



DESCRIPTION

$V_{DS} = 20V$

$V_{GS} = \pm 6V$

$I_{D(A)} = 350mA$

$R_{DS(ON)} = 0.8\Omega @ V_{GS} = -4.5V$

$R_{DS(ON)} = 1.2\Omega @ V_{GS} = -2.5V$

$R_{DS(ON)} = 1.8\Omega @ V_{GS} = -1.8V$

The AM1013 is available in SC-89 package

ORDERING INFORMATION

Package Type	Part Number	
SC-89 SPQ: 3,000pcs/Reel	CK3	AM1013CK3R
		AM1013CK3VR
Note	V: Halogen free Package R: Tape & Reel	
AiT provides all RoHS products		

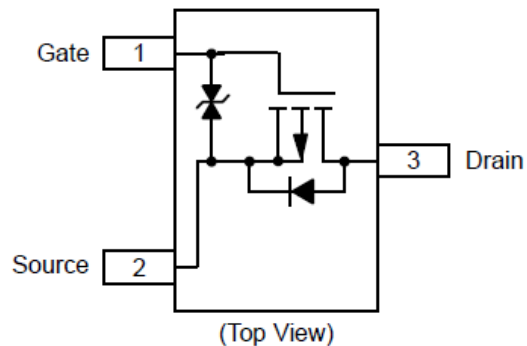
FEATURES

- Gate-Source ESD Protected: 2kV
- High-Side Switching
- Low On-Resistance: 1.2Ω
- Low Threshold: 0.8V (typ)
- Fast Switching Speed: 14ns
- Ease in Driving Switches
- Low Offset (Error) Voltage
- Low-Voltage Operation
- High-Speed Circuits
- Low Battery Voltage Operation
- Available in SC-89 package

APPLICATION

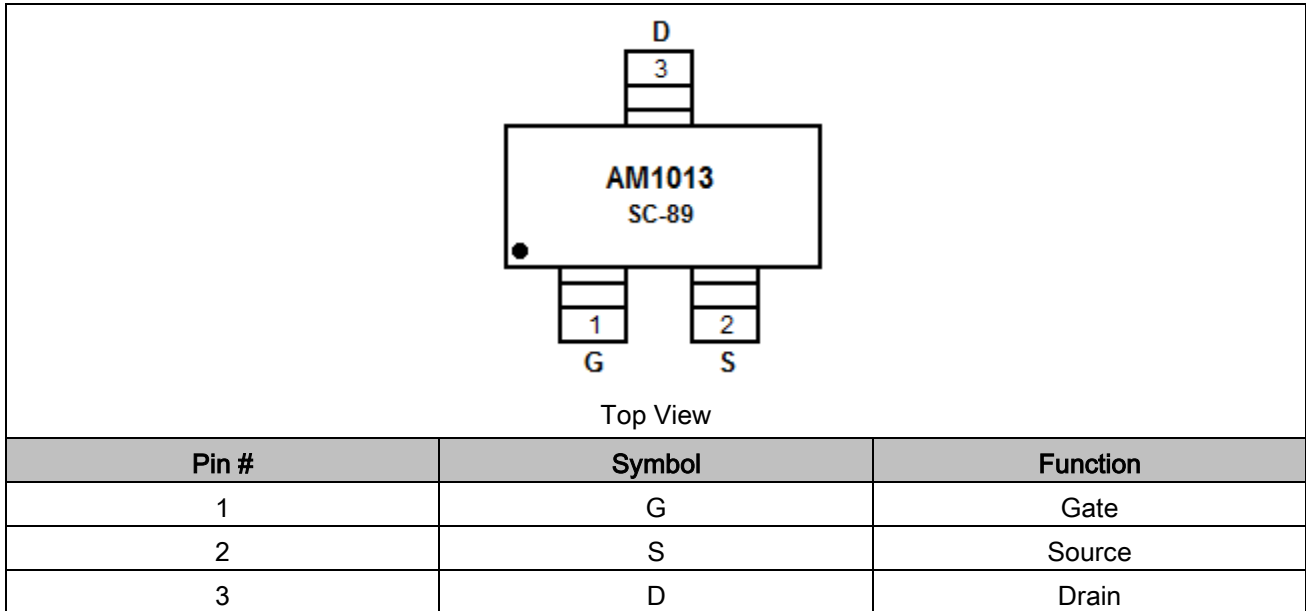
- Drivers: Relays, Solenoids, Lamps, Hammers, Displays, Memories
- Battery Operated Systems
- Power Supply Converter Circuits
- Load/Power Switching Cell Phones, Pagers

P CHANNEL MOSFET





PIN DESCRIPTION



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}	T _A =25°C	I _D	-400	-350	mA
	T _A =85°C		-300	-275	
Pulsed Drain Current ^{NOTE1}		I _{DM}	-1000		
Continuous Source Current (diode conduction) ^{NOTE2}		I _S	-275	-250	
Maximum Power Dissipation ^{NOTE2} for SC-75	T _A =25°C	P _D	175	150	mW
	T _A =85°C		90	80	
Maximum Power Dissipation ^{NOTE2} for SC-89	T _A =25°C	P _D	275	250	
	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	-	-	V
Gate-Body Leakage	I _{GSS}	V _{DS} =0V, V _{GS} =±4.5V	-	±1	±2	μA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-16V, V _{GS} =0V	-	-0.3	-100	nA
		V _{DS} =-16V, 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 =-350mA	-	0.8	1.2	Ω
		V _{GS} =-2.5V, I _D =-300mA	-	1.2	1.6	
		V _{GS} =-1.8V, I _D =-10mA	-	1.8	2.7	
Forward Transconductance ^{NOTE3}	g _{fs}	V _{DS} =-10V, I _D =-250mA	-	0.4	-	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	-	1500	-	pC
Gate-Source Charge	Q _{gs}		-	150	-	
Gate-Drain Charge	Q _{gd}		-	450	-	
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		-	9	-	
Turn-off Delay Time	t _{d(OFF)}		-	35	-	
Fall Time	t _f		-	11	-	

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

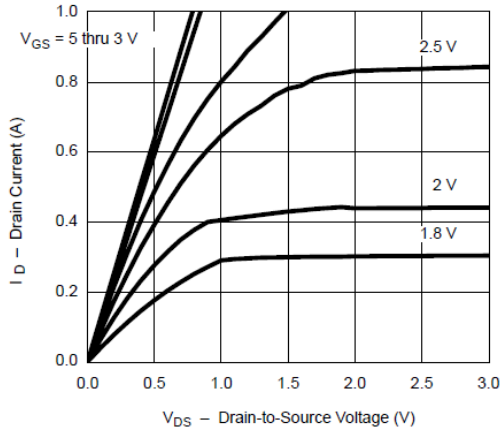
NOTE4: Guaranteed by design, not subject to production testing.



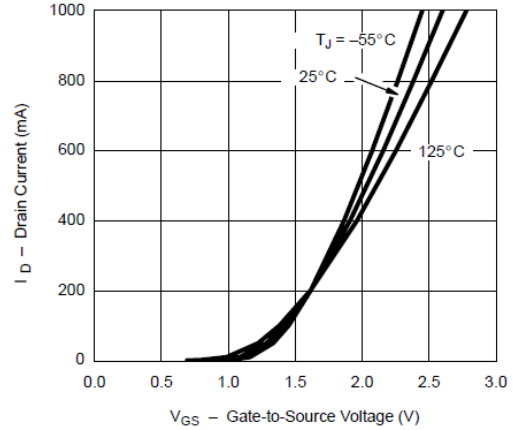
TYPICAL CHARACTERISTICS

$T_A = 25^\circ\text{C}$, Unless Noted. For the following graphs, p-channel negative polarities for all voltage and current values are represented as positive values.

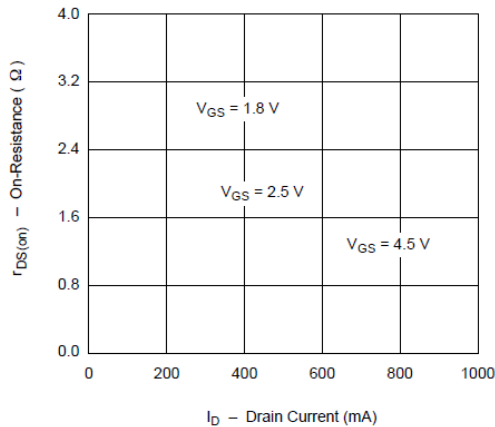
1. Output Characteristics



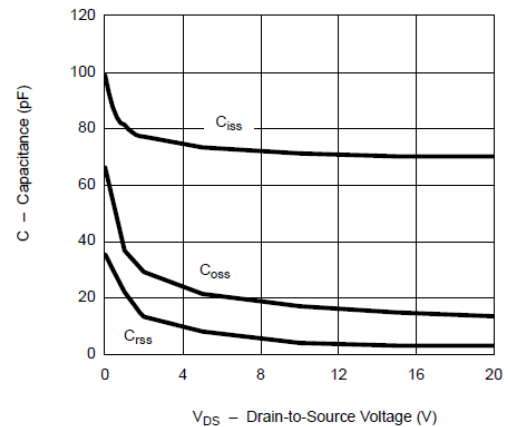
2. Transfer Characteristics



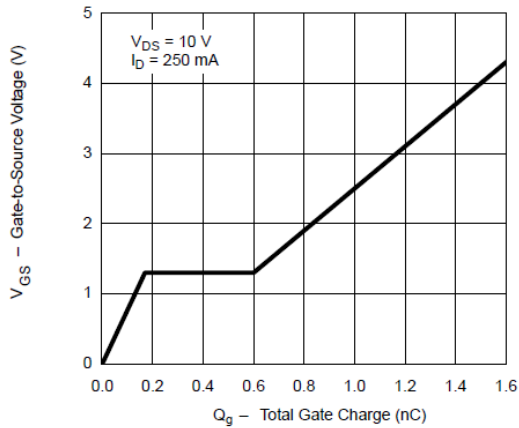
3. On-Resistance vs. Drain Current



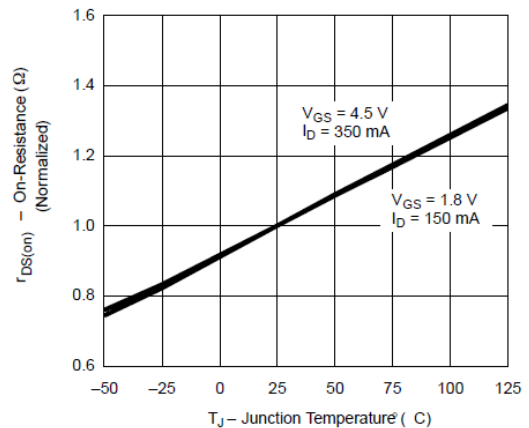
4. Capacitance



5. Gate Charge

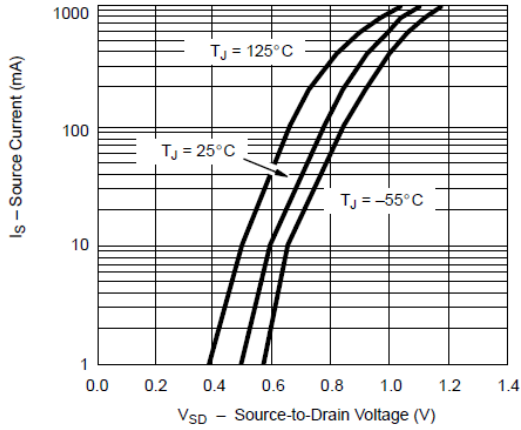


6. On-Resistance vs. Junction Temperature

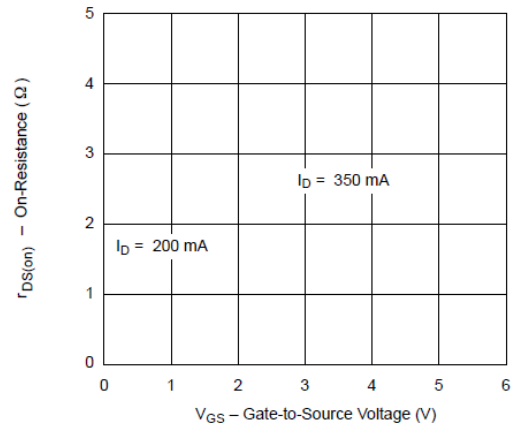




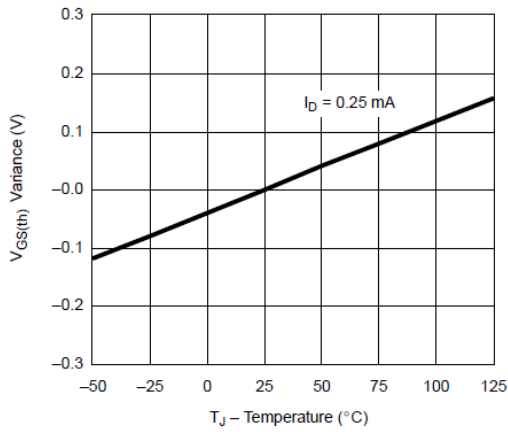
7. Source-Drain Diode Forward Voltage



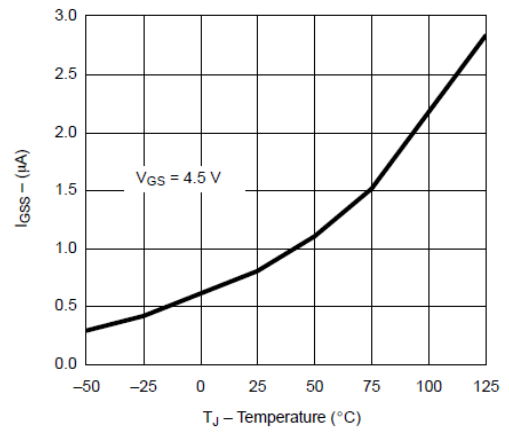
8. On-Resistance vs. Gate-to-Source Voltage



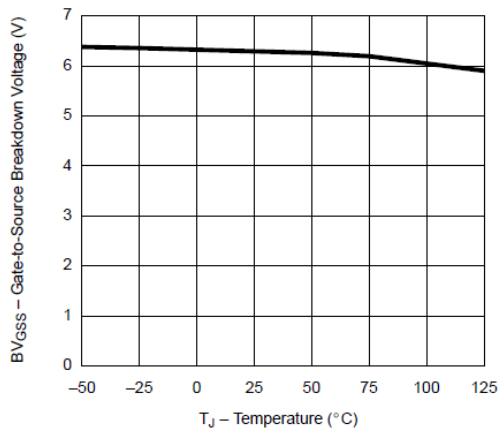
9. Threshold Voltage Variance vs. Temperature



10. I_{GSS} vs. Temperature

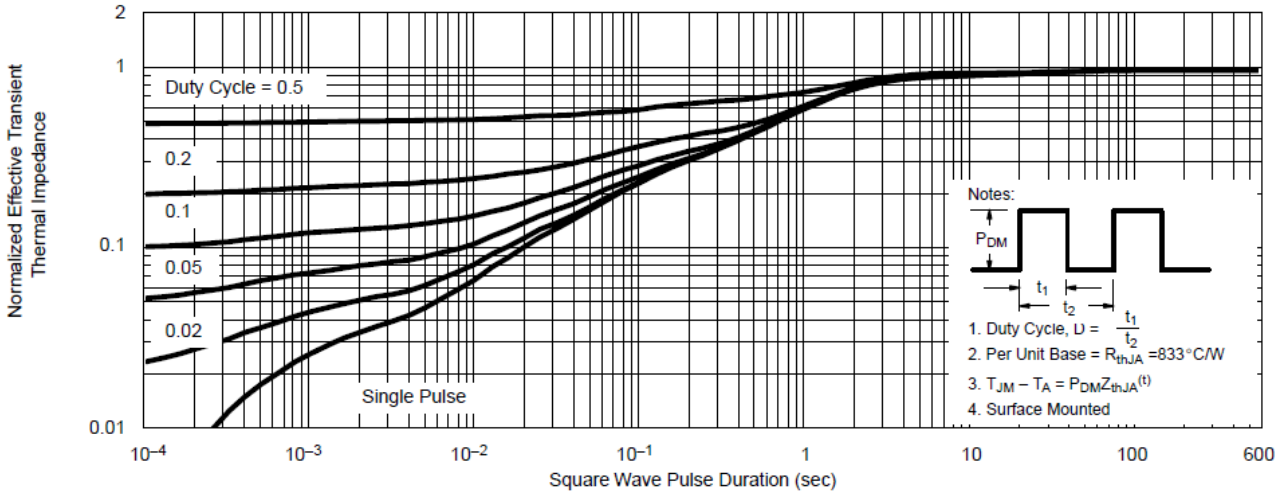


11. BV_{GSS} vs. Temperature

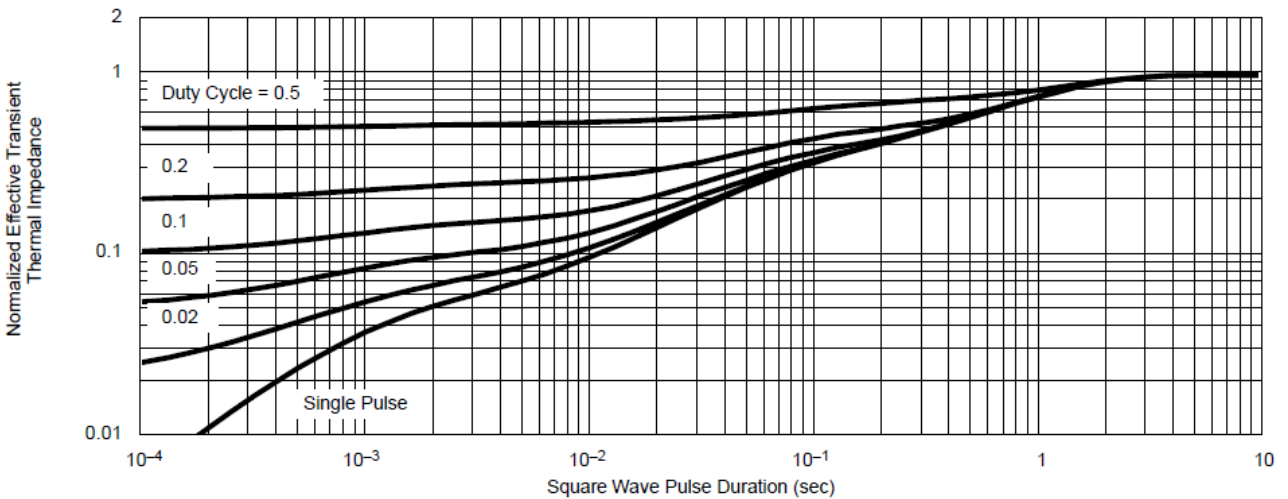




12. Normalized Thermal Transient Impedance, Junction-to-Ambient (SC-75A)



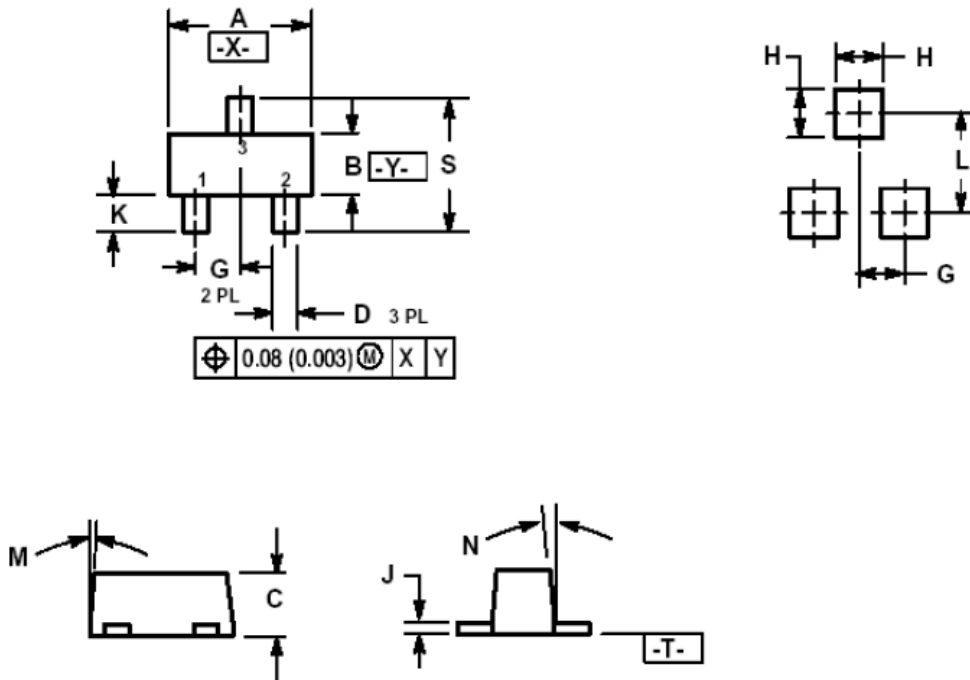
13. Normalized Thermal Transient Impedance, Junction-to-Foot





PACKAGE INFORMATION

Dimension in SC-89 (Unit: mm)



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.500	1.700	0.059	0.067
B	0.750	0.950	0.030	0.040
C	0.600	0.800	0.024	0.031
D	0.230	0.330	0.009	0.013
G	0.500 BSC		0.020 BSC	
H	0.530 REF		0.021 REF	
J	0.100	0.200	0.004	0.008
K	0.300	0.500	0.012	0.020
L	1.100 REF		0.043 REF	
M	-	10°	-	10°
N	-	10°	-	10°
S	1.500	1.700	0.059	0.067



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