DESCRIPTION

The AM4430 is available in SOP8 Package.

BVDSS	RDSON	ID
30V	4.5mΩ	25A

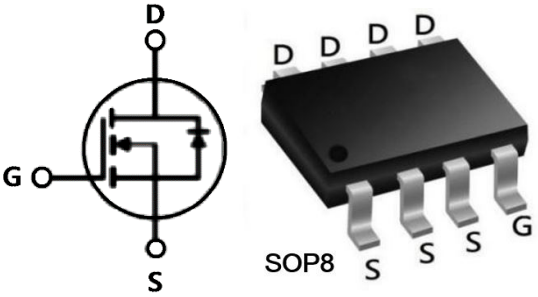
FEATURE

- $R_{DS(ON),\ typ.}$= 4.5mΩ@V_{GS}=10V
- Super Low Gate Charge
- Excellent CdV/dt effect decline
- Advanced high cell density Trench technology

ORDERING INFORMATION

Package Type	Part Number	
SOP8 SPQ:3,000pcs /Reel	M8	AM4430M8R
		AM4430M8VR
Note	V: Halogen free Package R: Tape & Reel	
AiT provides all RoHS products		

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 specified.

Parameter	Symbol	Value	Unit
Drain-to-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current, V_{GS} @ 10V (1) T_A=25°C	I_D	25	A
Continuous Drain Current, V_{GS} @ 10V (1) T_A=70°C		15	
Pulsed Drain Current (2)	I_{DM}	80	A
Single Pulse Avalanche Energy (3)	E_{AS}	105.8	mJ
Avalanche Current	I_{AS}	51	A
Total Power Dissipation (4) T_A=25°C	P_D	10	W
Storage Temperature Range	T_{STG}	-55 to 150	°C
Operating Junction Temperature Range	T_J	150	°C
THERMAL RESISTANCE			
Thermal Resistance, Junction-Case (1)	$R_{\theta JC}$	35	°C/W
Thermal Resistance, Junction-Ambient (1)	$R_{\theta JA}$	85	

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.

(1) Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%
(2) Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
(3) E_{AS} condition: T_A=25°C, V_{GS}=15V, R_G=25Ω, L=0.5mH, I_{AS}=20A
(4) The power dissipation is limited by 150°C junction temperature

ELECTRICAL CHARACTERISTICS

T_A= 25°C, unless otherwise specified.

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=250μA	30	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=30V, V_{GS}=0V,	-	-	1.0	μA
Gate to Body Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS}=±20V	-	-	±100	nA
ON CHARACTERISTICS						
Static Drain-Source on-Resistance *	$R_{DS(ON)}$	V_{GS}=10V, I_D=20A		4.6	6	mΩ
		V_{GS}=4.5V, I_D=10A		6.1	8.6	
Gate Threshold Voltage	$V_{GS(TH)}$	V_{DS}=V_{GS}, I_D=250μA	1.0	1.5	2.5	V
DYNAMIC CHARACTERISTICS						
Input Capacitance	C_{iss}	V_{DS}=15V, V_{GS}=0V, f=1.0MHz	-	1700	-	pF
Output Capacitance	C_{oss}		-	320	-	
Reverse Transfer Capacitance	C_{rss}		-	300	-	
Total Gate Charge	Q_g	V_{DS}=15V, I_D=10A, V_{GS}=10V	-	45	-	nC
Gate-Source charge	Q_{gs}		-	3	-	
Gate-Drain charge	Q_{gd}		-	15	-	
SWITCHING CHARACTERISTICS						
Turn-on Delay Time	$t_{d(ON)}$	V_{DS}=15V, I_D=20A, R_{GEN}=3Ω, V_{GS}=10V	-	21	-	nS
Turn-on Rise Time	t_r		-	32	-	
Turn-off Delay Time	$t_{d(OFF)}$		-	59	-	
Turn-off Fall Time	t_f		-	34	-	
SOURCE-DRAIN DIODE CHARACTERISTICS						
Maximum Continuous Drain to Source Diode Forward Current	I_S		-	-	20	A
Maximum Pulsed Drain to Source Diode Forward Current	I_{SM}		-	-	80	A
Drain to Source Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=20A	-	-	1.2	V
Body Diode Reverse Recovery Time	t_{rr}	I_F=20A, dI/dt=100A/μs	-	15	-	ns
Body Diode Reverse Recovery Charge	Q_{rr}		-	4	-	nC

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

TYPICAL PERFORMANCE CHARACTERISTICS

Fig.1 Output Characteristics

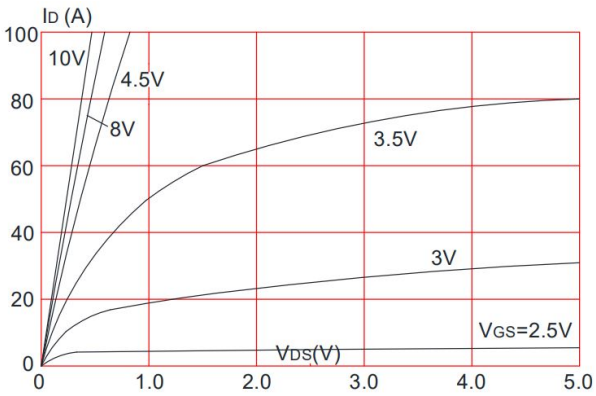


Fig.2 Typical Transfer Characteristics

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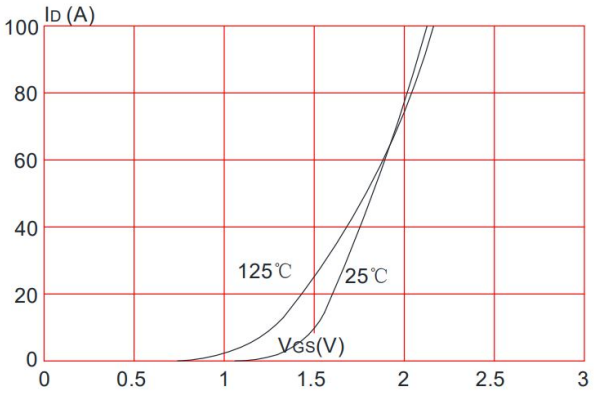


Fig.3 On-resistance vs. Drain Current

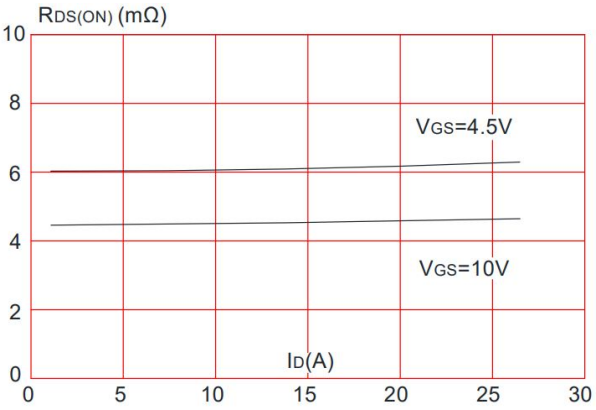


Fig.4 Body Diode Characteristics

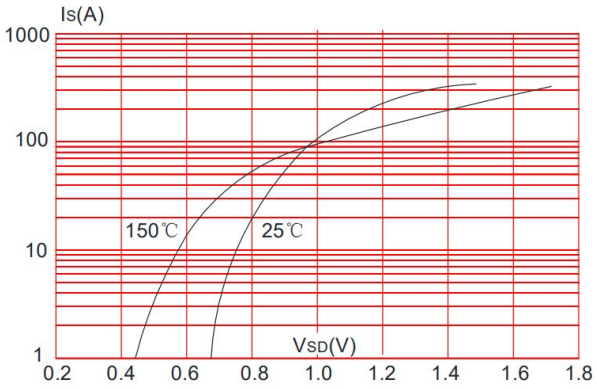


Fig.5 Gate Charge Characteristics

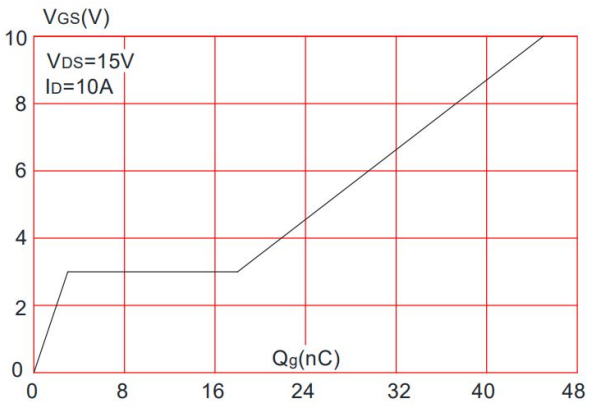


Fig.6 Capacitance Characteristics

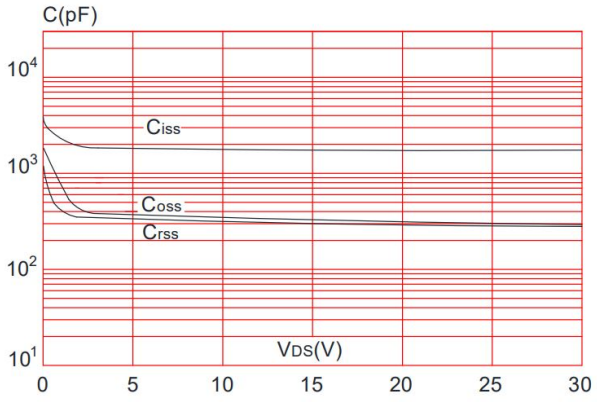


Fig.7 Normalized Breakdown Voltage vs. unction Temperature

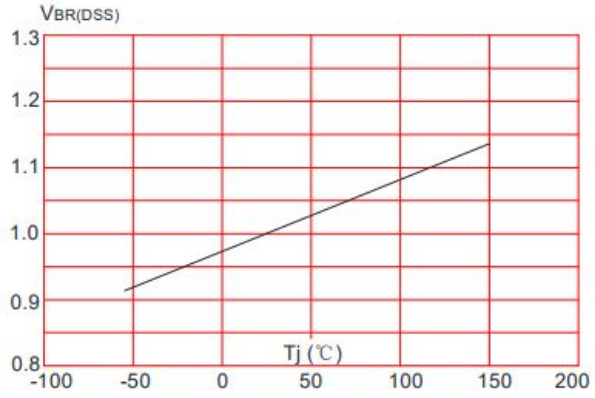


Fig.8 Normalized on Resistance vs. Junction Temperature

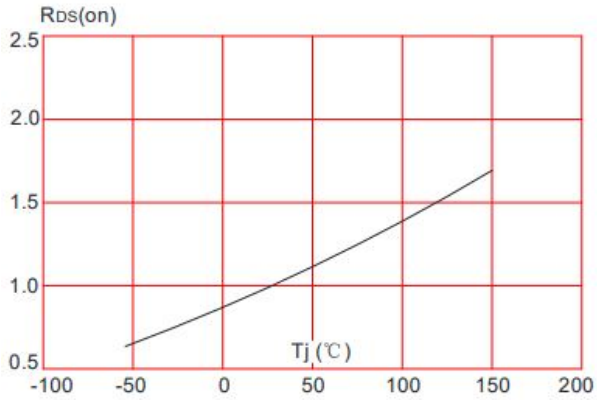


Fig.9 Maximum Safe Operating Area

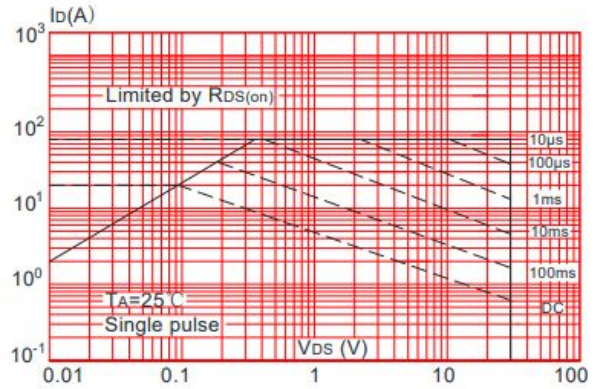


Fig.10 Maximum Continuous Drain Current vs. Ambient Temperature

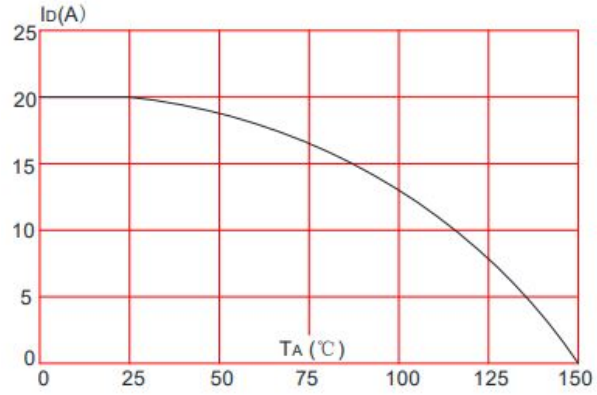
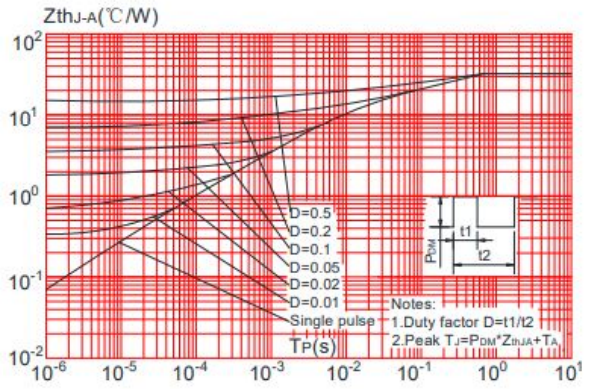
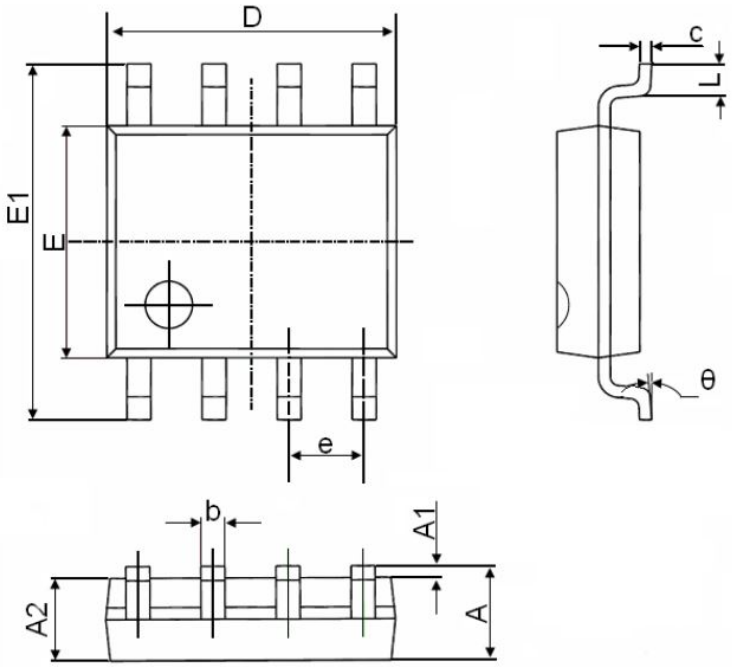


Fig.11 Maximum Effective Transient Thermal Impedance, Junction-to-Ambient



PACKAGE INFORMATION

Dimension in SOP8 (Unit: mm)



Symbol	Min.	Max.
A	1.350	1.750
A1	0.100	0.250
A2	1.350	1.550
b	0.330	0.510
c	0.170	0.250
D	4.700	5.100
E	3.800	4.000
E1	5.800	6.200
e	1.270 (BSC)	
L	0.400	1.270
θ	0°	8°

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