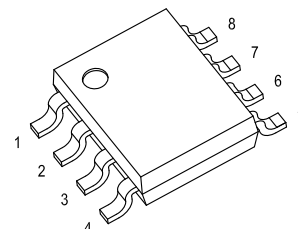


SOP8 Plastic-Encapsulate MOSFETS

P-Channel Power MOSFET

$V_{(BR)DSS}$	$R_{DS(on)Typ}$	I_D
-30V	12.3mΩ@ -10V	-12A
	21mΩ@ -4.5V	

SOP8



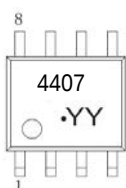
DESCRIPTION

The AO4407A uses advanced trench technology to provide excellent $R_{DS(on)}$, shoot-through immunity, body diode characteristics and ultra-low gate resistance. This device is ideally suited for use as a low side switch in Notebook CPU core power conversion.

APPLICATIONS

- Battery Switch
- Load Switch

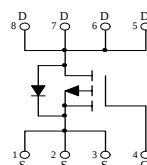
MARKING



Front side

4407= Device code
Solid dot=Pin1 indicator
Solid dot = Green molding compound device,
if none, the normal device
YY=Date Code

Equivalent Circuit



MAXIMUM RATINGS ($T_a=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	-12	A
Pulsed Drain Current (note 1)	I_{DM}	-40	A
Single Pulsed Avalanche Energy	$E_{AS}^{(1)}$	20	mJ
Power Dissipation (note 2)	P_D	1.4	W
Thermal Resistance from Junction to Ambient (note 2)	$R_{\theta JA}$	89	$^{\circ}\text{C/W}$
Junction Temperature	T_J	150	$^{\circ}\text{C}$
Storage Temperature Range	T_{stg}	-55 ~ +150	$^{\circ}\text{C}$
Lead Temperature for Soldering Purposes(1/8" from case for 10s)	T_L	260	$^{\circ}\text{C}$

(1). E_{AS} condition: $V_{DD}=-50\text{V}$, $L=0.5\text{mH}$, $R_G=25\Omega$, Starting $T_J = 25^{\circ}\text{C}$

MOSFET ELECTRICAL CHARACTERISTICS

$T_a=25^{\circ}\text{C}$ unless otherwise specified

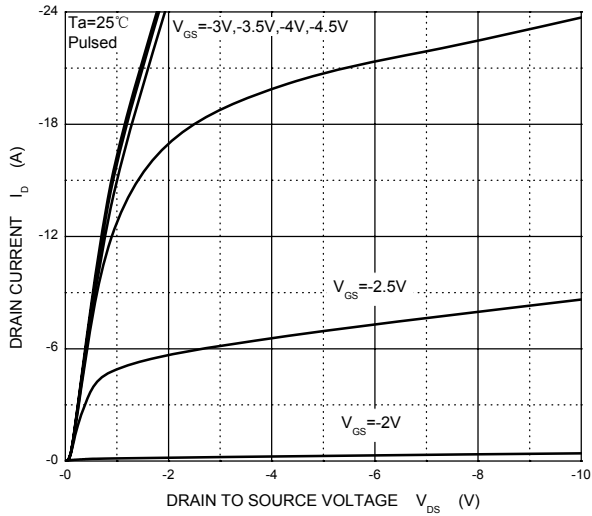
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Off characteristics						
Drain-source breakdown voltage	V _{(BR) DSS}	V _{GS} = 0V, I _D =-250μA	-30			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =-30V, V _{GS} =0V			-1	μA
Gate-body leakage current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
On characteristics(note 3)						
Gate-threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-1.0	-1.7	-3.0	V
Static drain-source on-sate resistance	R _{DS(on)}	V _{GS} =-10V, I _D =-9.1A		12.3	16	mΩ
		V _{GS} =-4.5V, I _D =-6.9A		21	28	mΩ
Forward transconductance	g _{FS}	V _{DS} =-10V, I _D =-9.1A	20			S
Dynamic characteristics						
Input capacitance	C _{iss}	V _{DS} =-15V,V _{GS} =0V, f =1MHz		1350		pF
Output capacitance	C _{oss}			215		
Reverse transfer capacitance	C _{rss}			185		
Switching characteristics						
Total gate charge	Q _g	V _{DS} =-15V, V _{GS} =-10V, I _D =-9.1A			50	nC
		V _{DS} =-15V, V _{GS} =-4.5V, I _D =-9.1A			25	
Gate-source charge	Q _{gs}			4		
Gate-drain charge	Q _{gd}			7.5		
Turn-on delay time (note 4)	t _{d(on)}	V _{DD} =-15V,I _D =-1A, V _{GS} =-10V,R _G =1Ω, R _L =15Ω			15	ns
Turn-on rise time (note 4)	t _r				15	
Turn-off delay time (note 4)	t _{d(off)}				70	
Turn-off fall time (note 4)	t _f				25	
Gate Resistance	R _g	f =1MHz, V _{DS} =0V, V _{GS} =0V,		5.8		Ω
Drain-Source Diode Characteristics						
Drain-source diode forward voltage(note1)	V _{SD}	V _{GS} =0V, I _S =-2A			-1.2	V
Continuous drain-source diode forward current	I _S				-12	A
Pulsed drain-source diode forward current	I _{SM}				-40	A

Notes:

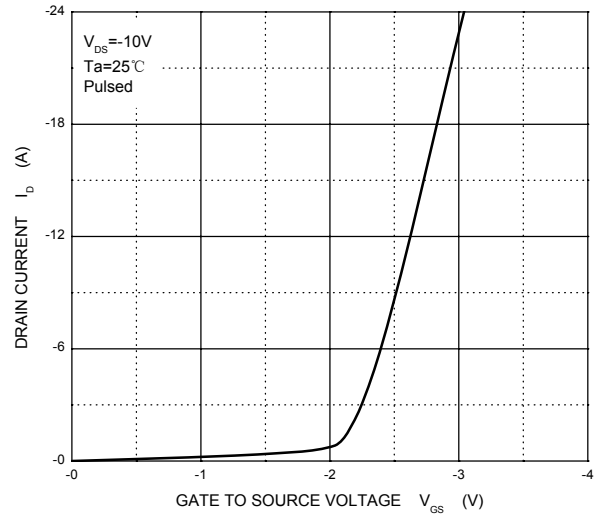
1. Repetitive rating : Pulse width limited by junction temperature $T_{J(MAX)} = 150^{\circ}\text{C}$. Ratings are based on low frequency and duty cycles to keep initial $T_J = 25^{\circ}\text{C}$. The power dissipation P_D is based on $T_{J(MAX)} = 150^{\circ}\text{C}$, using $\leq 10s$ junction-to-ambient thermal resistance.
2. The value in any given application depends on the user's specific board design.
3. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 0.5\%$.
4. These parameters have no way to verify.

TYPICAL CHARACTERISTICS

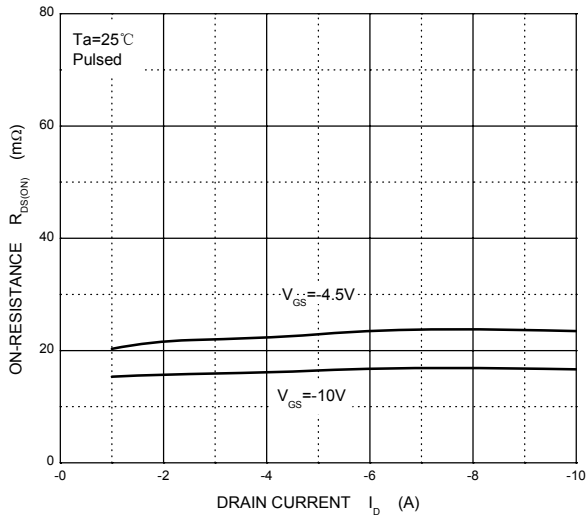
Output Characteristics



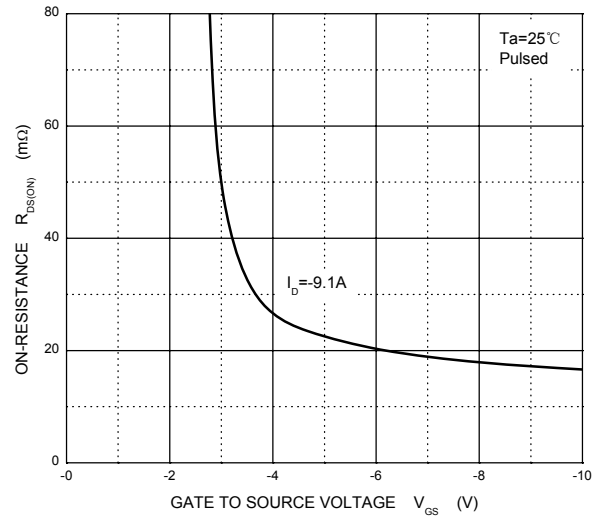
Transfer Characteristics



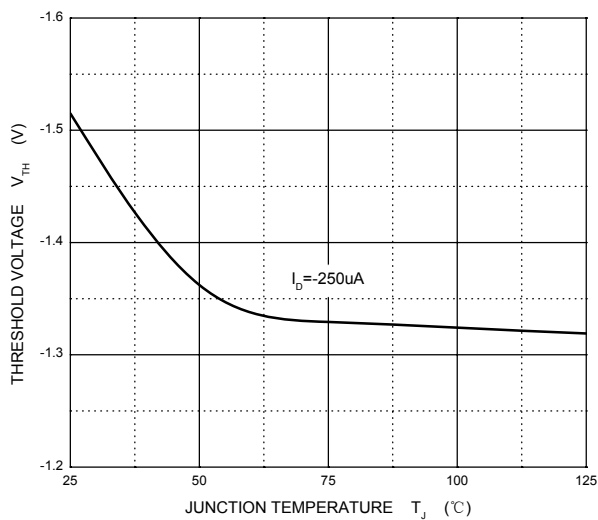
$R_{DS(ON)}$ — I_D



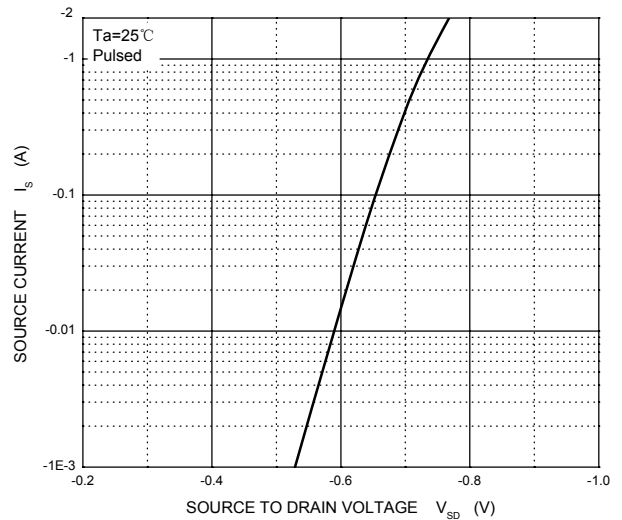
$R_{DS(ON)}$ — V_{GS}



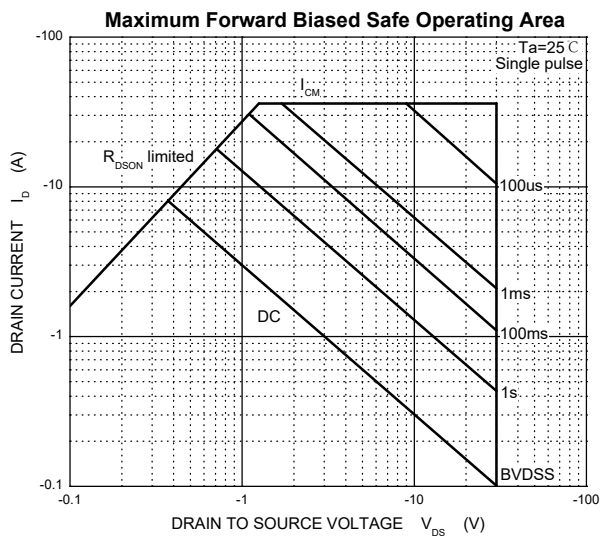
Threshold Voltage



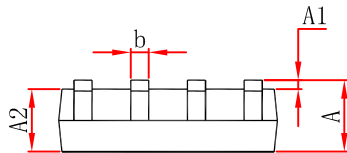
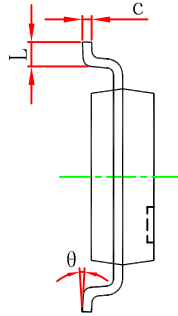
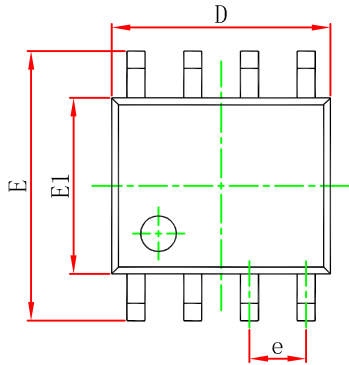
I_S — V_{SD}



TYPICAL CHARACTERISTICS

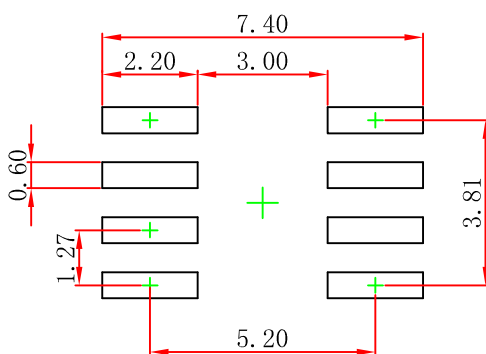


SOP8 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In 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	0.007	0.010
D	4.800	5.000	0.189	0.197
e	1.270 (BSC)		0.050 (BSC)	
E	5.800	6.200	0.228	0.244
E1	3.800	4.000	0.150	0.157
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°

SOP8 Suggested Pad Layout



Note:

1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.