-30V P-Channel Enhancement Mode MOSFET

DESCRIPTION

The AM9435 is the P-Channel logic enhancement mode power field effect transistors are produced using high cell density, DMOS 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.

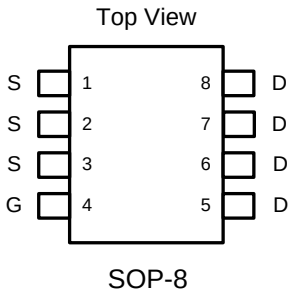
FEATURE

- ***-30V/-5.2A, $R_{DS(ON)}$ < 60mΩ@V_{GS} = -10V***
- ***-30V/-4.5A, $R_{DS(ON)}$ <90mΩ@V_{GS} = -6.0V***
- ***-30V/-4.0A, $R_{DS(ON)}$ <120mΩ@V_{GS} = -4.5V***
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- Full RoHS compliance
- SOP-8 package design

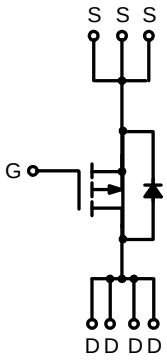
APPLICATIONS

- Power Management in Note book
- Portable Equipment
- Battery Powered System
- DC/DC Converter
- Load Switch
- DSC
- LCD Display inverter

PIN CONFIGURATION

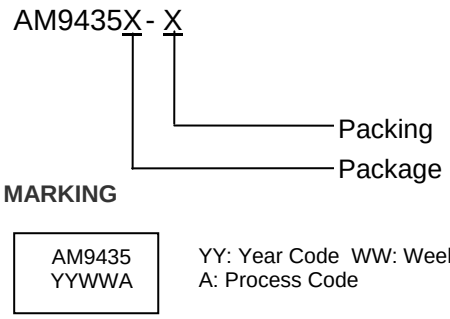


TOP VIEW
SOP-8



P-Channel

■PART MARKING INFORMATION



Package
S : SOP-8

Packing
Blank : Tube
A : Taping

■ORDERING INFORMATION

Part Number	Package Code	Package	Shipping
AM9435S-A	S	SOP-8	2500 /Tape&Reel

※ Year Code : 00 ~ 99
※ Week Code : 01~52
※ SOP-8 : Only available in tape and reel packaging. (A reel contains 2500 devices)

■ABSOLUTE MAXIMUM RATINGS (T_A = 25℃ Unless otherwise noted)

Symbol	Parameter		Typical	Unit
V_{DSS}	Drain-Source Voltage		-30	V
V_{GSS}	Gate-Source Voltage		±20	V
I_D	Continuous Drain Current (T_J=150℃)	V_{GS} = -10V	-5.2	A
I_{DM}	Pulsed Drain Current		-20	A
I_S	Continuous Source Current (Diode Conduction)		-2.4	A
T_J	Operation Junction Temperature		-55~150	℃
T_{STG}	Storage Temperature Range		-55~150	℃
P_D	Power Dissipation	T_A=25℃ T_A=70℃	2.8 1.8	W
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient		70	℃/W

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged.
Absolute maximum ratings are stress ratings only and functional device operation is not implied.

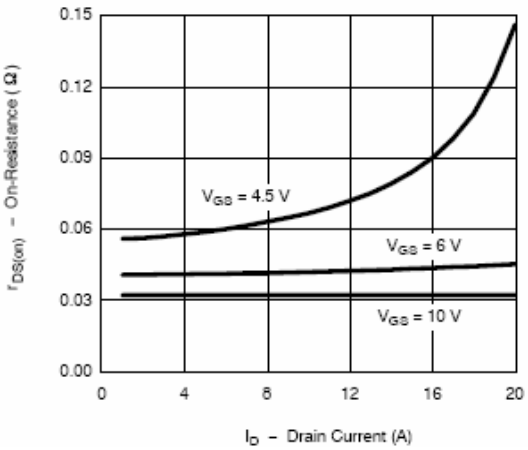
■ELECTRICAL CHARACTERISTICS(T_A = 25℃ Unless otherwise noted)

Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Parameters						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS} =0V,I_D =-250μA	-30			V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} =V_{GS},I_D =-250μA	-1.0		-3.0	V
I_{GSS}	Gate Leakage Current	V_{DS} =0V,V_{GS}=±20V			±100	nA
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} =-30V,V_{GS} =0V			-1	μA
		V_{DS} =-30V,V_{GS} =0V T_J =55℃			-5	
$I_{D(ON)}$	On-State Drain Current	V_{DS} ≦-5V,V_{GS} ≦-10V	-25			A
$R_{DS(ON)}$	Drain-source On-Resistance	V_{GS} =-10V,I_D=-5.2A V_{GS} =-6.0V, I_D=-4.5A V_{GS} =-4.5V, I_D=-4.0A		45 60 70	60 90 120	mΩ
G_{fs}	Forward Transconductance	V_{DS} =-10V,I_D =-5.2A		10		S
Source-Drain Doide						
Is	Diode forward Current (Max.)				2.6	A
V_{SD}	Diode Forward Voltage	I_S=-2.0A,V_{GS}=0V		-0.8	-1.2	V
Dynamic Parameters						
Q_g	Total Gate Charge	V_{DS} =-15V,V_{GS} =-10V I_D =-5.0A		15	10	nC
Q_{gs}	Gate-Source Charge			4.0		
Q_{gd}	Gate-Drain Charge			2.0		
C_{iss}	Input Capacitance	V_{DS} =-15V,V_{GS} =0V f =1MHz		680		pF
C_{oss}	Output Capacitance			120		
C_{rss}	Reverse Transfer Capacitance			75		
$t_{d(on)}$	Turn-On Time	V_{DD} =-15V,R_L =15Ω I_D =-1.0A,V_{GEN} =-10V R_G =6Ω		7.0	15	nS
t_r				10	20	
$t_{d(off)}$	Turn-Off Time			40	80	
t_f				20	40	

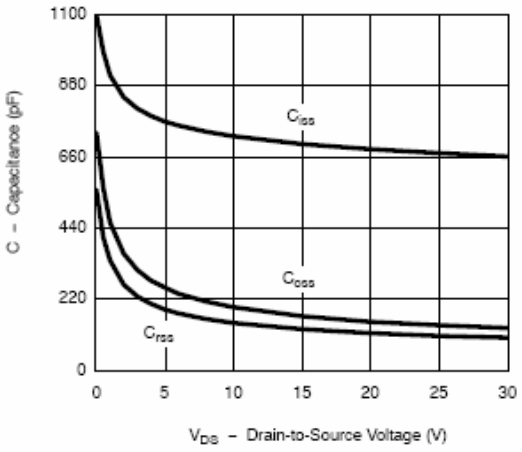
Note : 1. Pulse test: pulse width <= 300us, duty cycle<= 2%
2. Static parameters are based on package level with recommended wire-bonding

■ TYPICAL CHARACTERISTICS (25℃ Unless Note)

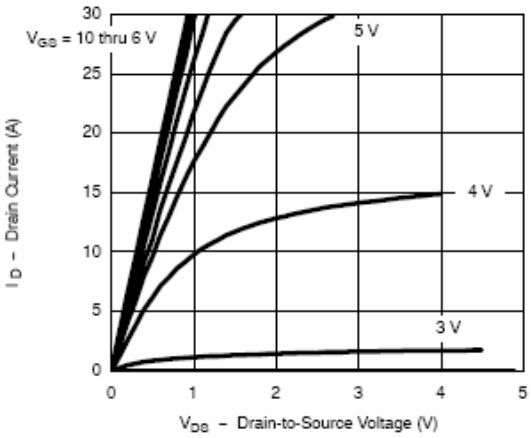
On-Resistance vs. Drain Current



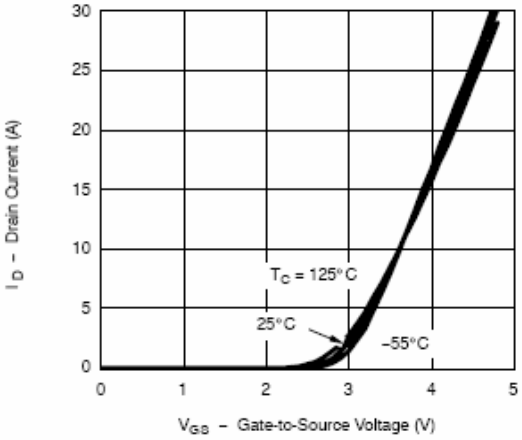
Capacitance



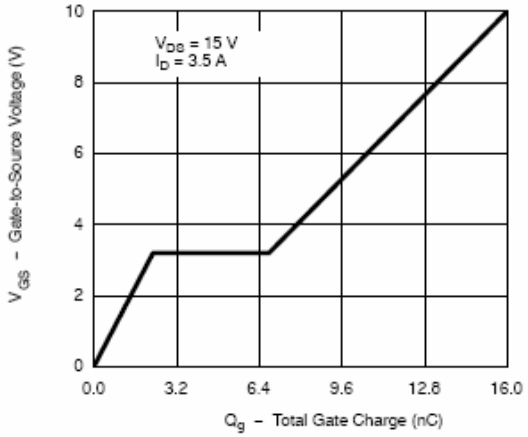
Output Characteristics



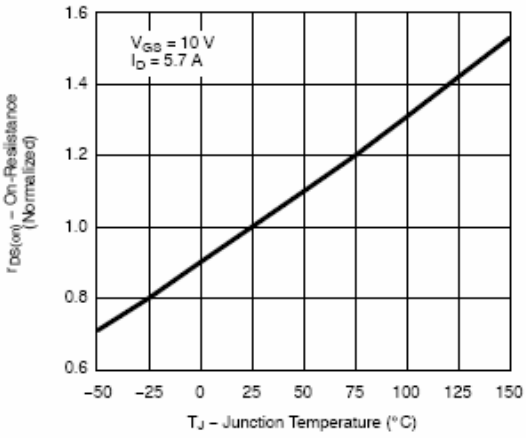
Transfer Characteristics



Gate Charge

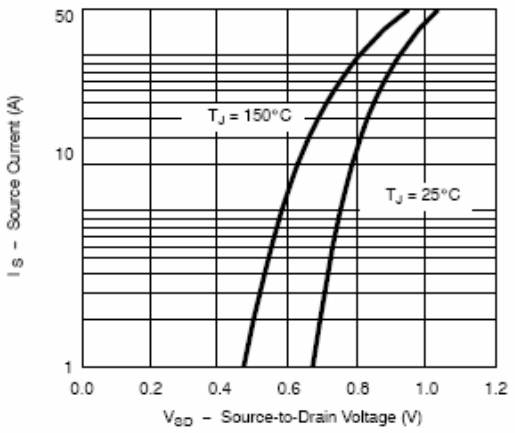


On-Resistance vs. Junction Temperature

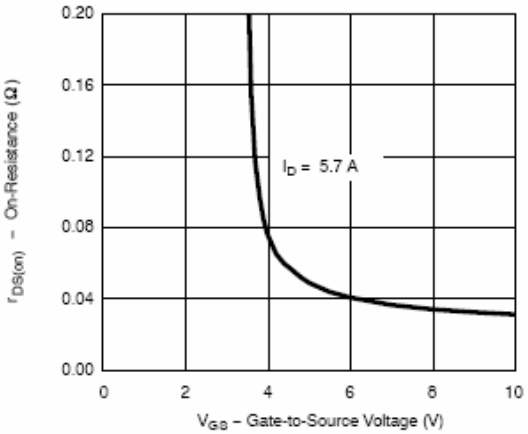


■ TYPICAL CHARACTERISTICS(25℃ Unless Note)

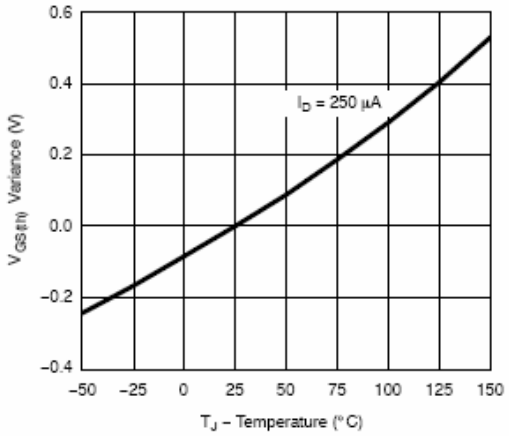
Source-Drain Diode Forward Voltage



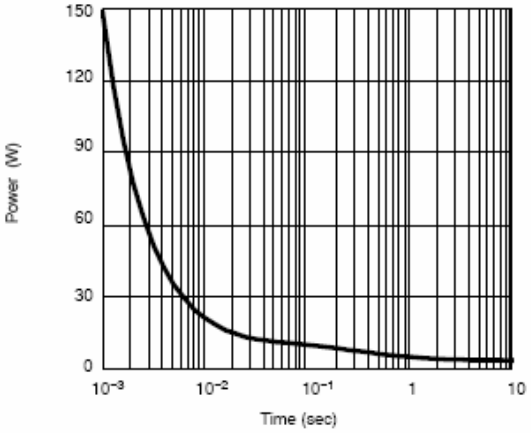
On-Resistance vs. Gate-to-Source Voltage



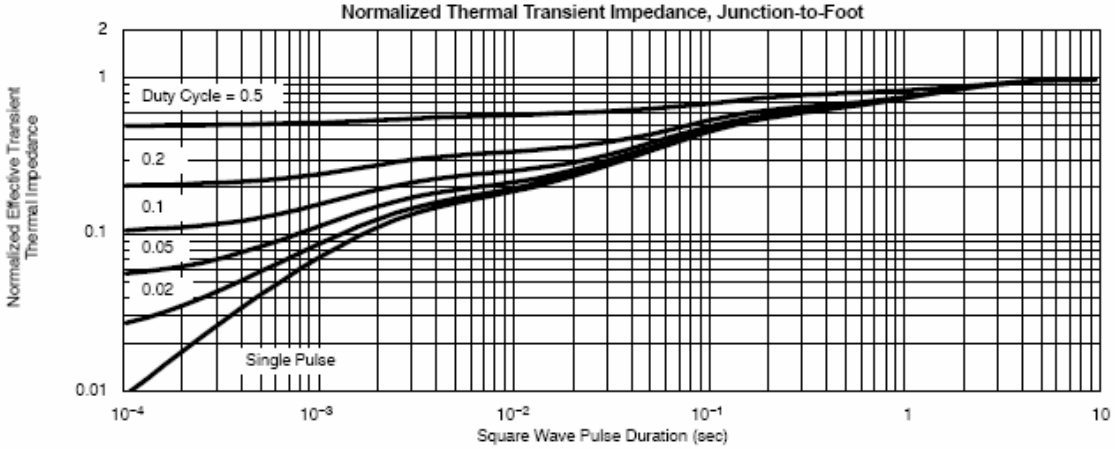
Threshold Voltage



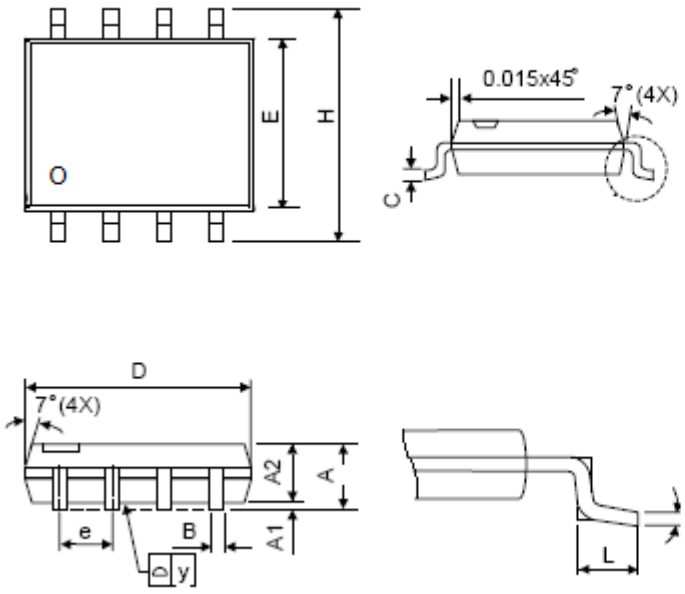
Single Pulse Power, Junction-to-Ambient



Normalized Thermal Transient Impedance, Junction-to-Foot



■SOP-8 PACKAGE DIMENSIONS



Dimensions				
Symbol	Inches		Millimeters	
	Min	Max	Min	Max
A	0.055	0.069	1.40	1.75
A1	0.040	0.100	0.10	0.25
A2	0.051	0.059	1.30	1.50
B	0.013	0.020	0.33	0.51
C	0.0075	0.010	0.19	0.25
D	0.189	0.209	4.80	5.30
E	0.146	0.161	3.70	4.10
e	-	-	-	-
H	0.228	0.244	5.79	6.20
L	0.015	0.050	0.38	1.27
y	-	0.004	-	0.10
θ	0°	8°	0°	8°