



**ALPHA & OMEGA**  
SEMICONDUCTOR, LTD.

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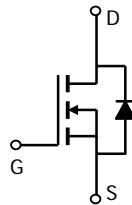
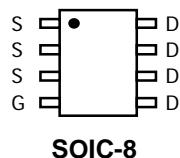
## AO4408, AO4408L (Green Product) N-Channel Enhancement Mode Field Effect Transistor

### General Description

The AO4408 uses advanced trench technology to provide excellent  $R_{DS(ON)}$ , low gate charge and fast switching. This device makes an excellent high side switch for notebook CPU core DC-DC conversion. AO4408L(Green Product) is offered in a lead-free package.

### Features

$V_{DS}$  (V) = 30V  
 $I_D$  = 12A  
 $R_{DS(ON)} < 13m\Omega$  ( $V_{GS} = 10V$ )  
 $R_{DS(ON)} < 16m\Omega$  ( $V_{GS} = 4.5V$ )



### Absolute Maximum Ratings $T_A=25^\circ C$ unless otherwise noted

Parameter	Symbol	Maximum	Units
Drain-Source Voltage	$V_{DS}$	30	V
Gate-Source Voltage	$V_{GS}$	$\pm 12$	V
Continuous Drain Current <sup>A</sup>	$I_D$	12	A
$T_A=70^\circ C$		10	
Pulsed Drain Current <sup>B</sup>	$I_{DM}$	80	
Avalanche Current <sup>B,E</sup>	$I_{AV}$	30	A
Repetitive Avalanche Energy <sup>B,E</sup> $L=0.1mH$	$E_{AV}$	100	mJ
Power Dissipation	$P_D$	3	W
$T_A=25^\circ C$		2.1	
Junction and Storage Temperature Range	$T_J, T_{STG}$	-55 to 150	°C

### Thermal Characteristics

Parameter	Symbol	Typ	Max	Units
Maximum Junction-to-Ambient <sup>A</sup>	$R_{\theta JA}$	23	40	°C/W
Maximum Junction-to-Ambient <sup>A</sup> Steady-State		48	65	°C/W
Maximum Junction-to-Lead <sup>C</sup>	$R_{\theta JL}$	12	16	°C/W



### TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

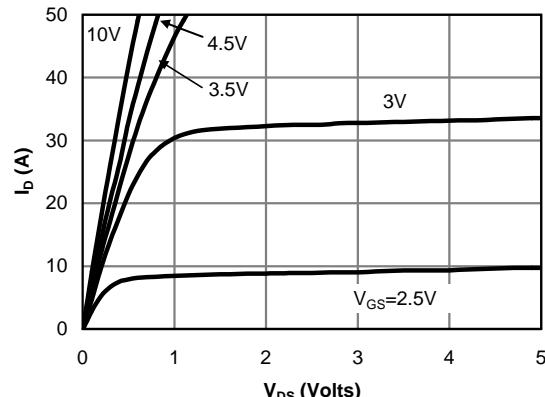


Fig 1: On-Region Characteristics

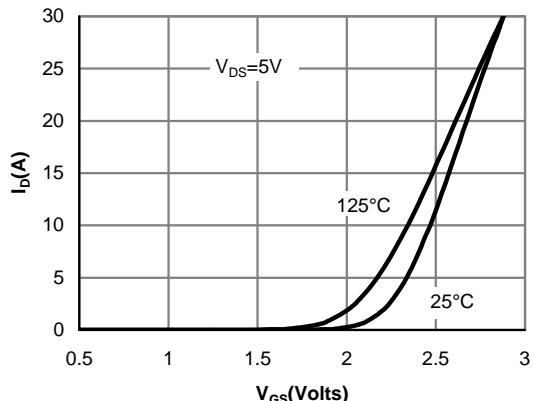


Figure 2: Transfer Characteristics

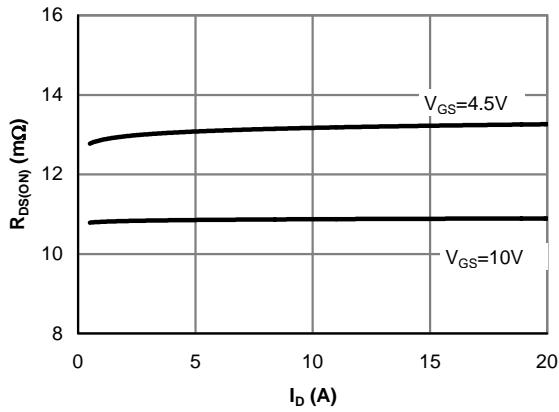


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

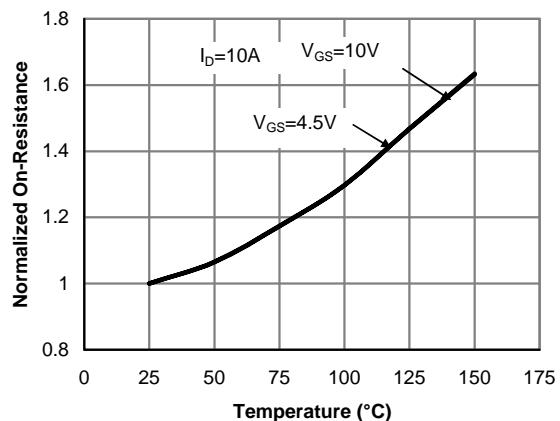


Figure 4: On-Resistance vs. Junction Temperature

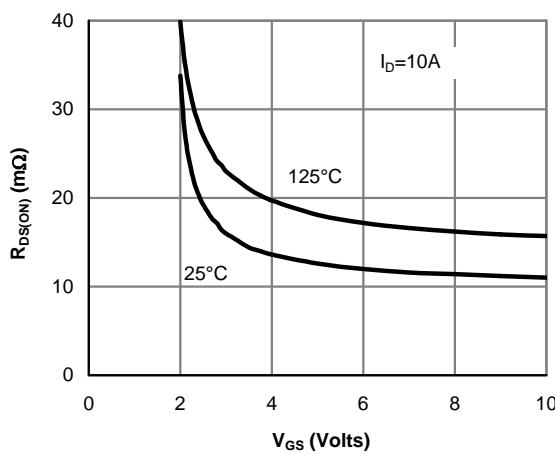


Figure 5: On-Resistance vs. Gate-Source Voltage

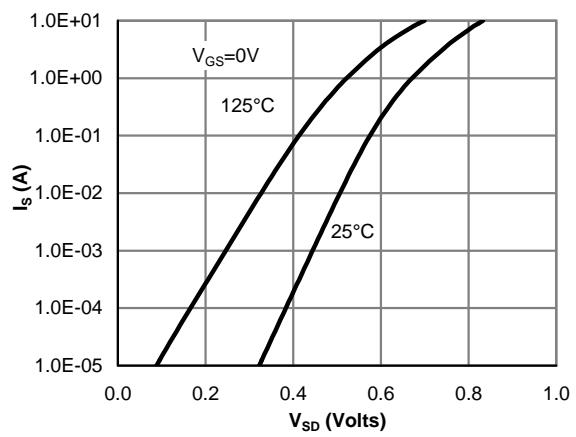


Figure 6: Body-Diode Characteristics

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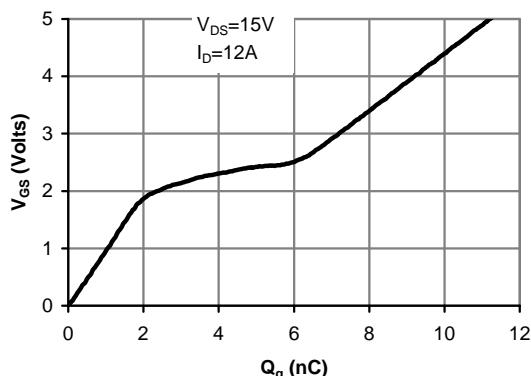


Figure 7: Gate-Charge Characteristics

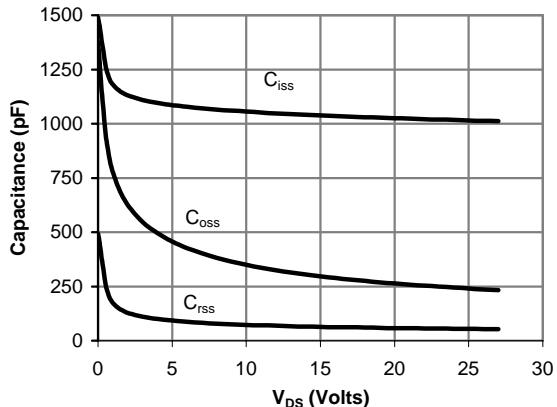


Figure 8: Capacitance Characteristics

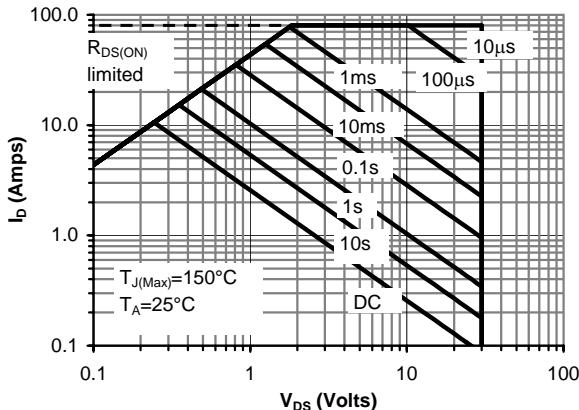


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

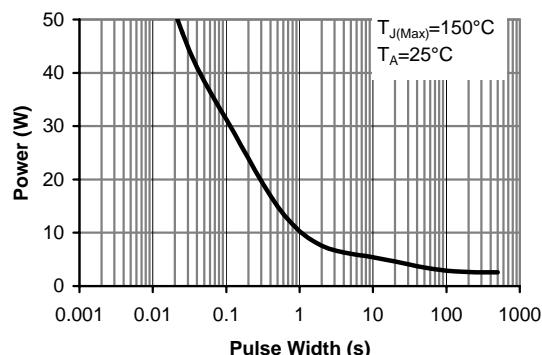


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

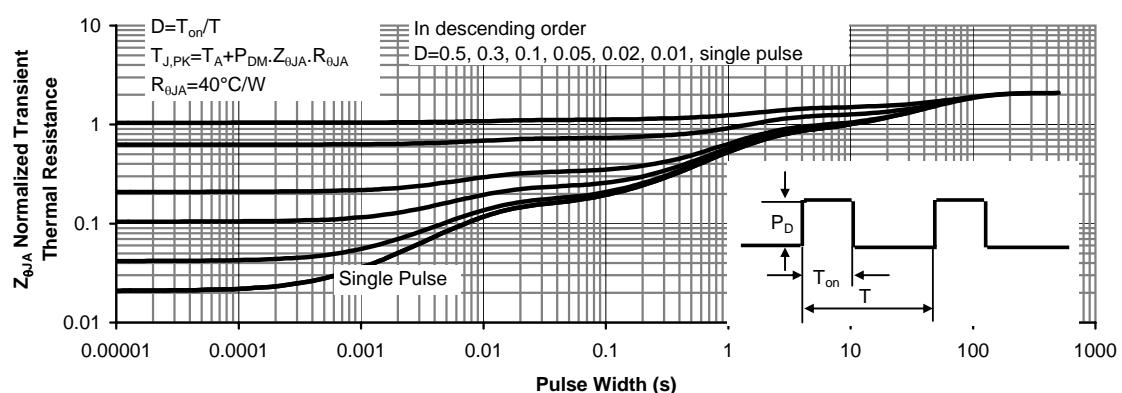


Figure 11: Normalized Maximum Transient Thermal Impedance

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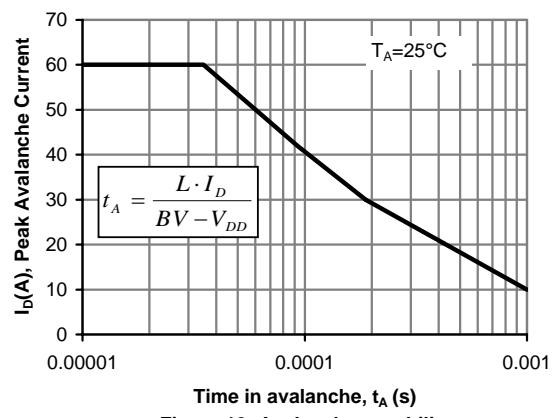


Figure 12: Avalanche capability

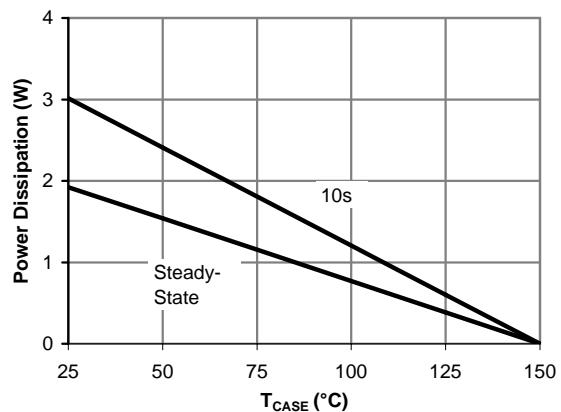


Figure 13: Power De-rating (Note A)