



DESCRIPTION

The AM4409 is the P-Channel logic enhancement mode power field effect transistor is produced using high cell density advanced trench technology..

This high density process is especially tailored to minimize on-state resistance. These devices are particularly suited for low voltage application, notebook computer power management and other battery powered circuits where high-side switching

AM4409 is available in SOP8 package.

ORDERING INFORMATION

Package Type	Part Number	
SOP8 SPQ: 3,000pcs/Reel	M8	AM4409M8R
		AM4409M8VR
Note	V: Halogen free Package R: Tape & Reel	
AiT provides all RoHS products		

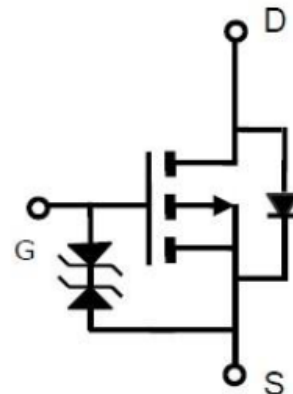
FEATURES

- -30V/-15A, $R_{DS(ON)}=5.5m\Omega$ (typ.)@ $V_{GS}=-10V$
- -30V/-10A, $R_{DS(ON)}=6.5m\Omega$ (typ.)@ $V_{GS}=-4.5V$
- Super high design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and Maximum DC current capability
- ESD Protected: 3kV
- Available in SOP8 package.

APPLICATION

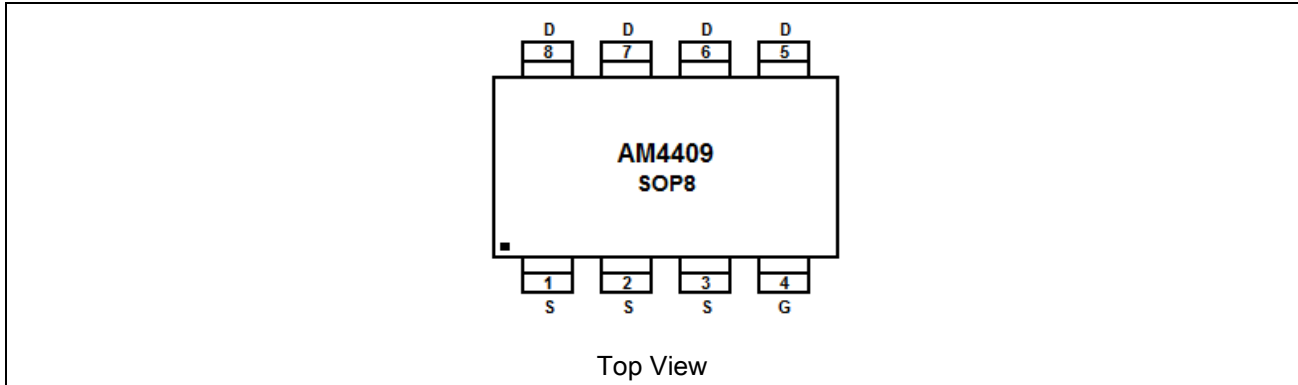
- High Frequency Point-of-Load Synchronous
- Networking DC-DC Power System
- Load Switch

PIN DESCRIPTION





PIN DESCRIPTION



Pin #	Symbol	Function
1	S	Source
2	S	Source
3	S	Source
4	G	Gate
5	D	Drain
6	D	Drain
7	D	Drain
8	D	Drain



ABSOLUTE MAXIMUM RATINGS

T_A = 25°C, unless otherwise noted

V _{DSS} , Drain-Source Voltage		-30V
V _{GSS} , Gate-Source Voltage		±20V
I _D , Continuous Drain Current (V _{GS} =10V)	T _A =25°C	-17A
I _{DM} , Pulsed Drain Current		-80A
I _S , Continuous Source Current (Diode Conduction)		-2.7A
P _D , Power Dissipation	T _A =25°C	3.0W
	T _A =70°C	2.1W
T _J , Operation Junction Temperature		150°C
T _{STG} , Storage Temperature Range		-55°C~150°C
R _{θJA} , Thermal Resistance Junction to Ambient		85°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_A = 25°C, unless otherwise noted

Parameter	Symbol	Conditions	Min	Typ.	Max	Units
Static Parameters						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _{DS} =-250μA	-30	-	-	V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _{DS} =-250μA	-1.0	-1.3	-2.0	V
Gate Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±16V	-	-	±10	μA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-24V, V _{GS} =0V	-	-	±1	μA
		T _J =55°C	-	-	±5	
Drain-Source On-state Resistance	R _{DS(on)}	V _{GS} =-20V, I _{DS} =-15A	-	5.5	8.0	mΩ
		V _{GS} =-10V, I _{DS} =-10A	-	7.0	9.0	
Source-Drain Diode						
Diode Forward Voltage	V _{SD}	I _{SD} =-1.0A, V _{GS} =0V	-	-0.71	-1.0	V
Dynamic Parameters						
Total Gate Charge	Q _g	V _{DS} =-15V, V _{GS} =-4.5V, I _{DS} =-15A	-	37.08	48.2	nC
Gate-Source Charge	Q _{gs}		-	10.12	13.16	
Gate-Drain Charge	Q _{gd}		-	11.24	14.61	
Input Capacitance	C _{iss}	V _{DS} =-15V, V _{GS} =0V, f=1.0MHz	-	3887	-	pF
Output Capacitance	C _{oss}		-	577	-	
Reverse Transfer Capacitance	C _{rss}		-	425	-	
Turn-on Time	t _{d(on)}	V _{DS} =-15V, I _D =-10A, V _{GEN} =-10V, R _G =6Ω	-	19.52	39.04	ns
	t _r		-	10.12	20.34	
Turn-off Time	t _{d(off)}		-	137.6	275.2	
	t _f		-	55.32	110.64	

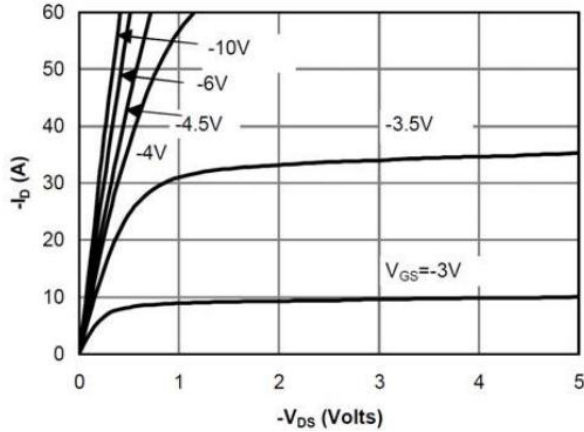
NOTE1: Pulse test; pulse width ≤ 300μs, duty cycle ≤ 2%.

NOTE2: Static parameters are based on package level with recommended wire bonding

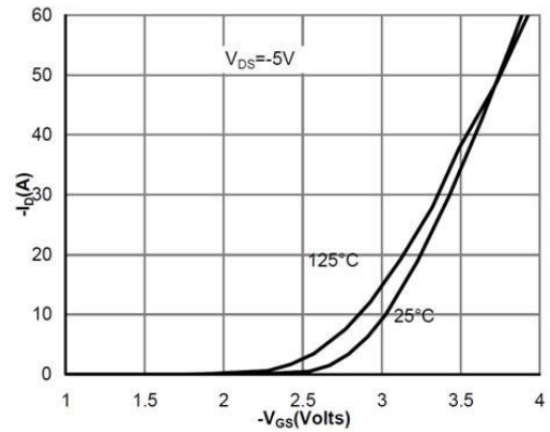


TYPICAL CHARACTERISTICS

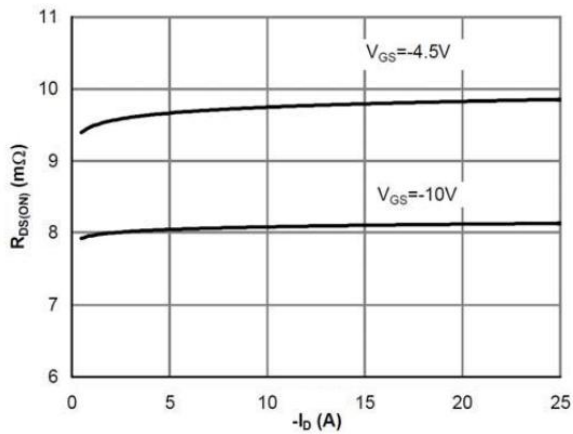
1. On-Region Characteristics



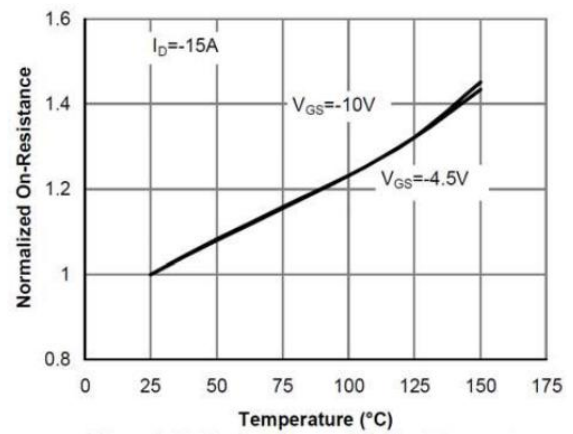
2. Transfer Characteristics



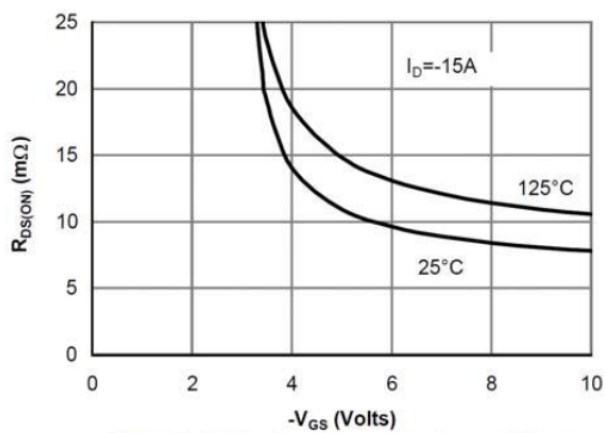
3. On-Resistance vs. Drain Current and Gate Voltage



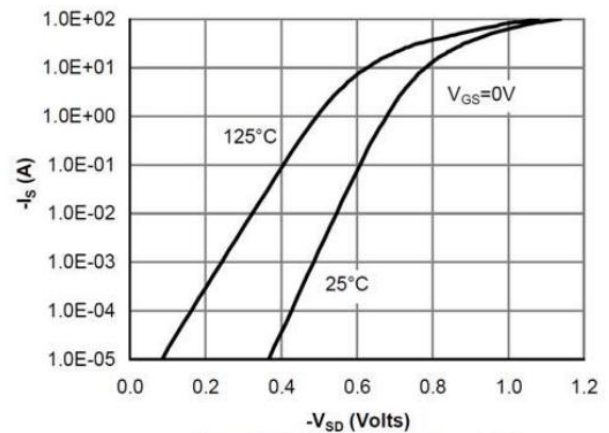
4. On-Resistance vs. Junction Temperature



5. On-Resistance vs. Gate-Source Voltage

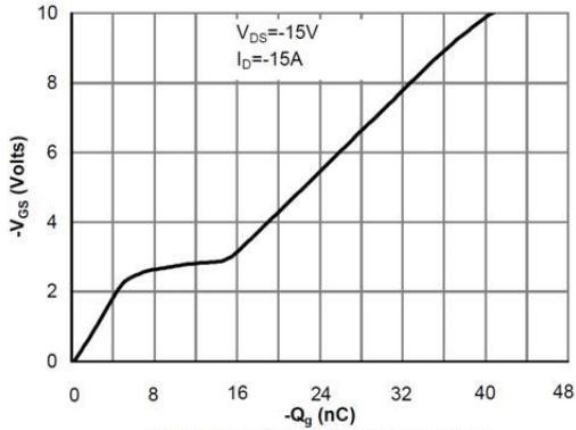


6. Body-Diode Characteristics

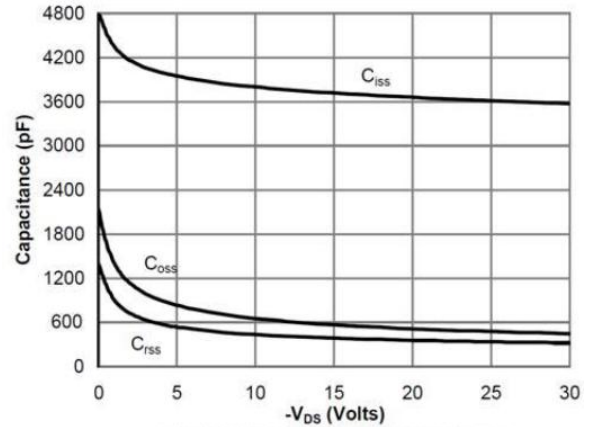




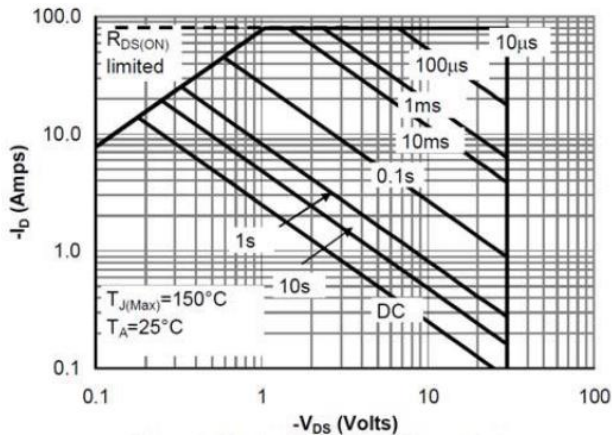
7. Gate-Charge Characteristics



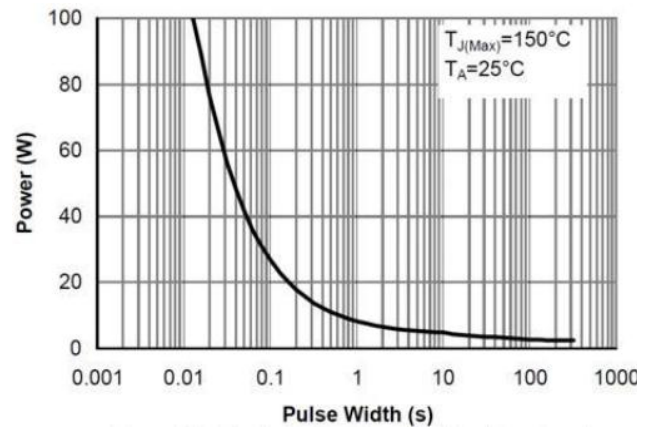
8. Capacitance Characteristics



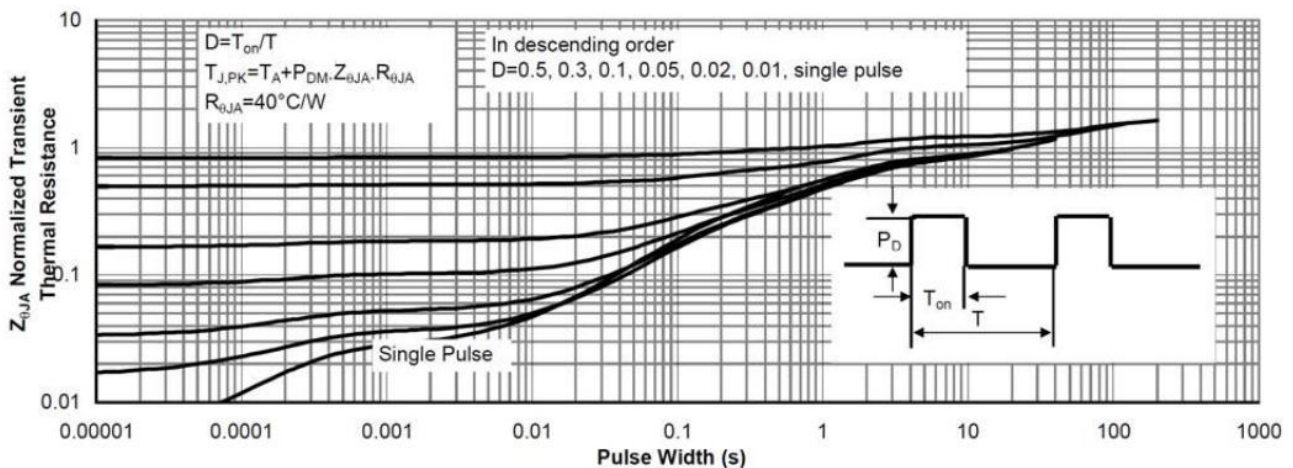
9. Maximum Forward Biased Safe Operating Area



10. Single Pulse Power Rating Junction-to-Ambient



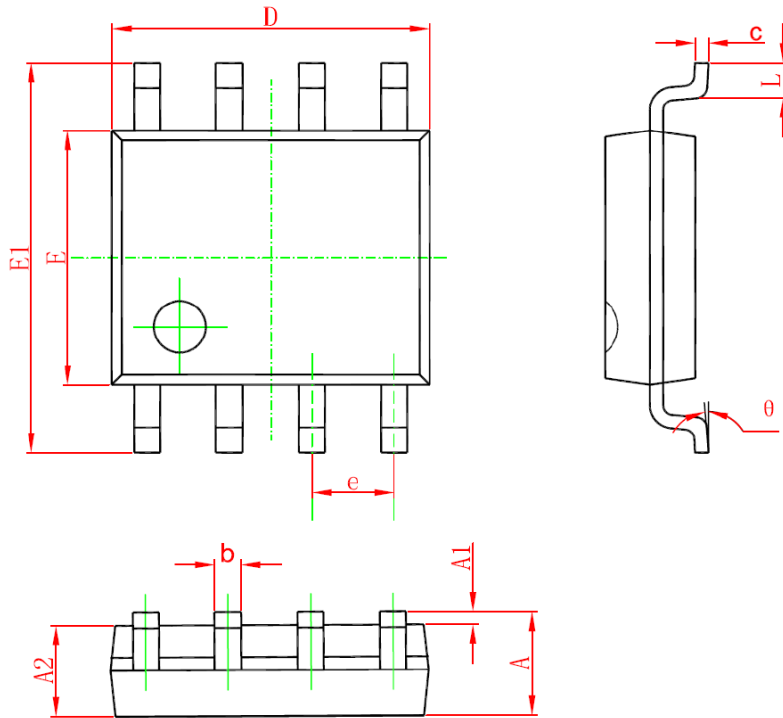
11. Normalized Maximum Transient Thermal Impedance





PACKAGE INFORMATION

Dimension in SOP8 Package (Unit: mm)



Symbol	Millimeters		Inches	
	MIN.	MAX.	MIN.	MAX.
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270(BSC)		0.050(BSC)	
L	0.400	1.270	0.016	0.050
theta	0°	8°	0°	8°



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