



DESCRIPTION

$V_{DS}=20V$

$V_{GS}=\pm 8V$

$I_{D(A)}=0.83A$

$R_{DS(ON)}=200m\Omega(Typ.)@V_{GS}=4.5V$

$R_{DS(ON)}=245m\Omega(Typ.)@V_{GS}=2.5V$

$R_{DS(ON)}=310m\Omega(Typ.)@V_{GS}=1.8V$

$R_{DS(ON)}=380m\Omega(Typ.)@V_{GS}=1.5V$

$R_{DS(ON)}=680m\Omega(Typ.)@V_{GS}=1.2V$

The AM4452 is available in SC89-3 package.

ORDERING INFORMATION

Package Type	Part Number	
SC89-3 SPQ:3,000pcs/Reel	CK3	AM4452CK3R
		AM4452CK3VR
Note	V: Halogen free Package R: Tape & Reel	
AiT provides all RoHS products		

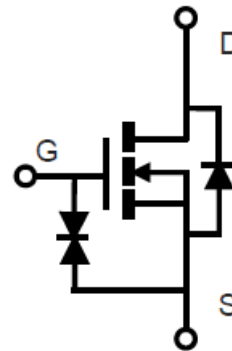
FEATURES

- High-speed switching, Low On-resistance
- 1.2V Low gate drive
- ESD protected
- Available in SC89-3 package

APPLICATIONS

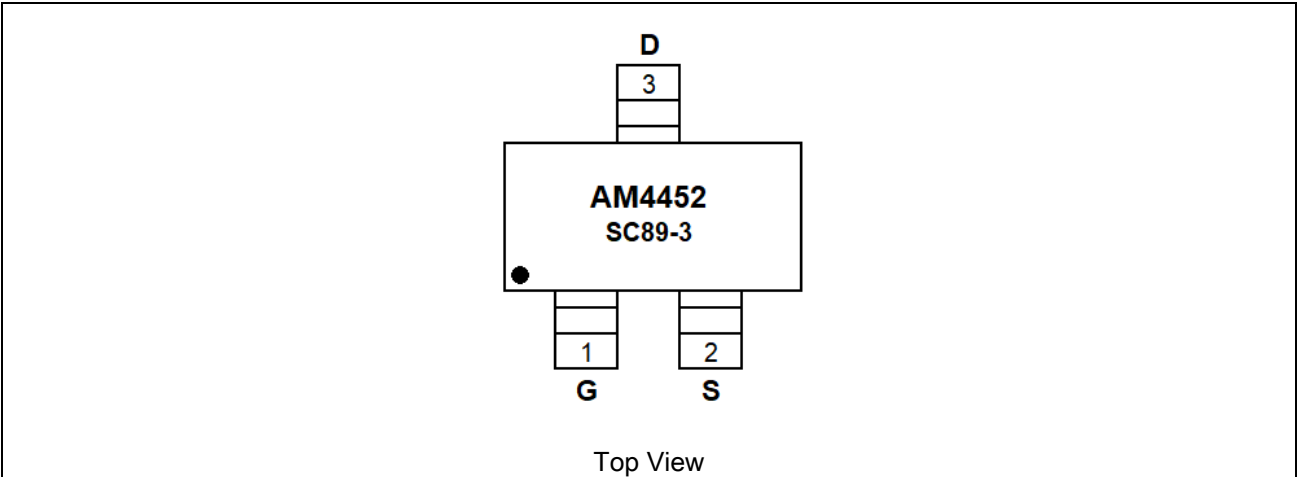
- Hand-Held Instruments
- Switching application

P-CHANNEL MOSFET





PIN DESCRIPTION



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



ABSOLUTE MAXIMUM RATINGS

$T_A = 25^\circ\text{C}$

V_{DS} , Drain-Source Voltage		20V
V_{GS} , Gate-Source Voltage		$\pm 8\text{V}$
I_D , Continuous Drain Current	$T_A = 25^\circ\text{C}$	0.83A
	$T_A = 70^\circ\text{C}$	0.67A
I_{DM} , Pulsed Drain Current ^{NOTE2}		1.8A
P_D , Power Dissipation ^{NOTE1}	$T_A = 25^\circ\text{C}$	0.3W
	$T_A = 70^\circ\text{C}$	0.19W
T_J , Operation Junction Temperature		$-55^\circ\text{C} \sim 150^\circ\text{C}$
T_{STG} , Storage Temperature Range		$-55^\circ\text{C} \sim 150^\circ\text{C}$

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.

THERMAL CHARACTERISTICS

Parameter		Symbol	Typ	Max	Unit
Thermal Resistance Junction to Ambient ^{NOTE1, 3}	Steady-State	$R_{\theta JA}$	-	415	$^\circ\text{C/W}$

NOTE1: Surface mounted on FR4 board using 1 in² pad size.

NOTE2: Pulsed width limited by maximum junction temperature, $T_{J(MAX)}=150^\circ\text{C}$ (initial temperature $T_J=25^\circ\text{C}$).

NOTE3: Using $\leq 10\text{s}$ junction-to-ambient thermal resistance is base on $T_{J(MAX)}=150^\circ\text{C}$.



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	0.6	1	V
Gate Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±8V	-	-	±10	μA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =20V, V _{GS} =0V, T _J =25°C	-	-	1	μA
		V _{DS} =12V, V _{GS} =0V, T _J =85°C	-	-	10	
Drain-source On-Resistance ^{NOTE4}	R _{DS(ON)}	V _{GS} =4.5V, I _D =0.83A	-	200	270	mΩ
		V _{GS} =2.5V, I _D =0.5A	-	245	380	
		V _{GS} =1.8V, I _D =0.3A	-	310	500	
		V _{GS} =1.5V, I _D =0.2A	-	380	600	
		V _{GS} =1.2V, I _D =0.1A	-	680	1000	
Forward Transconductance	G _{fs}	V _{DS} =5V, I _D =0.5A	-	1.7	-	S
Diode Characteristics						
Diode Forward Voltage ^{NOTE4}	V _{SD}	I _S =0.2A, V _{GS} =0V	-	-	1	V
Diode Continuous Forward Current	I _S		-	-	0.42	A
Reverse Recovery Time	t _{rr}	I _S =0.5A, dI/dt=100A/μs	-	8.8	-	ns
Reverse Recovery Charge	Q _{rr}		-	0.8	-	nC
Dynamic and Switching Parameters^{NOTE5}						
Total Gate Charge	Q _g	V _{DS} =10V, V _{GS} =4.5V, I _D =0.5A	-	0.97	-	nC
Gate-Source Charge	Q _{gs}		-	0.28	-	
Gate-Drain Charge	Q _{gd}		-	0.12	-	
Input Capacitance	C _{iss}	V _{DS} =10V, V _{GS} =0V, f=1MHz	-	42	-	pF
Output Capacitance	C _{oss}		-	9	-	
Reverse Transfer Capacitance	C _{rss}		-	6	-	
Turn-On Time	t _{d(on)}	V _{DD} =10V, V _{GS} =4.5V R _G =6Ω, I _D =0.5A	-	6	11	ns
	t _r		-	3.8	7	
Turn-Off Time	t _{d(off)}		-	14	23	
	t _f		-	15	29	

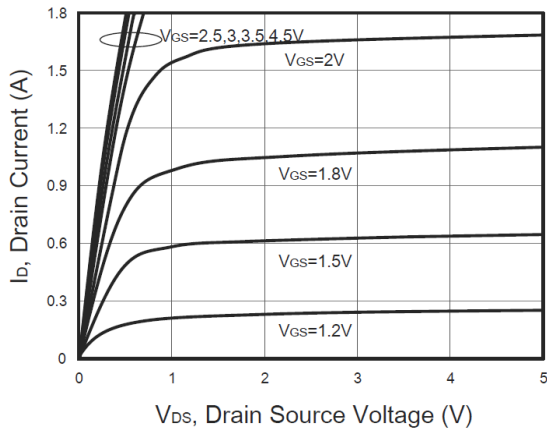
NOTE4: Pulse test width ≤300μs and duty cycle ≤ 2%.

NOTE5: Guaranteed by design, not subject to production testing.

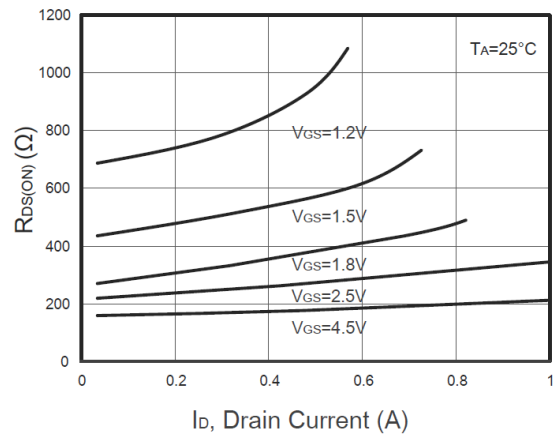


TYPICAL ELECTRICAL CHARACTERISTICS

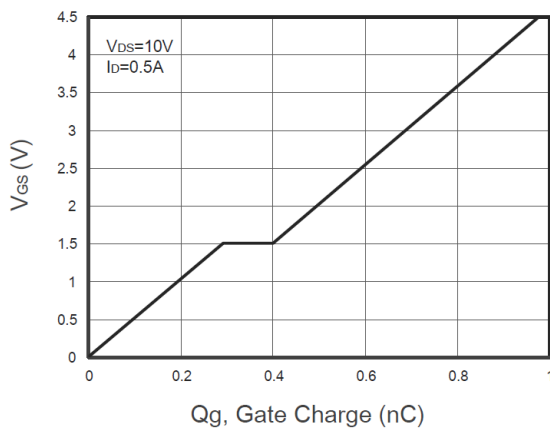
1. Output Characteristics



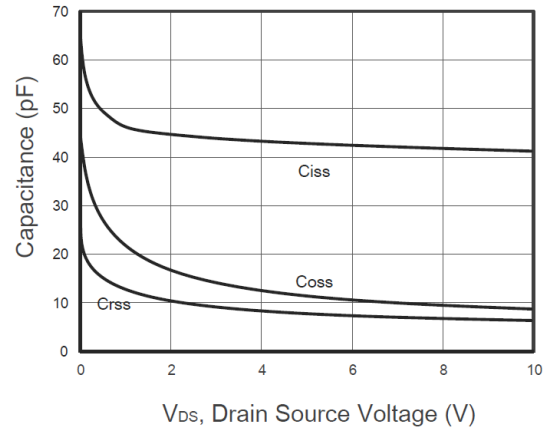
2. Drain-Source On Resistance



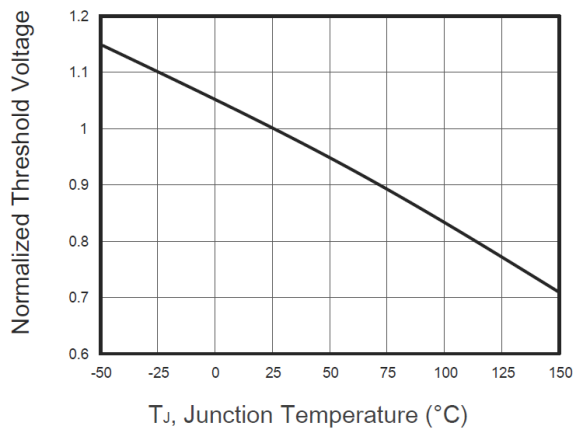
3. Gate Charge



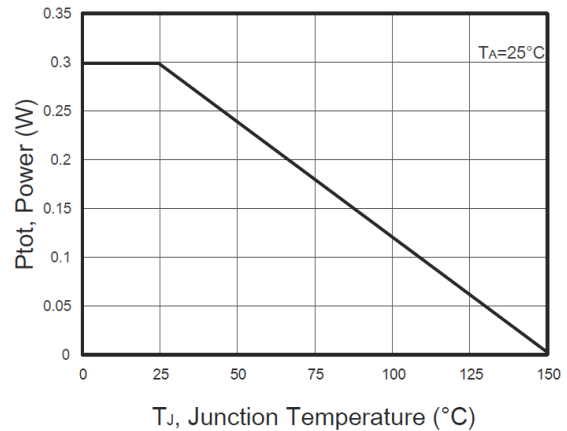
4. Capacitance



5. Gate Threshold Voltage

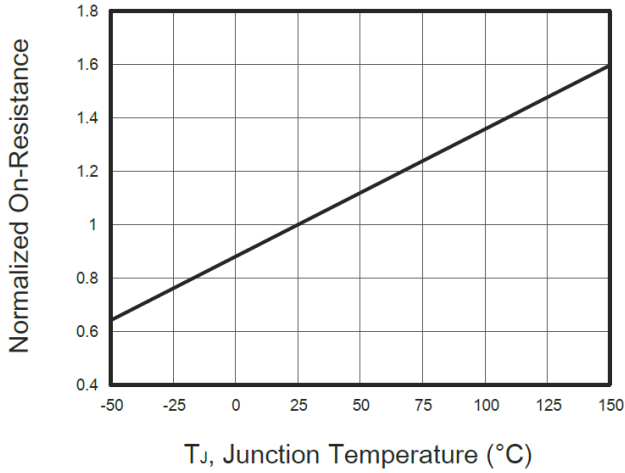


6. Power Dissipation

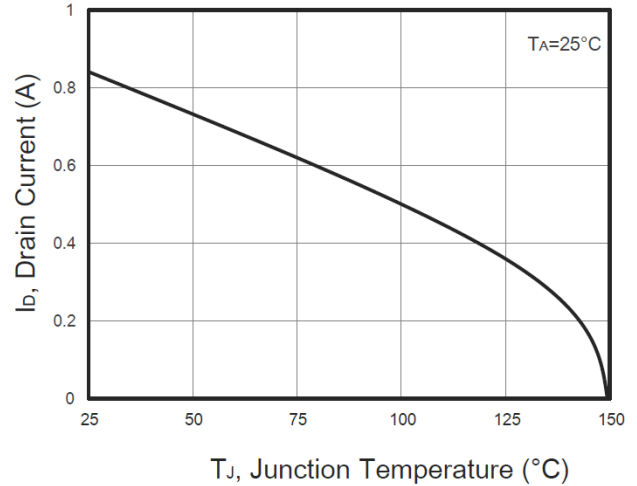




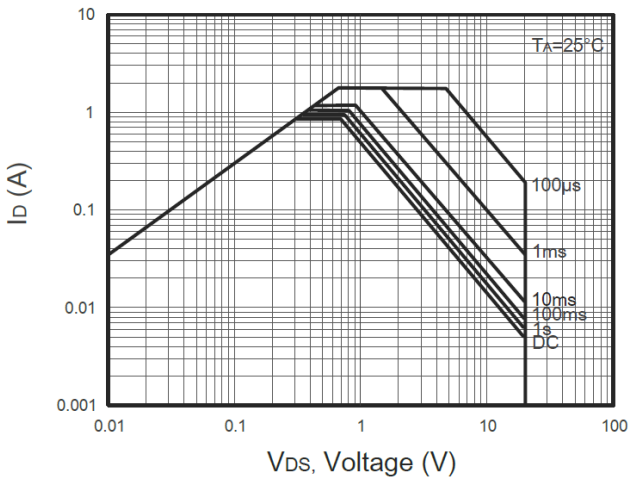
7. Drain-Source On Resistance



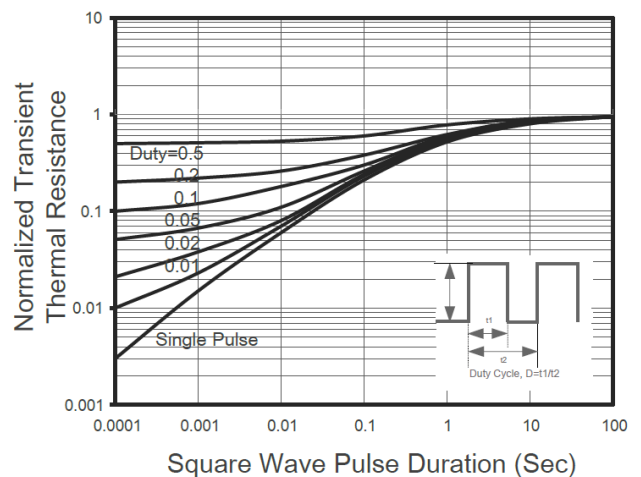
8. Drain Current vs T_J



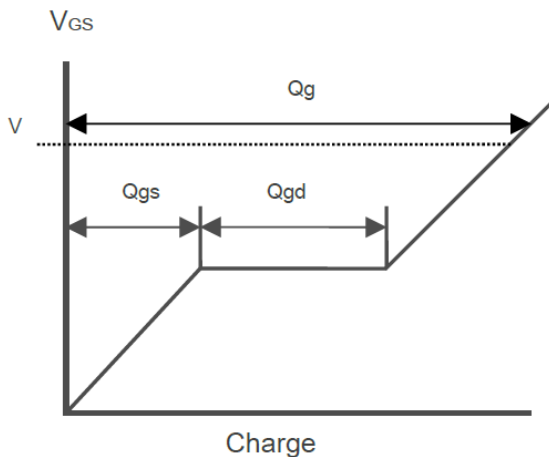
9. Maximum Safe Operation Area



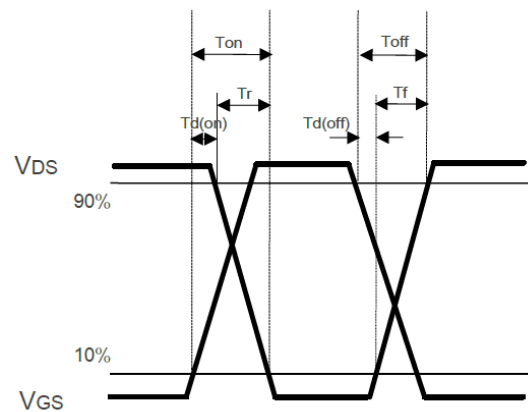
10. Thermal Transient Impedance



11. Gate Charge Waveform



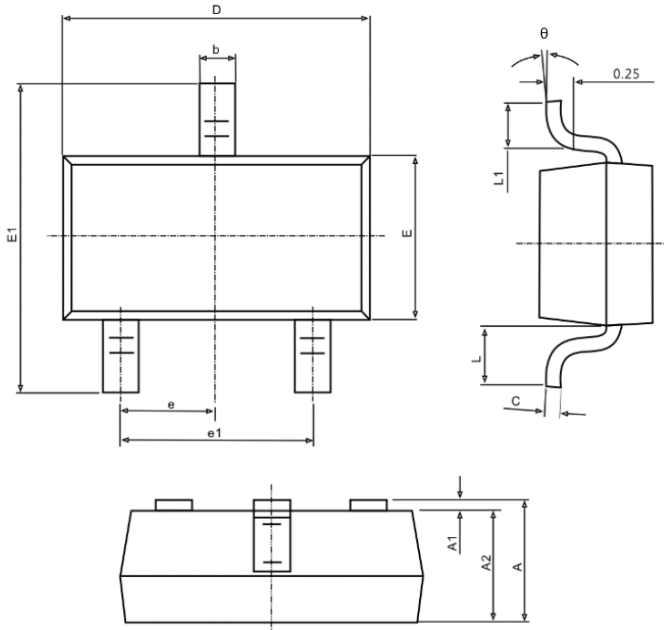
12. Switching Time Waveform



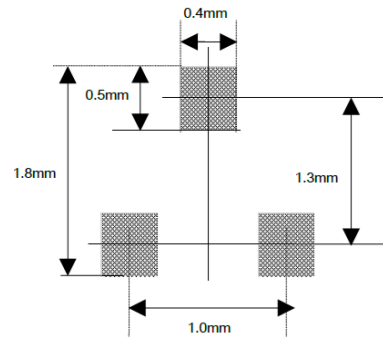


PACKAGE INFORMATION

Dimension in SC89-3 Package (Unit: mm)



Recommended Land Pattern



Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	0.700	0.900	0.028	0.035
A1	0.000	0.100	0.000	0.004
A2	0.700	0.800	0.028	0.031
b	0.250	0.350	0.100	0.014
c	0.100	0.200	0.004	0.008
D	1.500	1.750	0.059	0.069
E	0.700	0.900	0.028	0.035
E1	1.400	1.750	0.055	0.069
e	0.500 TYP		0.020 TYP	
e1	0.900	1.100	0.035	0.043
L	0.300	0.460	0.012	0.018
L1	0.260	0.460	0.010	0.018
θ	0°	8	0°	8



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