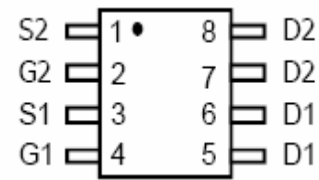
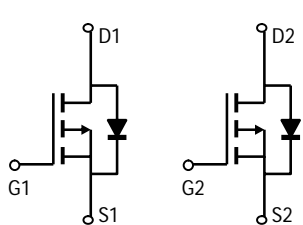



SOP-8 Plastic-Encapsulate MOSFETS

4803A

P-Channel Enhancement Mode Power MOSFET

<p>Description</p> <p>The 4803A uses advanced trench technology to provide excellent $R_{DS(ON)}$ and low gate charge . The complementary MOSFETs may be used to form a level shifted high side switch, and for a host of other applications.</p> <p>General Features</p> <p>$V_{DS} = -30V, I_D = -6.0A$ $R_{DS(ON)} < 39m\Omega @ V_{GS} = -10V$ $R_{DS(ON)} < 55m\Omega @ V_{GS} = -4.5V$</p> <ul style="list-style-type: none"> ● High power and current handling capability ● Lead free product is acquired ● Surface mount package 	<p>SOP-8</p>  <p>Equivalent Circuit</p>  <p>MARKING</p>  <p>Y :year code W :week code</p>
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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}	± 20	V
Continuous Drain Current ^A	$T_A=25^\circ C$ I_D	-6	A
Pulsed Drain Current ^B	I_{DM}	-20	
Power Dissipation ^A	$T_A=25^\circ C$ P_D	2	W
	$T_A=70^\circ C$	1.4	
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	$^\circ C$

Thermal Characteristics					
Parameter		Symbol	Typ	Max	Units
Maximum Junction-to-Ambient ^A	$t \leq 10s$	$R_{\theta JA}$	48	62.5	$^\circ C/W$
Maximum Junction-to-Ambient ^A	Steady-State		74	110	$^\circ C/W$
Maximum Junction-to-Lead ^C	Steady-State	$R_{\theta JL}$	35	40	$^\circ C/W$



SOP-8 Plastic-Encapsulate MOSFETS

4803A

Electrical Characteristics ($T_J=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
STATIC PARAMETERS						
BV_{DSS}	Drain-Source Breakdown Voltage	$I_D=-250\mu\text{A}, V_{GS}=0\text{V}$	-30			V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=-24\text{V}, V_{GS}=0\text{V}$			-100	nA
I_{GSS}	Gate-Body leakage current	$V_{DS}=0\text{V}, V_{GS}=\pm 20\text{V}$			± 100	nA
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=-250\mu\text{A}$	-1.1	-1.4	-2.1	V
$I_{D(ON)}$	On state drain current	$V_{GS}=-4.5\text{V}, V_{DS}=-5\text{V}$	-20			A
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=-10\text{V}, I_D=-5.0\text{A}$		33	39	$\text{m}\Omega$
		$V_{GS}=-4.5\text{V}, I_D=-4.0\text{A}$		46	55	$\text{m}\Omega$
g_{FS}	Forward Transconductance	$V_{DS}=-5\text{V}, I_D=-5\text{A}$	6	8.6		S
V_{SD}	Diode Forward Voltage	$I_S=-1\text{A}, V_{GS}=0\text{V}$		-0.8	-1	V
I_S	Maximum Body-Diode Continuous Current				-2.3A	

DYNAMIC PARAMETERS

C_{iss}	Input Capacitance	$V_{GS}=0\text{V}, V_{DS}=-15\text{V}, f=1\text{MHz}$		700		pF
C_{oss}	Output Capacitance			120		pF
C_{rss}	Reverse Transfer Capacitance			75		pF
R_g	Gate resistance	$V_{GS}=0\text{V}, V_{DS}=0\text{V}, f=1\text{MHz}$		10		Ω

SWITCHING PARAMETERS

$Q_g(10\text{V})$	Total Gate Charge (10V)	$V_{GS}=-10\text{V}, V_{DS}=-15\text{V}, I_D=-5\text{A}$		14.7		nC
$Q_g(4.5\text{V})$	Total Gate Charge (4.5V)			7.6		nC
Q_{gs}	Gate Source Charge			2		nC
Q_{gd}	Gate Drain Charge			3.8		nC
$t_{D(on)}$	Turn-On DelayTime	$V_{GS}=-10\text{V}, V_{DS}=-15\text{V}, R_L=3\Omega, R_{GEN}=3\Omega$		8.3		ns
t_r	Turn-On Rise Time			5		ns
$t_{D(off)}$	Turn-Off DelayTime			29		ns
t_f	Turn-Off Fall Time			14		ns
t_{rr}	Body Diode Reverse Recovery Time	$I_F=-5\text{A}, dI/dt=100\text{A}/\mu\text{s}$		23.5		ns
Q_{rr}	Body Diode Reverse Recovery Charge	$I_F=-5\text{A}, dI/dt=100\text{A}/\mu\text{s}$		13.4		nC

A: The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A=25^{\circ}\text{C}$. The value in any given application depends on the user's specific board design. The current rating is based on the $t \leq 10\text{s}$ thermal resistance rating.

B: Repetitive rating, pulse width limited by junction temperature.

C. The $R_{\theta JA}$ is the sum of the thermal impedance from junction to lead $R_{\theta JL}$ and lead to ambient.

D. The static characteristics in Figures 1 to 6,12,14 are obtained using 80 μs pulses, duty cycle 0.5% max.

E. These tests are performed with the device mounted on 1 in² FR-4 board with 2oz. Copper, in a still air environment with $T_A=25^{\circ}\text{C}$. The SOA curve provides a single pulse rating.

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

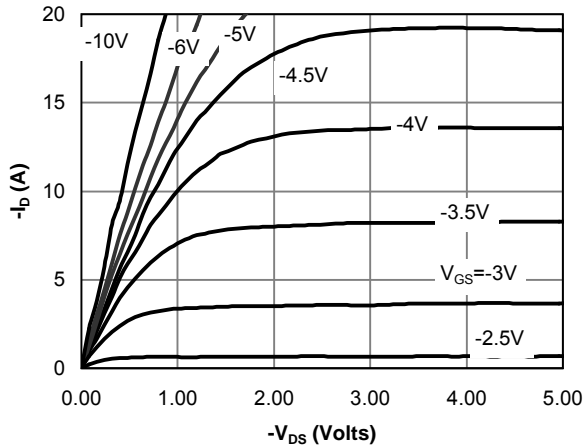


Figure 1: On-Region Characteristics

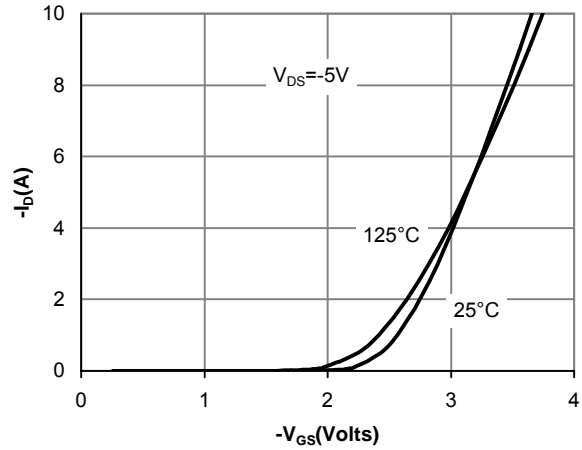


Figure 2: Transfer Characteristics

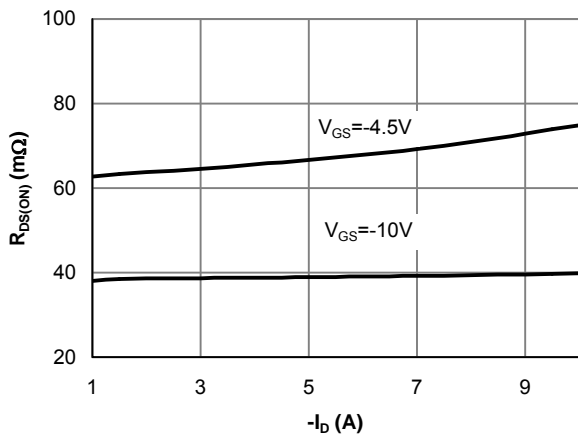


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

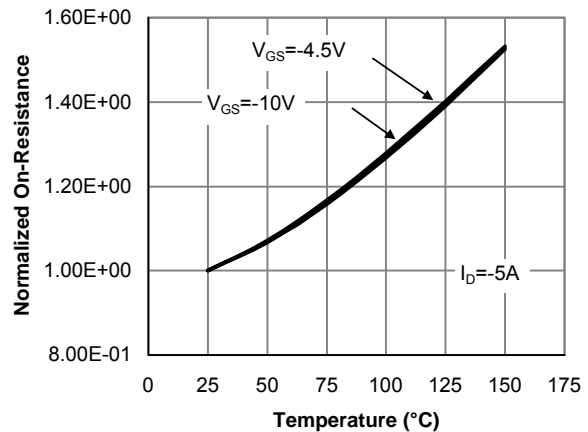


Figure 4: On-Resistance vs. Junction Temperature

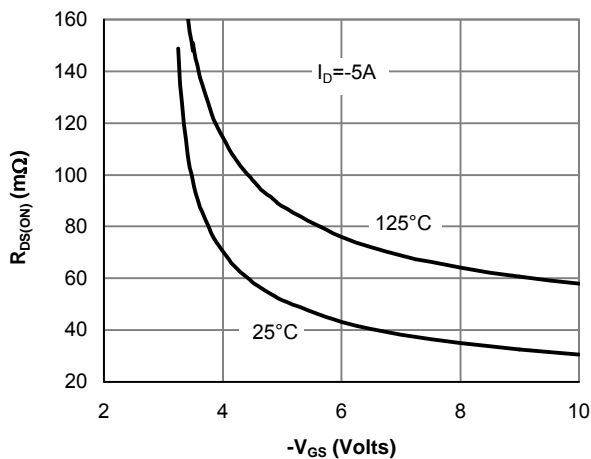


Figure 5: On-Resistance vs. Gate-Source Voltage

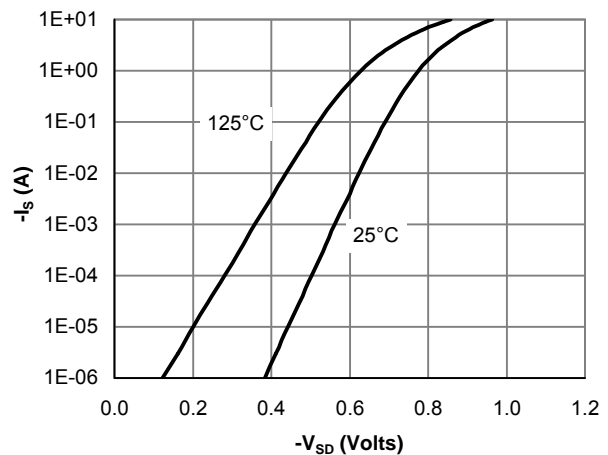


Figure 6: Body-Diode Characteristics

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

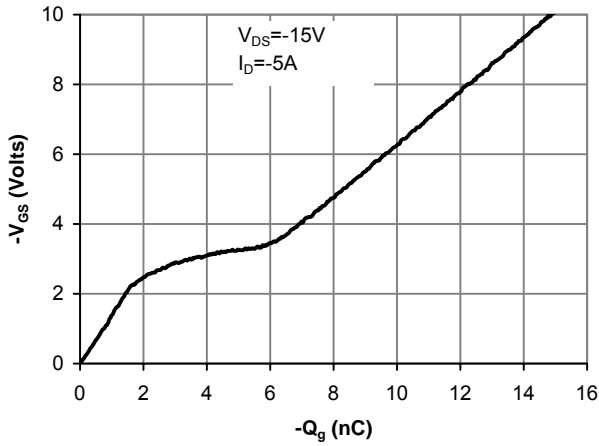


Figure 7: Gate-Charge Characteristics

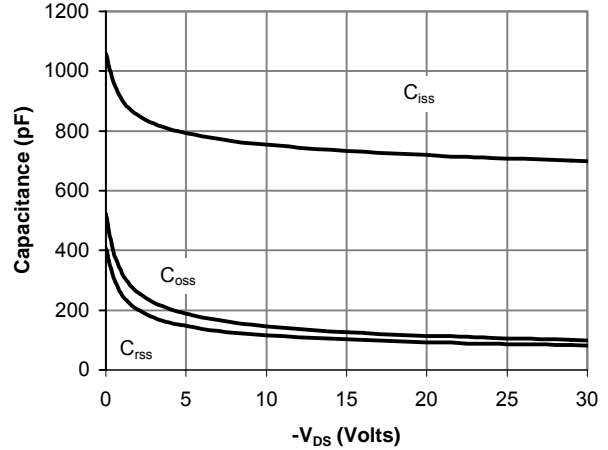


Figure 8: Capacitance Characteristics

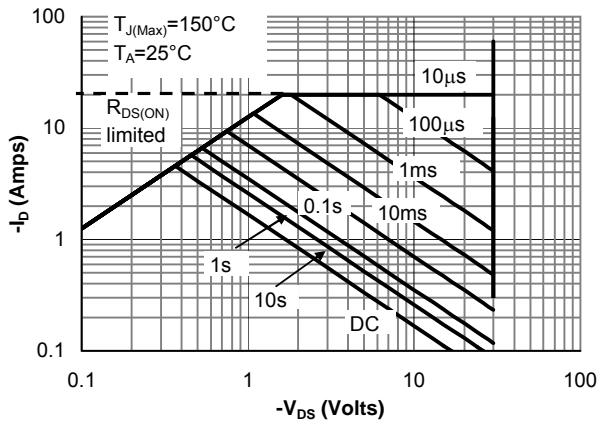


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

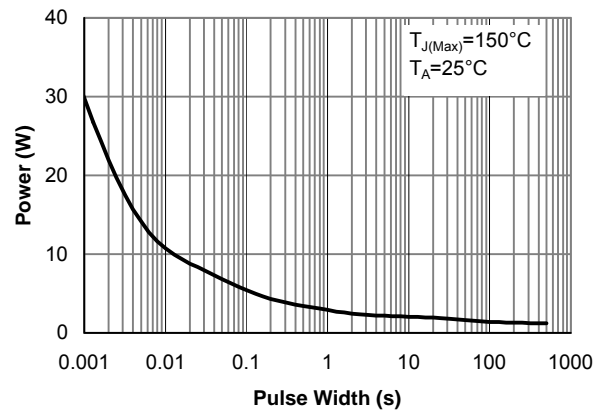


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

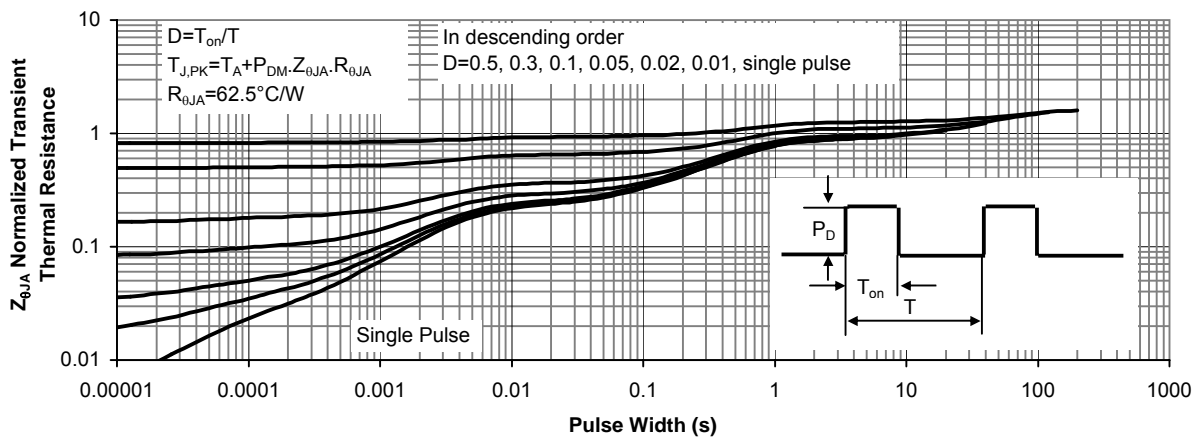
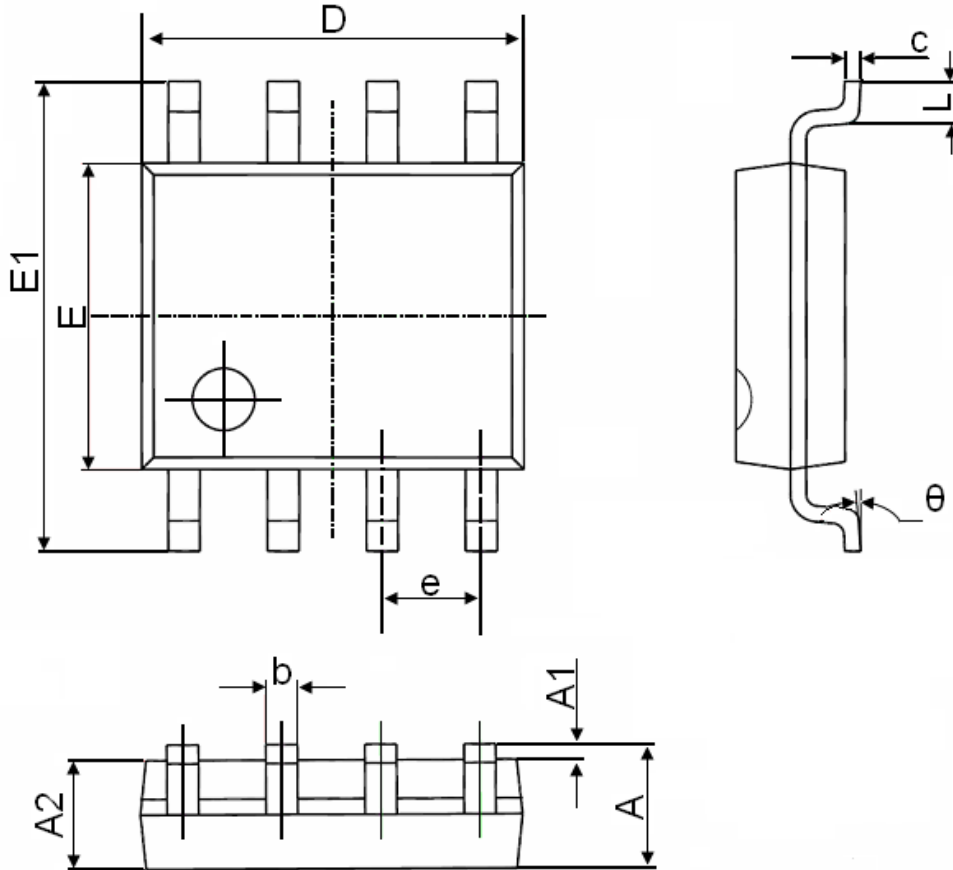


Figure 11: Normalized Maximum Transient Thermal Impedance

SOP-8 Plastic-Encapsulate MOSFETS

4803A

SOP-8 Package Information



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	0.006	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°