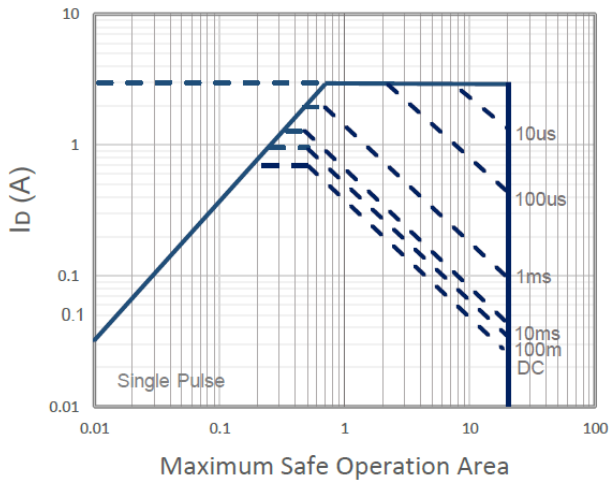
7. $R_{DS(ON)}$ vs. Junction Temperature



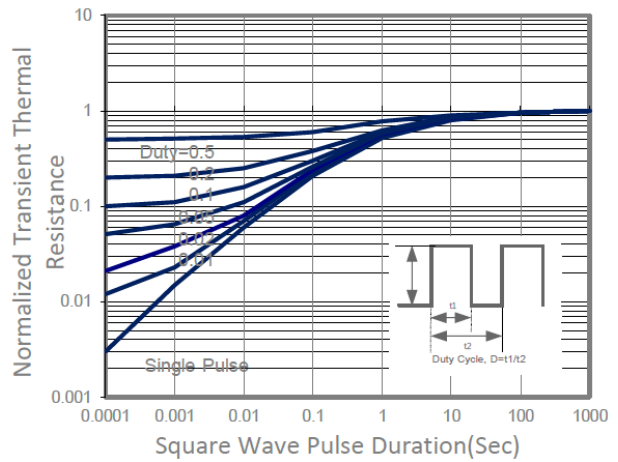
8. Drain Current vs. T_j



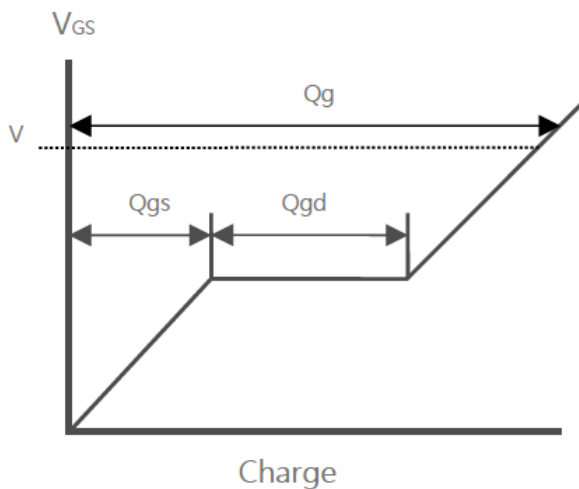
9. V_{DS} Voltage (V)



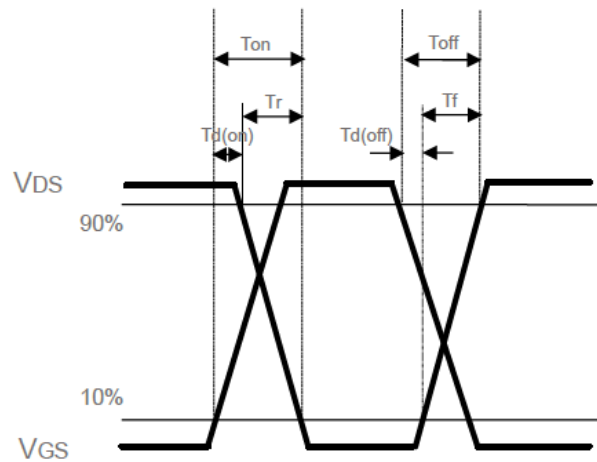
10. Thermal Transient Impedance



11. Gate Charge Waveform



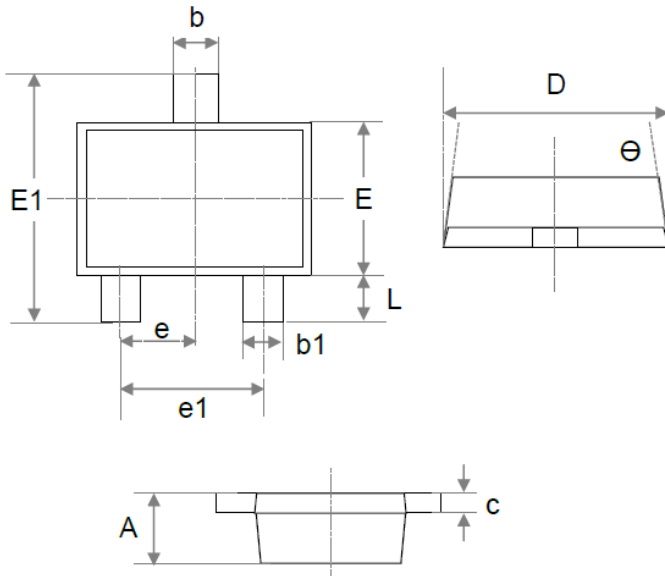
12. Switching Time Waveform



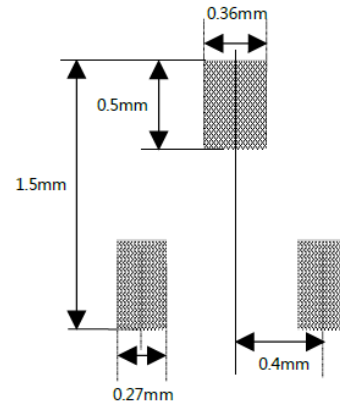


PACKAGE INFORMATION

Dimension in SOT-723 Package (Unit: mm)



Recommended Land Pattern



Symbol	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.370	0.390	0.015	0.015
b	0.220	0.270	0.009	0.011
b1	0.170	0.220	0.007	0.009
c	0.009	0.011	0.003	0.004
D	1.150	1.250	0.045	0.049
E	0.750	0.850	0.030	0.033
E1	1.150	1.250	0.045	0.049
e	0.400 BSC.		0.016 BSC.	
e1	0.800 BSC.		0.032 BSC.	
L	0.150	0.250	0.006	0.010
theta	7°	11°	7°	11°



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