



## DESCRIPTION

The AM5352 is the N-Channel logic enhancement mode power field effect transistor which is produced using high cell density advanced trench technology to provide excellent  $R_{DS(ON)}$ .

This high density process is especially tailored to minimize on-state resistance. These devices are particularly suited for low voltage application, and low in-lin power loss are needed in a very small outline surface mount package

The AM5352 is available in SC89-3 (SOT-523) package.

## ORDERING INFORMATION

Package Type	Part Number	
SC89-3 (SOT-523)	CK3	AM5352CK3R
		AM5352CK3VR
Note	V: Halogen free Package R: Tape & Reel	
AiT provides all RoHS products Suffix " V " means Halogen free Package		

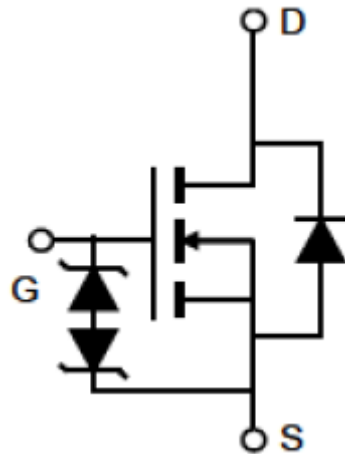
## FEATURES

- 20V/0.6A,  $R_{DS(ON)}=200m\Omega(\text{typ.})@V_{GS}=4.5V$
- 20V/0.5A,  $R_{DS(ON)}=240m\Omega(\text{typ.})@V_{GS}=2.5V$
- 20V/0.4A,  $R_{DS(ON)}=420m\Omega(\text{typ.})@V_{GS}=1.8V$
- Super high design for extremely low  $R_{DS(ON)}$
- Exceptional on-resistance and Maximum DC current capability
- ESD Protected
- Available in SC89-3 (SOT-523) Package

## APPLICATION

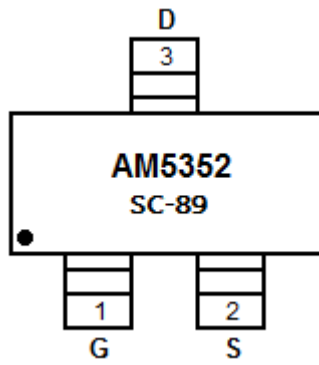
- Power Management in Note Book
- Portable Equipment
- Battery Powered System

## TYPICAL APPLICATION





## PIN DESCRIPTION



Top View

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



## ABSOLUTE MAXIMUM RATINGS

T<sub>A</sub>= 25°C, Unless otherwise noted

V <sub>DSS</sub> , Drain-Source Voltage		20V
V <sub>GSS</sub> , Gate-Source Voltage		±12V
I <sub>D</sub> , Continuous Drain Current	T <sub>A</sub> =25°C, V <sub>GS</sub> =10V	0.7A
	T <sub>A</sub> =75°C, V <sub>GS</sub> =10V	0.56A
I <sub>DM</sub> , Pulsed Drain Current		1A
I <sub>S</sub> , Continuous Source Current (Diode Conduction)		0.15A
P <sub>D</sub> , Power Dissipation	T <sub>A</sub> =25°C	0.27W
	T <sub>A</sub> =75°C	0.16W
T <sub>J</sub> , Operation Junction Temperature		150°C
T <sub>STG</sub> , Storage Temperature Range		-55°C~+150°C
R <sub>θJA</sub> , Thermal Resistance-Junction to Ambient		62.5°C/W

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.



## ELECTRICAL CHARACTERISTICS

T<sub>A</sub>=25°C, Unless otherwise noted

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
<b>Static Parameters</b>						
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =250μA	20			V
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	0.3		0.8	V
Gate Leakage Current	I <sub>GSS</sub>	V <sub>DS</sub> =0V, V <sub>GS</sub> =±12V			±100	nA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =20V, V <sub>GS</sub> =0			1	μA
		V <sub>DS</sub> =20V, V <sub>GS</sub> =0 T <sub>J</sub> =55°C			5	
Drain-Source On-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =4.5V, I <sub>D</sub> =0.6A		300	360	mΩ
		V <sub>GS</sub> =2.5V, I <sub>D</sub> =0.5A		240	420	
		V <sub>GS</sub> =1.8V, I <sub>D</sub> =0.4A		420	560	
Forward Transconductance	G <sub>fs</sub>	V <sub>DS</sub> =10V, I <sub>D</sub> =0.4A				S
<b>Source-Drain Diode</b>						
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =0.15A, V <sub>GS</sub> =0V		0.65	1.2	V
<b>Dynamic Parameters</b>						
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =10V		1.06	1.38	nC
Gate-Source Charge	Q <sub>gs</sub>	V <sub>GS</sub> =4.5V		0.18		
Gate-Drain Charge	Q <sub>gd</sub>	I <sub>D</sub> =0.6A		0.32		
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =10V		70		pF
Output Capacitance	C <sub>oss</sub>	V <sub>GS</sub> =0V		20		
Reverse Transfer Capacitance	C <sub>rss</sub>	f=1MHz		8		
Turn-On Time	T <sub>d(on)</sub>	V <sub>DS</sub> =10V		18	26	nS
	T <sub>r</sub>	I <sub>D</sub> =0.5A		20	28	
Turn-Off Time	T <sub>d(off)</sub>	V <sub>GEN</sub> =4.5V		70	110	
	T <sub>f</sub>	R <sub>G</sub> =1Ω		25	40	

NOTE1: Pulse test: pulse width≤300μS, duty cycle≤2%

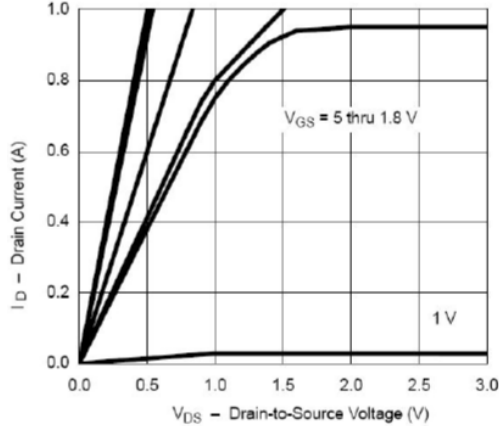
NOTE1: Static parameters are based on package level with recommended wire bonding



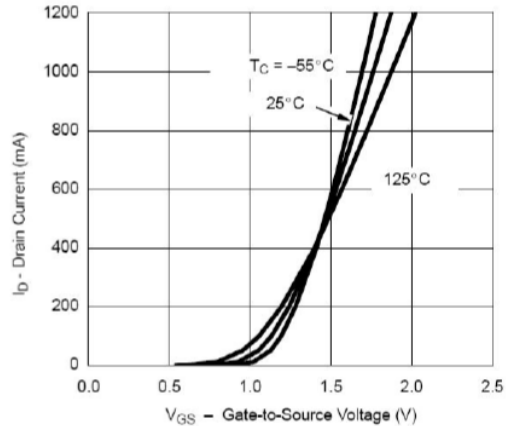
## TYPICAL PERFORMANCE CHARACTERISTICS

25°C, Unless Note

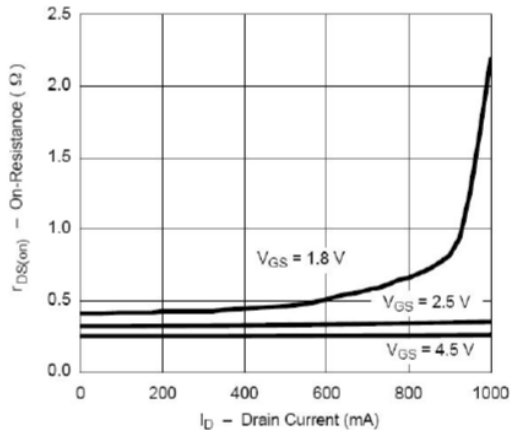
### 1. Output Characteristics



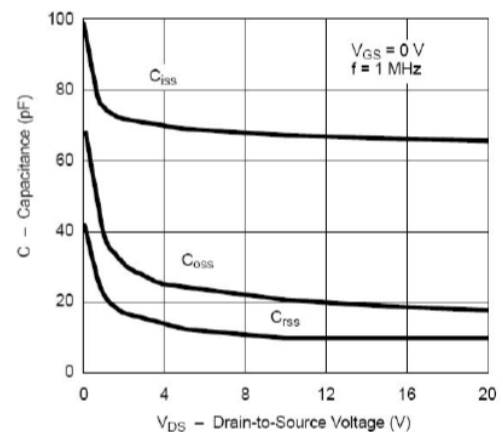
### 2. Transfer Characteristics



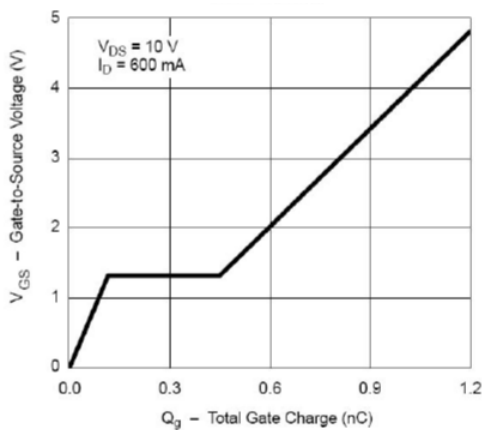
### 3. On-Regions vs. Drain Current



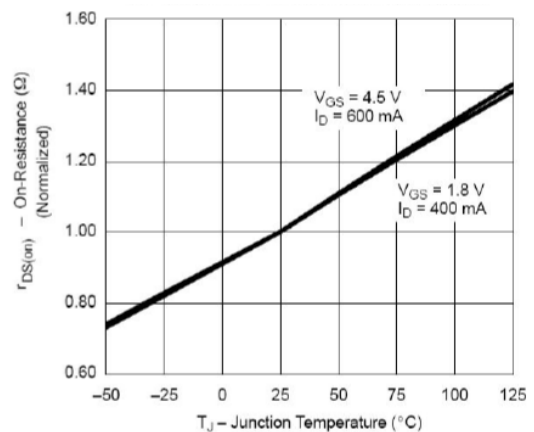
### 4. Capacitance



### 5. Gate Charge

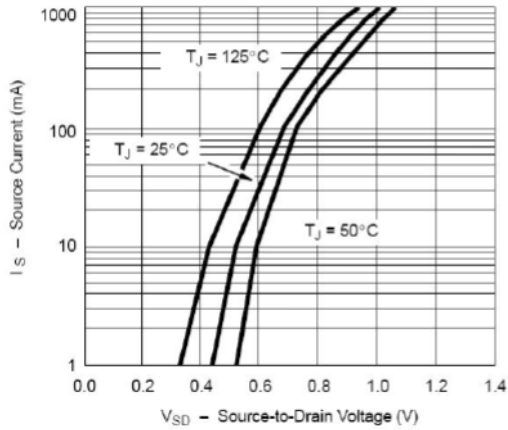


### 6. On-Resistance vs. Junction Temperature

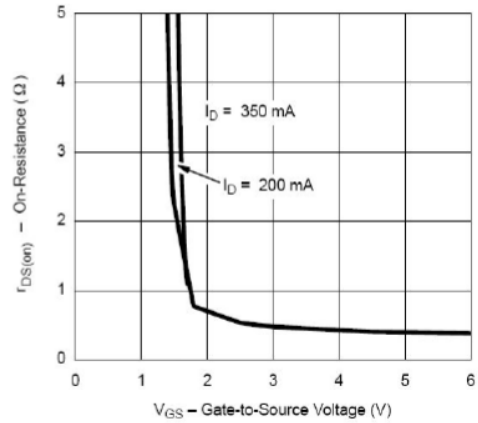




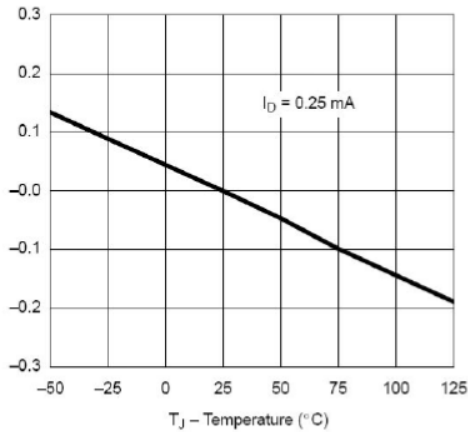
7. Source-Drain Diode Forward Voltage



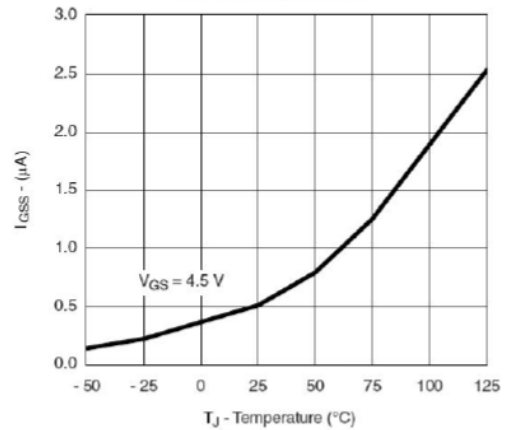
8. On-Resistance vs. Gate-to-Source Voltage



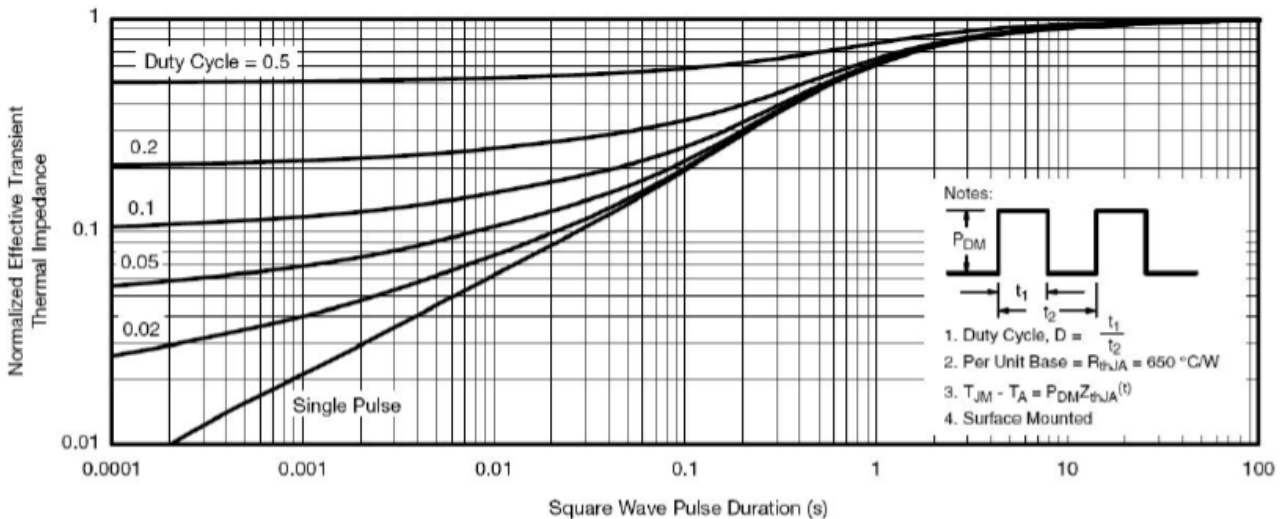
9. Threshold Voltage Variance vs. Temperature



10. IGGS vs. Temperature



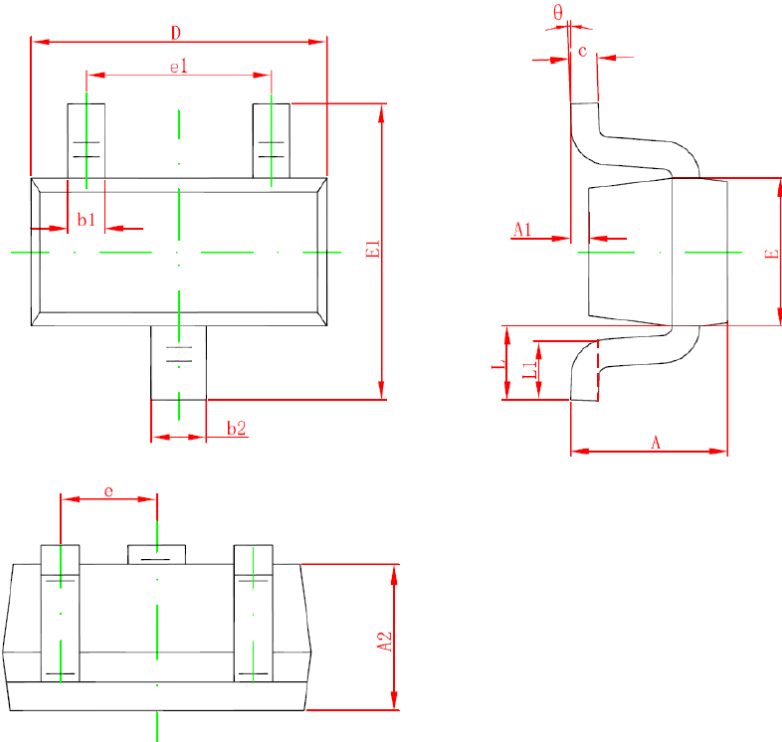
11. Normalized Thermal Transient Impedance, Junction-to-Ambient





## PACKAGE INFORMATION

Dimension in SC89-3 (SOT-523) Package (Unit: mm)



SYMBOL	MIN	MAX
A	0.700	0.900
A1	0.000	0.100
A2	0.700	0.800
b1	0.150	0.250
b2	0.250	0.350
c	0.100	0.200
D	1.500	1.700
E	0.700	0.900
E1	1.450	1.750
e	0.500(TYP)	
e1	0.900	1.100
L	0.400(REF)	
L1	0.260	0.460
$\theta$	0°	8°



## IMPORTANT NOTICE

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