



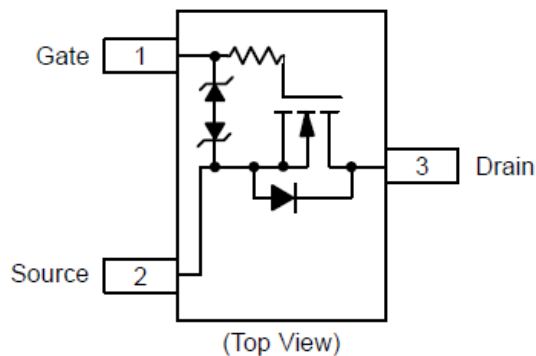
DESCRIPTION

The AM1012 is available in SC-89 Package

ORDERING INFORMATION

Package Type	Part Number	
SC-89	CK3	AM1012CK3R
		AM1012CK3VR
Note	V: Halogen free Package R: Tape & Reel	
AiT provides all RoHS products Suffix " V " means Halogen free Package		

PIN DESCRIPTION



FEATURES

- TrenchFET[®] Power MOSFET: 1.8-V Rated
- Gate-Source ESD Protected: 2000V
- High-Side Switching
- Low On-Resistance: 0.7Ω
- Low Threshold: 0.8V (typ)
- Fast Switching Speed: 10ns
- Available in SC-89 Package

BENEFITS

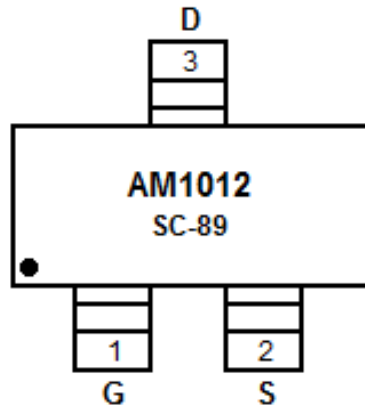
- Ease in Driving Switches
- Low Offset (Error) Voltage
- Low-Voltage Operation
- High-Speed Circuits
- Low Battery Voltage Operation

APPLICATION

- Drivers: Relays, Solenoids, Lamps, Hammers, Displays, Memories
- Battery Operated Systems
- Power Supply Converter Circuits
- Load/Power Switching Cell Phones, Pagers



PIN DESCRIPTION



Top View

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



ABSOLUTE MAXIMUM RATINGS

T_A = 25°C, unless Otherwise Noted

Parameter	Symbol	5 secs	Steady State	Unit	
Drain-Source Voltage	V _{DS}	20		V	
Gate-Source Voltage	V _{GS}	±6		V	
Continuous Drain Current (T _J = 150°C) ^{NOTE2}	I _D	T _A =25°C	600	500	mA
		T _A =85°C	400	350	
Pulsed Drain Current ^{NOTE1}	I _{DM}	1000			
Continuous Source Current (diode conduction) ^{NOTE2}	I _S	275	250		
Maximum Power Dissipation ^{NOTE2} for SC-75	P _D	T _A =25°C	175	150	mW
		T _A =85°C	90	80	
Maximum Power Dissipation ^{NOTE2} for SC-89	P _D	T _A =25°C	272	250	mW
		T _A =85°C	160	140	
Operating Junction and Storage Temperature Range	T _J , T _{STG}	-55 to 150		°C	
Gate-Source ESD Rating (HBM, Method 3015)	ESD	2000		V	

Stress beyond above listed "Absolute Maximum Ratings" may lead permanent damage to the device. These are stress ratings only and operations of the device at these or any other conditions beyond those indicated in the operational sections of the specifications are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

NOTE1: Pulse width limited by maximum junction temperature.

NOTE2: Surface Mounted on FR4 Board.



ELECTRICAL CHARACTERISTICS

T_A = 25°C Unless Otherwise Noted

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Static						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.45	-	0.9	V
Gate-Body Leakage	I _{GSS}	V _{DS} =0V, V _{GS} =±4.5V	-	±0.5	±1.0	μA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =20V, V _{GS} =0V	-	0.3	100	nA
		V _{DS} =20V, V _{GS} =0V, T _J =85°C	-	-	5	μA
On-State Drain Current ^{NOTE3}	I _{D(on)}	V _{DS} =5 V, V _{GS} =4.5V	700	-	-	mA
Drain-Source On-State Resistance ^{NOTE3}	r _{DS(on)}	V _{GS} =4.5V, I _D =600mA	-	0.41	0.70	Ω
		V _{GS} =2.5V, I _D =500mA	-	0.53	0.85	
		V _{GS} =1.8V, I _D =350mA	-	0.70	1.25	
Forward Transconductance ^{NOTE3}	g _{fs}	V _{DS} =10V, I _D =400mA	-	1.0	-	S
Diode Forward Voltage ^{NOTE3}	V _{SD}	I _S =150mA, V _{GS} =0V	-	0.8	1.2	V
Dynamic ^{NOTE4}						
Total Gate Charge	Q _g	V _{DS} =10V, V _{GS} =4.5V, I _D =250mA	-	750	-	pC
Gate-Source Charge	Q _{gs}		-	75	-	
Gate-Drain Charge	Q _{gd}		-	225	-	
Turn-on Delay Time	t _{d(ON)}	V _{DD} =10V, R _L =47Ω, I _D =200mA, V _{GEN} =4.5V, R _G =10Ω	-	5	-	ns
Rise Time	t _r		-	5	-	
Turn-off Delay Time	t _{d(OFF)}		-	25	-	
Fall Time	t _f		-	11	-	

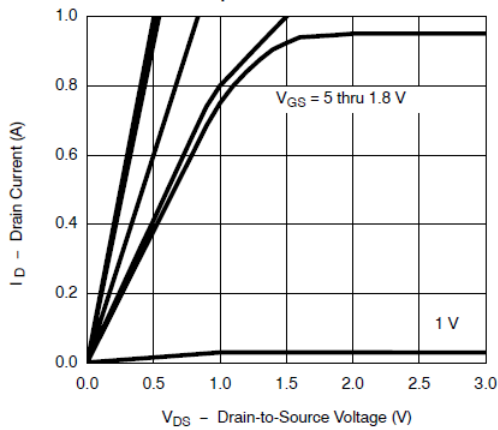
NOTE3: Pulse test: pulse width ≤300us, duty cycle ≤ 2%

NOTE4: Guaranteed by design, not subject to production testing.

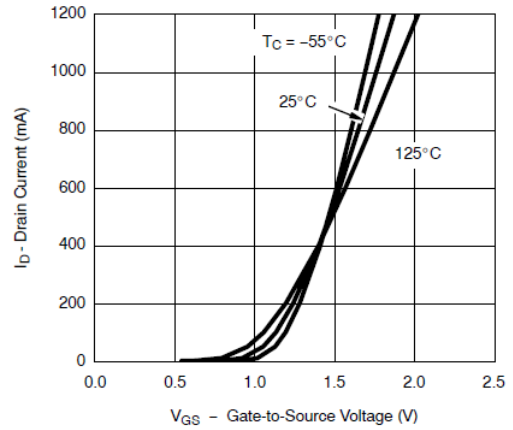


TYPICAL CHARACTERISTICS

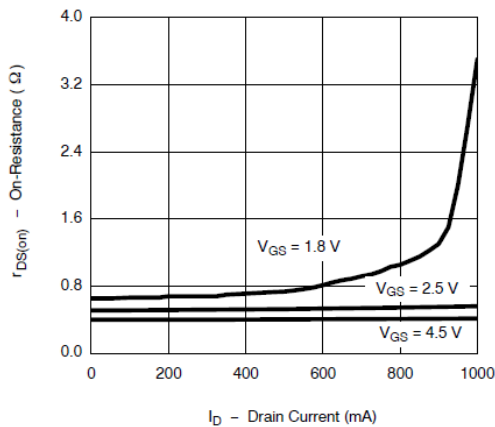
1. Output Characteristics



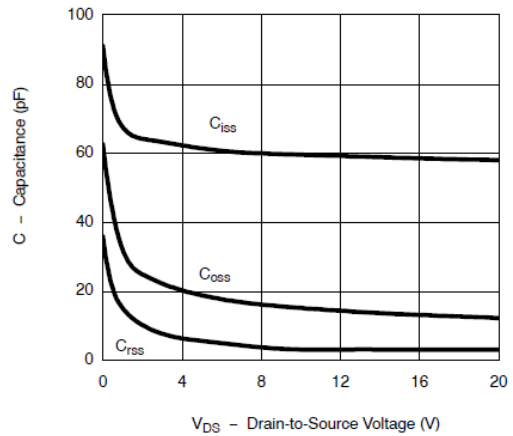
2. Transfer Characteristics



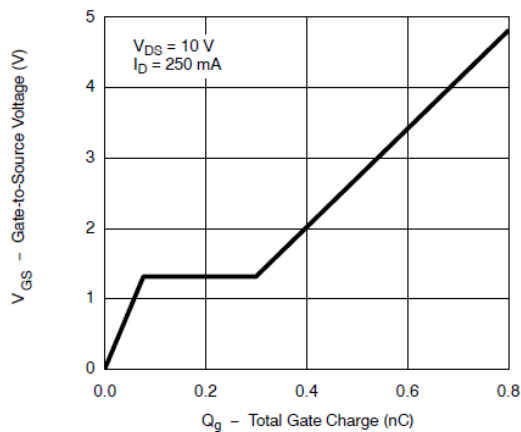
3. On-Resistance vs. Drain Current



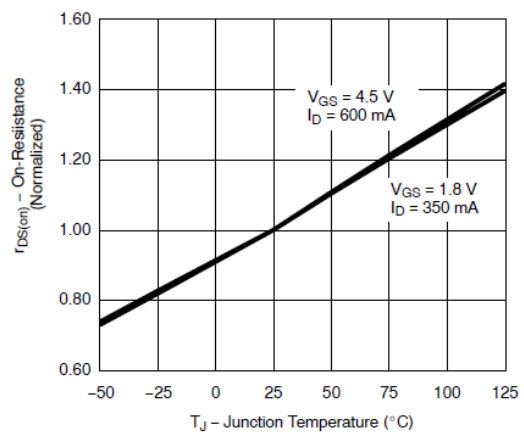
4. Capacitance



5. Gate Charge

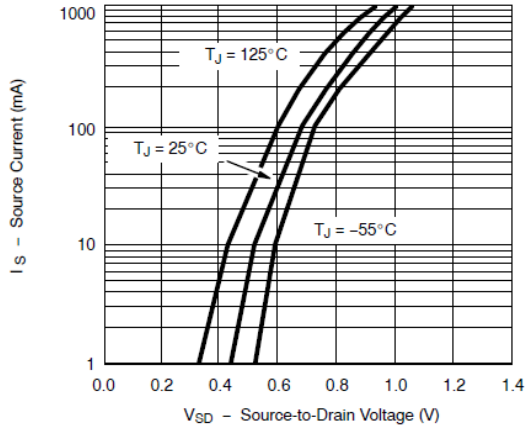


6. On-Resistance vs. Junction Temperature

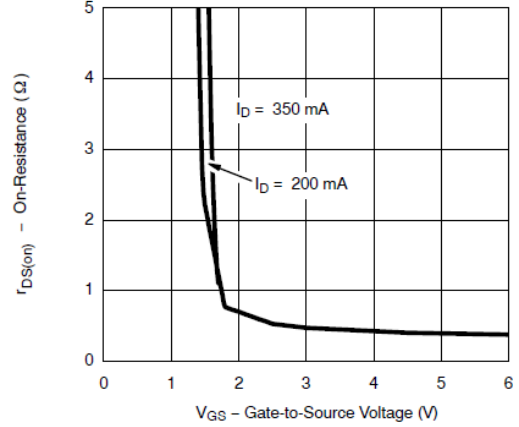




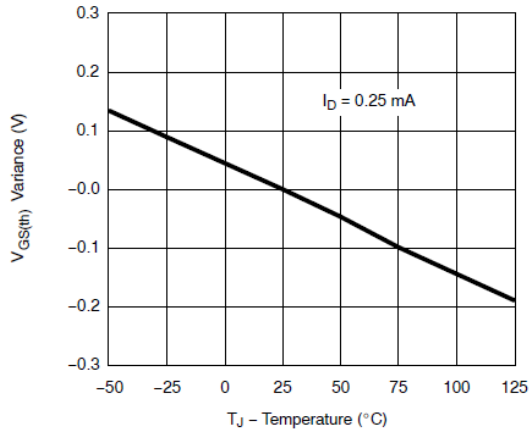
7. Source-Drain Diode Forward Voltage



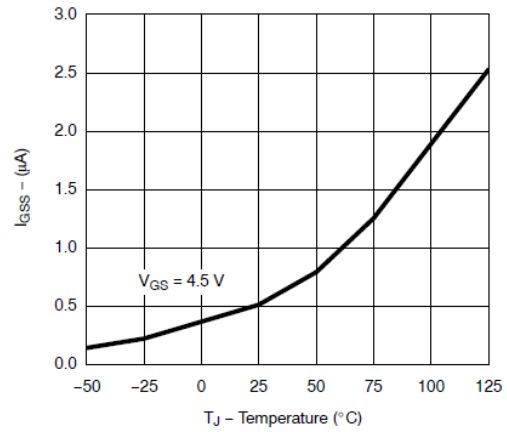
8. On-Resistance vs. Gate-to-Source Voltage



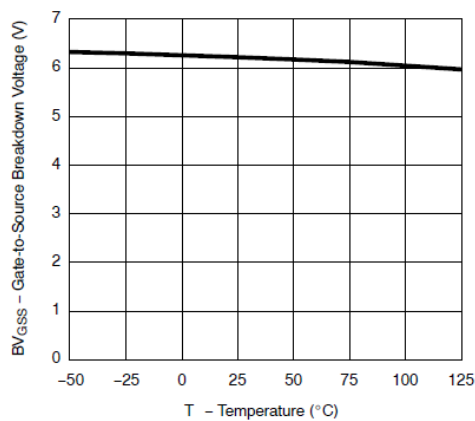
9. Threshold Voltage Variance vs. Temperature



10. I_{GSS} vs. Temperature

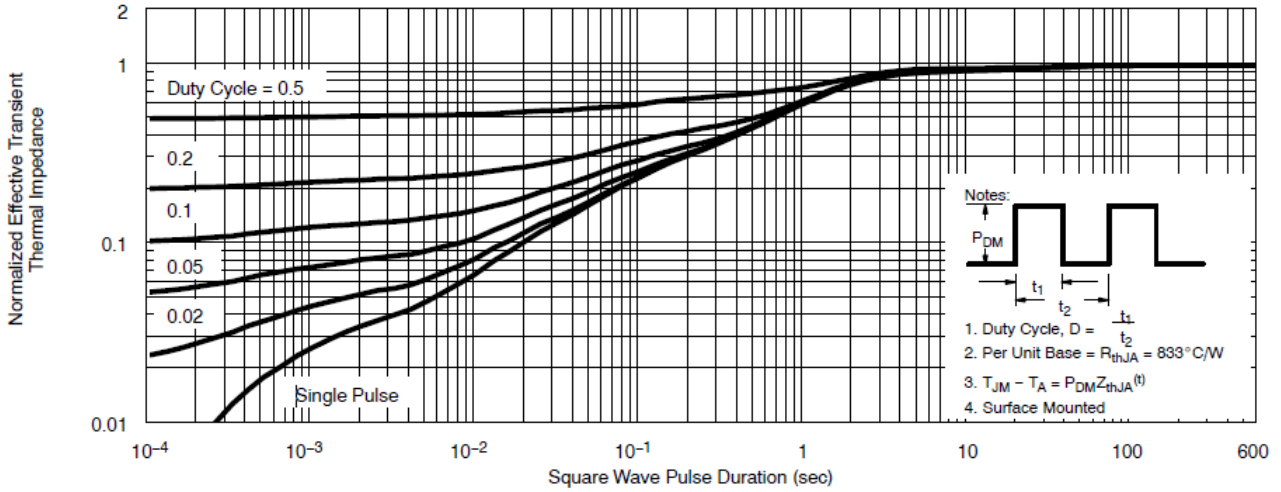


11. BV_{GSS} vs. Temperature

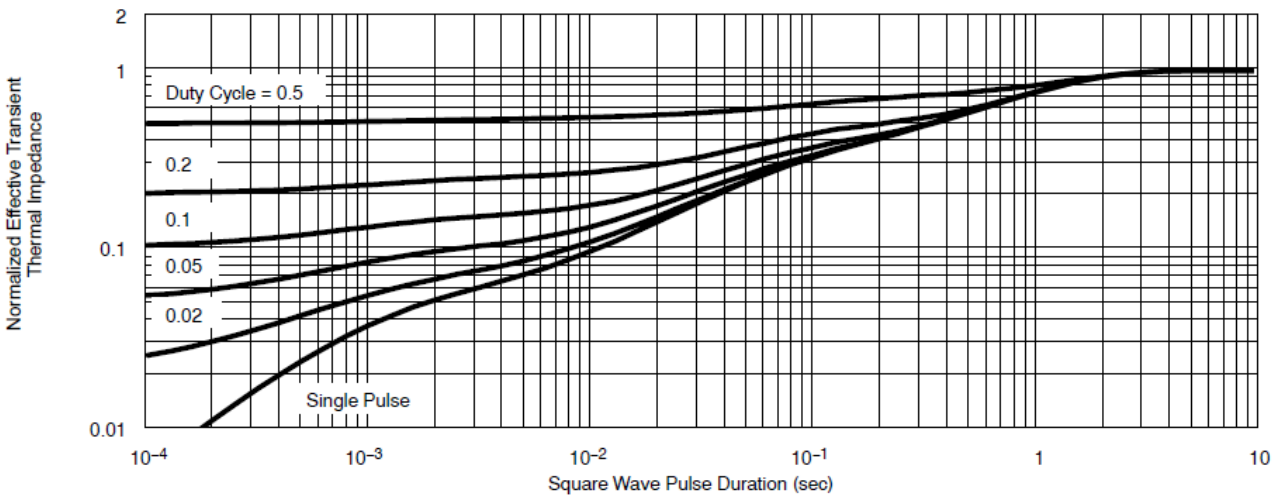




12. Normalized Thermal Transient Impedance, Junction-to-Ambient (SC-75A)



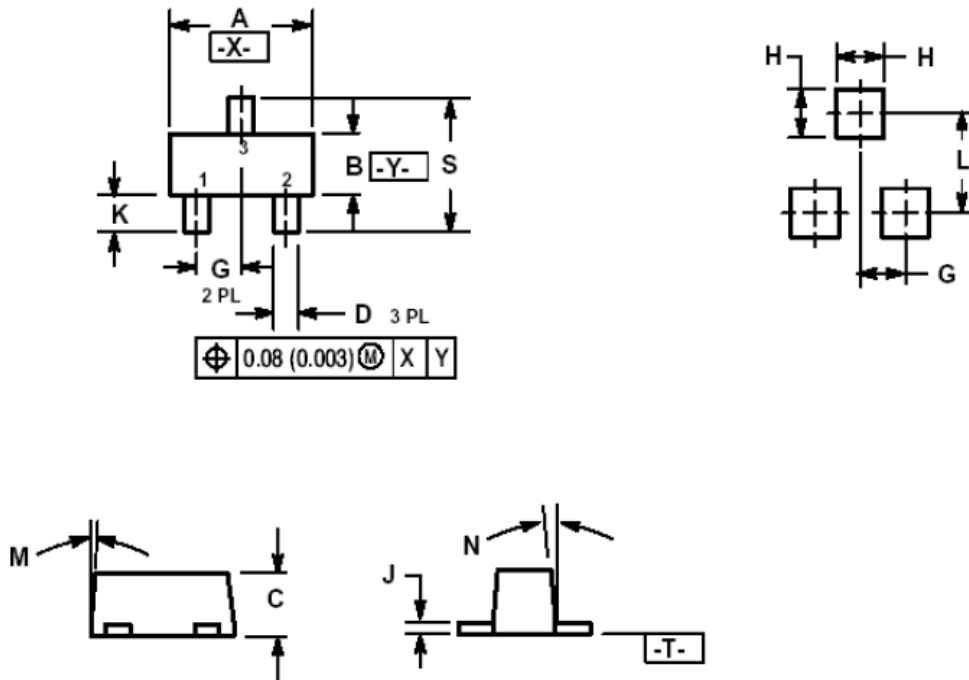
13. Normalized Thermal Transient Impedance, Junction-to-Foot





PACKAGE INFORMATION

Dimension in SC-89 (Unit: mm)



DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	1.500	1.600	1.700	0.059	0.063	0.067
B	0.750	0.850	0.950	0.030	0.034	0.040
C	0.600	0.700	0.800	0.024	0.028	0.031
D	0.230	0.280	0.330	0.009	0.011	0.013
G	0.500 BSC			0.020 BSC		
H	0.530 REF			0.021 REF		
J	0.100	0.150	0.200	0.004	0.006	0.008
K	0.300	0.400	0.500	0.012	0.016	0.020
L	1.100 REF			0.043 REF		
M	-	-	10°	-	-	10°
N	-	-	10°	-	-	10°
S	1.500	1.600	1.700	0.059	0.063	0.067



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