DESCRIPTION

The AM3095 is available in the SOT-89 Package.

VDSS	RDSON	ID
-30V	45mΩ	-5A

APPLICATIONS

- Notebook
- Load Switch
- Hand-Held Instruments
- Battery Power Management

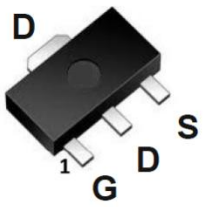
ORDERING INFORMATION

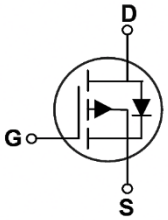
Package Type	Part Number	
SOT-89 SPQ:1,000pcs/Reel	K3	AM3095K3R
		AM3095K3VR
Note	V: Halogen free Package R: Tape & Reel	
AiT provides all RoHS products		

FEATURES

- -30V, -5A
  $R_{DS(ON)}$ Typ. = 45mΩ @ V_{GS} = -10V
  $R_{DS(ON)}$ Typ. = 59mΩ @ V_{GS} = -4.5V
- Fast Switching
- Excellent $R_{DS(ON)}$ and Low Gate Charge
- Green Device available

PIN DESCRIPTION





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

ABSOLUTE MAXIMUM RATINGS

T_J=25℃, unless otherwise Noted

V_{DS}, Drain-to-Source Voltage		-30V
V_{GS}, Gate-to-Source Voltage		±12V
I_D, Continue Drain Current	T_C=25℃	-5A
	T_C=70℃	-3A
I_{DM}, Pulsed Drain Current (1)		-15.4A
E_{AS}, Single Pulse Avalanche Energy (2)		64mJ
P_D, Power Dissipation	T_C=25℃	1.56W
$R_{\theta JC}$, Thermal Resistance, Junction to Case		80 ℃/W
T_J, Operating Junction Temperature Range		-55℃~+150℃
T_{STG}, Storage Temperature Range		-55℃~+150℃

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.

ELECTRICAL CHARACTERISTICS

T_J = 25°C, unless otherwise Noted

Parameter	Symbol	Conditions	Min	Typ.	Max	Unit
Off Characteristic						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=250μA	-30	-	-	V
$V_{(BR)DSS}$ Temperature Coefficient	$\Delta V_{DSS}/\Delta T_J$	I_D=1mA	-	-0.03	-	
Drain-Source Leakage Current	I_{DSS}	V_{DS}=-30V, V_{GS}=0V	-	-	-1	μA
		V_{DS}=-24V, V_{GS}=0V T_J=125℃	-	-	-10	
Gate-Body Leakage Current	I_{GSS}	V_{DS}= 0V, V_{GS}=±12V	-	-	±100	nA
On Characteristic						
Static Drain-Source ON-Resistance *	$R_{DS(ON)}$	V_{GS}=10V, I_D=-4A	-	45	59	mΩ
		V_{GS}=-4.5V, I_D=-3A	-	59	74	
		V_{GS}=-2.5V, I_D=-2A		82	97	
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=-250μA	-0.4	-0.8	-1.3	V
$V_{GS(th)}$ Temperature Coefficient	$\Delta V_{GS(th)}$		-	3	-	mV/℃
Forward Transconductance	gfs	V_{DS}=-10V, I_D=-3A		5.4		S
Dynamic Characteristic						
Input Capacitance	C_{iss}	V_{DS}=-15V, V_{GS}=0V, f=1MHz	-	810	-	pF
Output Capacitance	C_{oss}		-	85	-	
Reverse Transfer Capacitance	C_{rss}		-	50	-	
Total Gate Charge	Q_G	V_{DS}= -15V, I_D=4A, V_{GS}= -4.5V	-	8	-	nC
Gate-Source charge	Q_{gS}		-	1.9	-	
Gate-Drain charge	Q_{gd}		-	1.4	-	
Switching Characteristic						
Turn-On Delay Time	$t_{d(on)}$	V_{DD}= -15V, R_{GEN}=6Ω V_{GS}= -10V, I_D=1A	-	5.4	-	ns
Rise Time	t_r		-	19.4	-	
Turn-Off Delay Time	$t_{d(off)}$		-	45.9		
Fall Time	t_f		-	12.4	-	
Drain-Source Diode Characteristics and Max Ratings						
Continuous Source Current	I_S	V_G=V_D=0V, Force Current	-	-	-5.0	A
Pulsed Source Current	I_{SM}		-	-	-15.4	
Drain to Source Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=1A	-	-	-1.3	V
Body Diode Reverse Recovery Time	t_{rr}	I_F=30A, di/dt=100A/μs	-	115	-	ns
Body Diode Reverse Recovery Charge	Q_{rr}		-	150	-	nC

* Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%.

TYPICAL PERFORMANCE CHARACTERISTICS

Fig 1. Output Characteristics

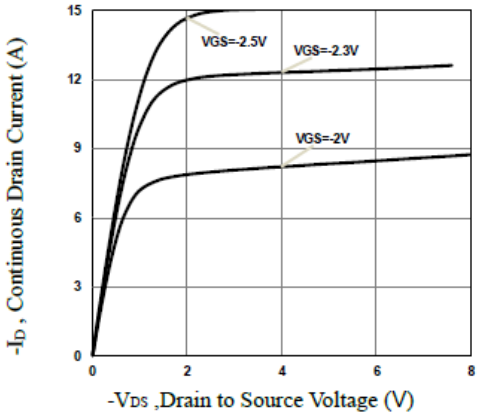


Fig 2. Typical Transfer Characteristics

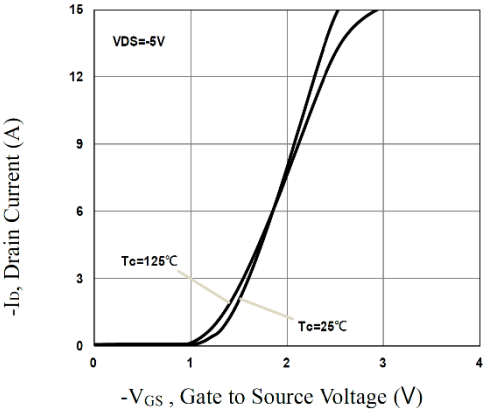


Fig 3. On-Resistance vs. Drain Current

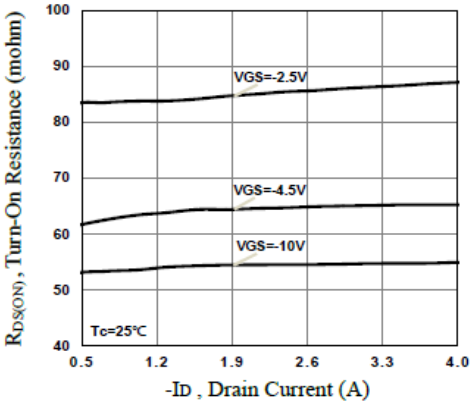


Fig 4. Turn-On Resistance vs. V_{GS}

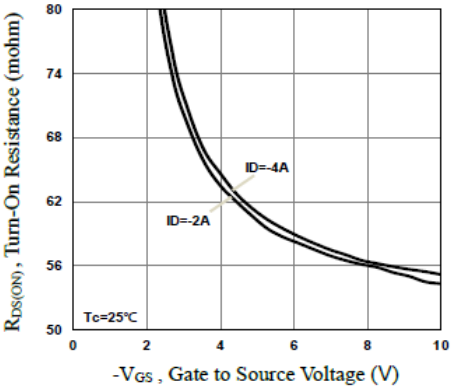


Fig 5. Gate Charge Characteristics

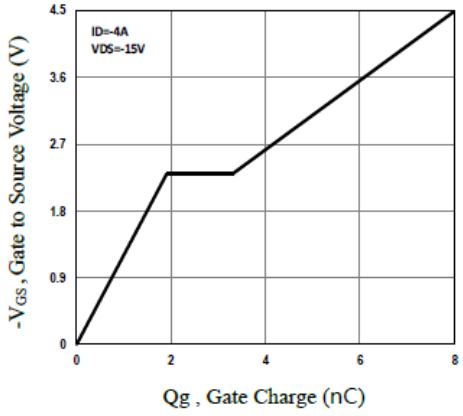


Fig 6. Capacitance Characteristics

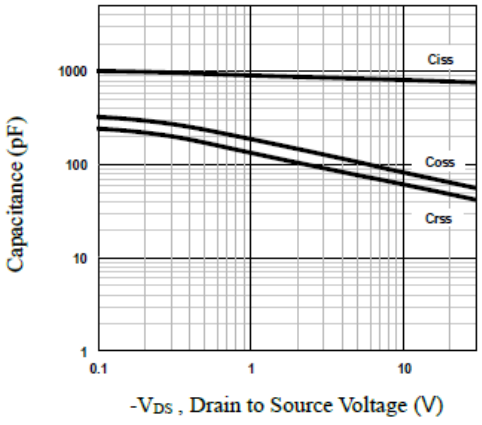


Fig 7. Normalized $V_{GS(th)}$ vs. T_J

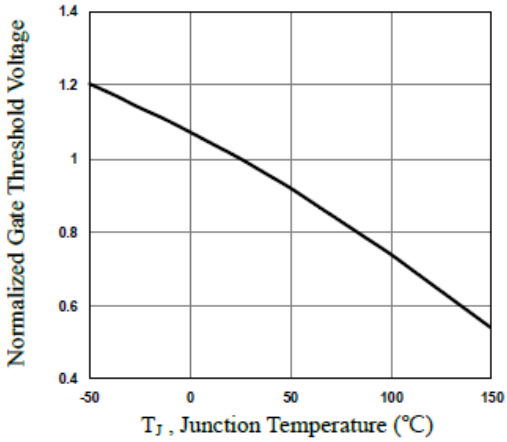


Fig 8. Normalized On-Resistance vs. T_J

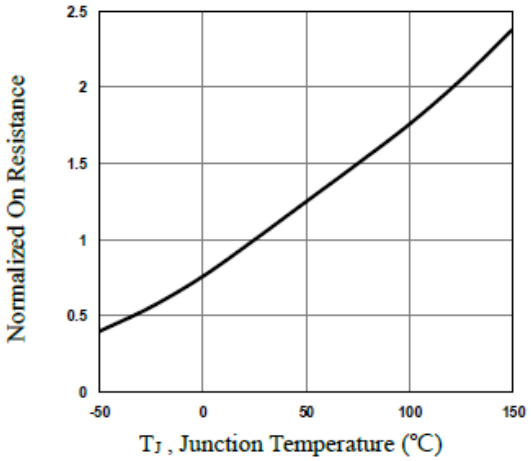


Fig 9. Maximum Safe Operating Area

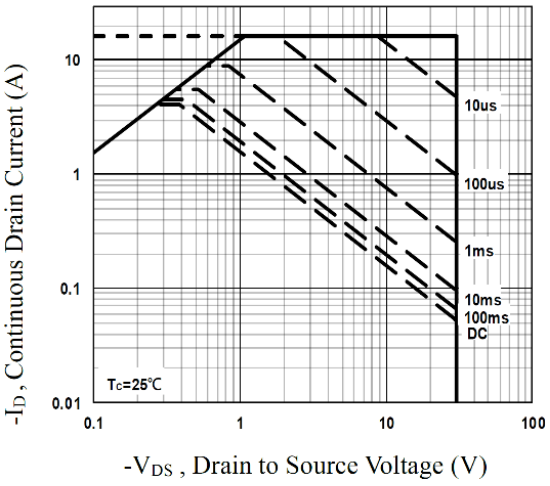


Fig 10. Maximum Continuous Drain Current vs. Case Temperature

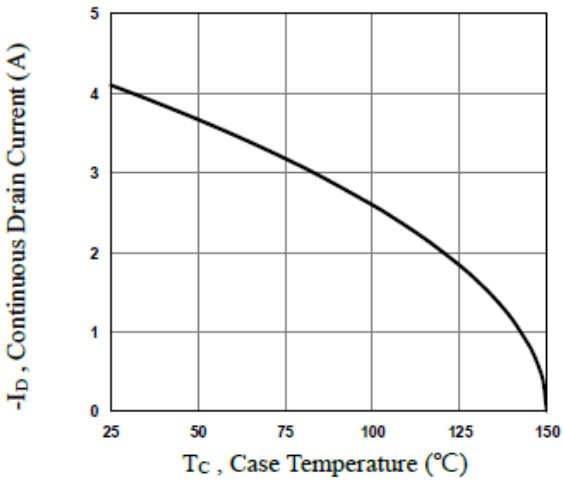
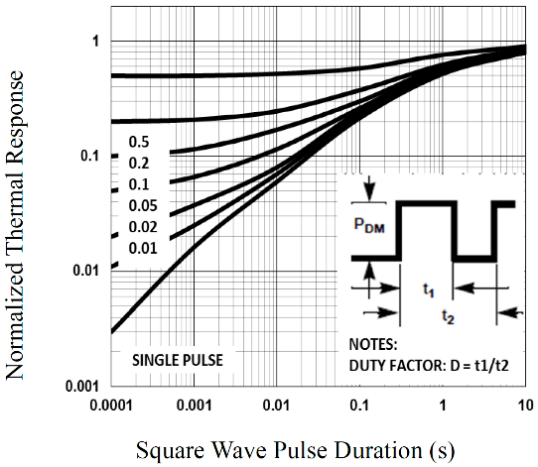
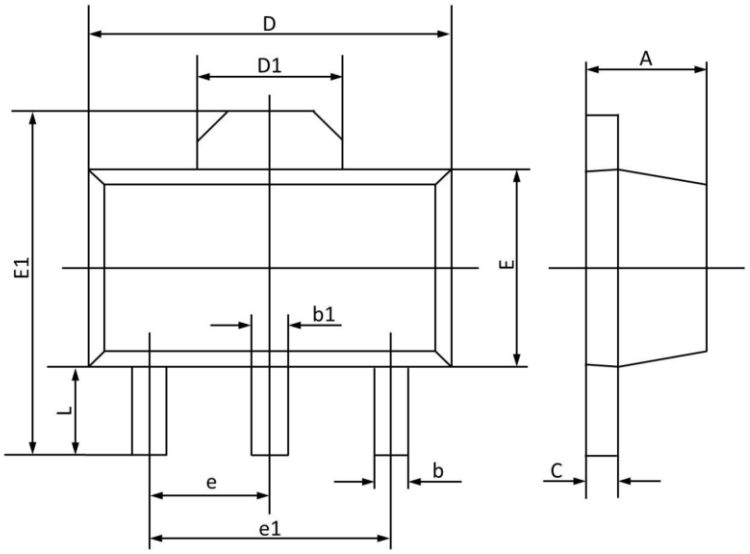


Fig 11. Normalized Maximum Transient Thermal Impedance



PACKAGE INFORMATION

Dimension in SOT-89(Unit: mm)



Symbol	Millimeter	
	Min.	Max.
A	1.400	1.600
b	0.320	0.520
b1	0.400	0.580
C	0.350	0.440
D	4.400	4.600
D1	1.550 REF	
E	2.300	2.600
E1	3.940	4.250
e	1.500 TYP.	
e1	3.000 TYP.	
L	0.900	1.200

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