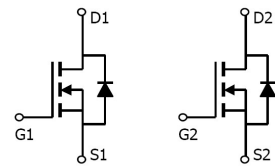


## Feature

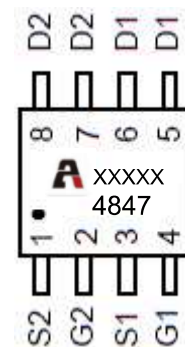
- 60V,7A  
 $R_{DS(ON)} < 21m\Omega @ V_{GS}=10V$  TYP:17 m  $\Omega$   
 $R_{DS(ON)} < 28m\Omega @ V_{GS}=4.5V$  TYP:22 m  $\Omega$
- Trench DMOS Power MOSFET
- Fast Switching
- Exceptional on-resistance and maximum DC current capability



Schematic diagram

## Application

- DC/DC Converter
- Load Switch for Portable Devices
- Battery Switch



Marking and pin assignment

## Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity (PCS)
4847	AP4847	SOP-8	13 inch	-	4000

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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	60	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current ( $T_a=25^{\circ}C$ )	$I_D$	7	A
Continuous Drain Current ( $T_a=100^{\circ}C$ )	$I_D$	5.2	A
Pulsed Drain Current <sup>(1)</sup>	$I_{DM}$	25	A
Power Dissipation	$P_D$	2	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	62.5	$^{\circ}C/W$
Junction Temperature	$T_J$	150	$^{\circ}C$
Storage Temperature	$T_{STG}$	-55~ +150	$^{\circ}C$

**MOSFET ELECTRICAL CHARACTERISTICS(T<sub>a</sub>=25°C unless otherwise noted)**

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
<b>Static Characteristics</b>						
Drain-source breakdown voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> =250μA	60	-	-	V
Zero gate voltage drain current	I <sub>DSS</sub>	V <sub>DS</sub> =60V, V <sub>GS</sub> = 0V	-	-	1	μA
Gate-body leakage current	I <sub>GSS</sub>	V <sub>GS</sub> =±20V, V <sub>DS</sub> = 0V	-	-	±100	nA
Gate threshold voltage <sup>(2)</sup>	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	1	1.6	2.5	V
Drain-source on-resistance <sup>(2)</sup>	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =7A	-	17	21	mΩ
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =5A	-	22	28	
<b>Dynamic characteristics</b>						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =30V, V <sub>GS</sub> =0V, f =1MHz	-	1115	-	pF
Output Capacitance	C <sub>oss</sub>		-	91	-	
Reverse Transfer Capacitance	C <sub>rss</sub>		-	82	-	
<b>Switching characteristics</b>						
Turn-on delay time	t <sub>d(on)</sub>	V <sub>DD</sub> =30V, I <sub>D</sub> =7A V <sub>GS</sub> =10V, R <sub>G</sub> =6Ω	-	5.9	-	ns
Turn-on rise time	t <sub>r</sub>		-	9.1	-	
Turn-off delay time	t <sub>d(off)</sub>		-	35	-	
Turn-off fall time	t <sub>f</sub>		-	12	-	
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =30V, I <sub>D</sub> =7A, V <sub>GS</sub> =10V	-	27	-	nC
Gate-Source Charge	Q <sub>gs</sub>		-	2.9	-	
Gate-Drain Charge	Q <sub>gd</sub>		-	7.6	-	
<b>Source-Drain Diode characteristics</b>						
Diode Forward voltage <sup>(2)</sup>	V <sub>DS</sub>	V <sub>GS</sub> =0V, I <sub>S</sub> =57	-	-	1.2	V
Diode Forward current <sup>(3)</sup>	I <sub>S</sub>		-	-	7	A
Reverse recovery time	T <sub>rr</sub>	I <sub>S</sub> =7A, V <sub>GS</sub> =0V, dI <sub>F</sub> /dt=100A/us		27		ns
Reverse recovery charge	Q <sub>rr</sub>	I <sub>S</sub> =7A, V <sub>GS</sub> =0V, dI <sub>F</sub> /dt=100A/us		23		nC

**Notes:**

1. Repetitive Rating: pulse width limited by maximum junction temperature
2. Pulse Test: pulse width≤300μs, duty cycle≤2%
3. Surface Mounted on FR4 Board,t≤10 sec

Typical Characteristics (@  $T_J = 25^\circ\text{C}$ , unless otherwise specified.)

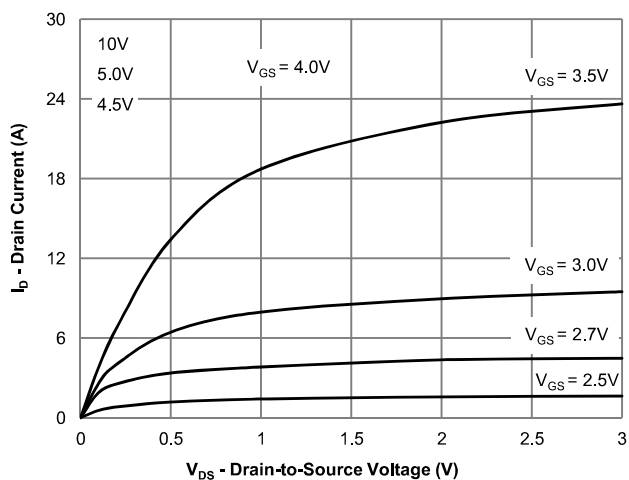


Figure 1: Output Characteristics

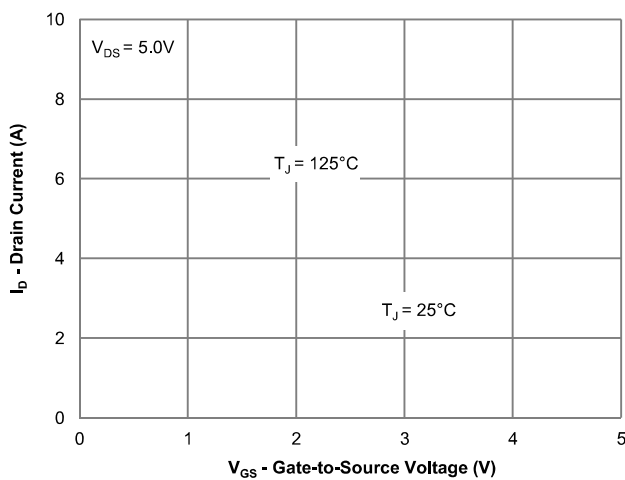


Figure 2: Transfer Characteristics

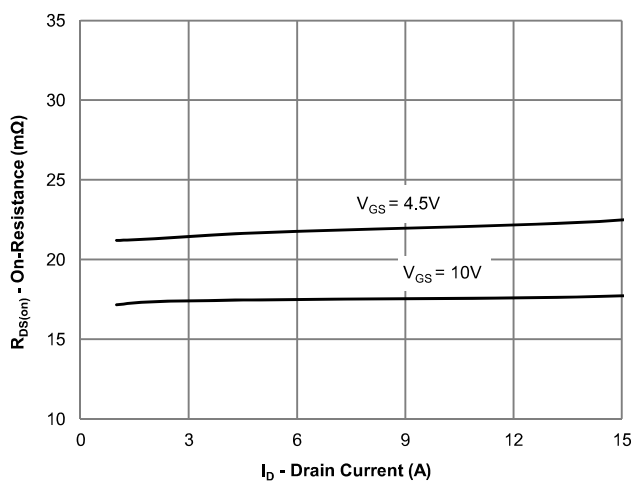


Figure 3: On-Resistance vs. Gate-Source Voltage

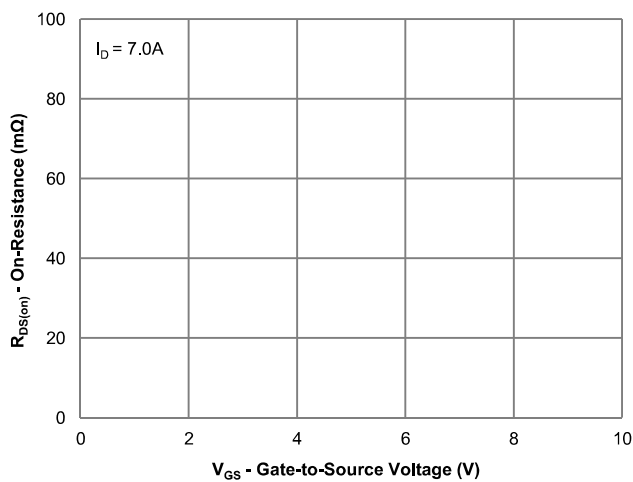


Figure 4: On-Resistance vs. Gate-Source Voltage

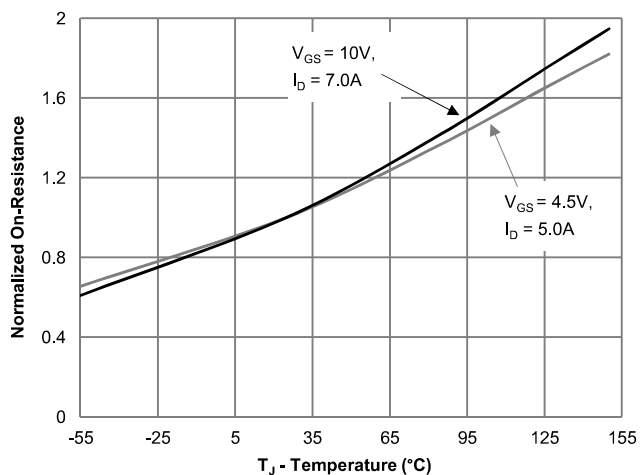


Figure 5: On-Resistance vs. Junction Temperature

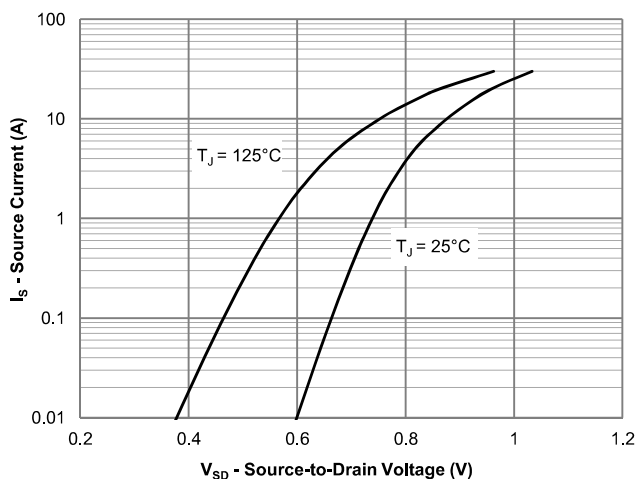


Figure 6: Source-Drain Diode Forward Voltage

Typical Characteristics (@  $T_J = 25^\circ\text{C}$ , unless otherwise specified.)

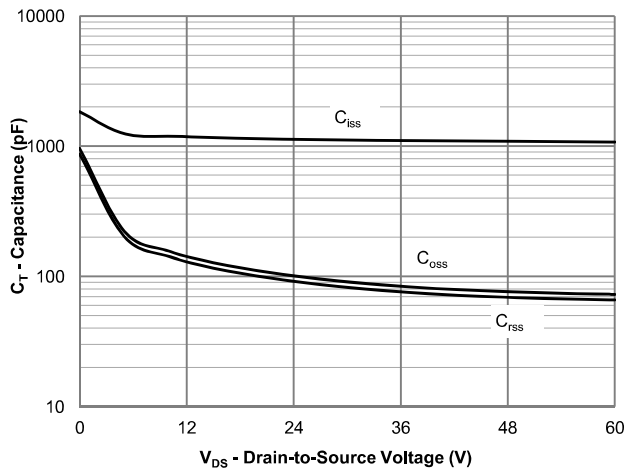


Figure 7: Capacitance Characteristics

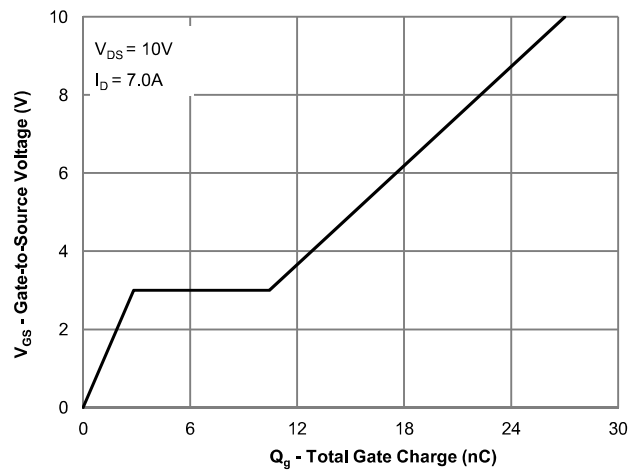


Figure 8: Gate Charge Characteristics

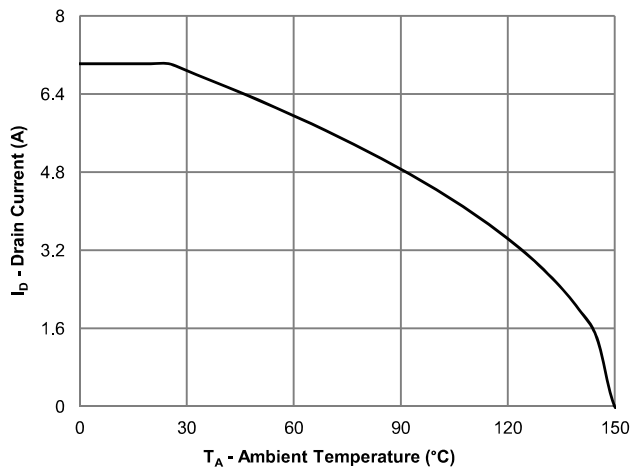


Figure 9: Current Derating

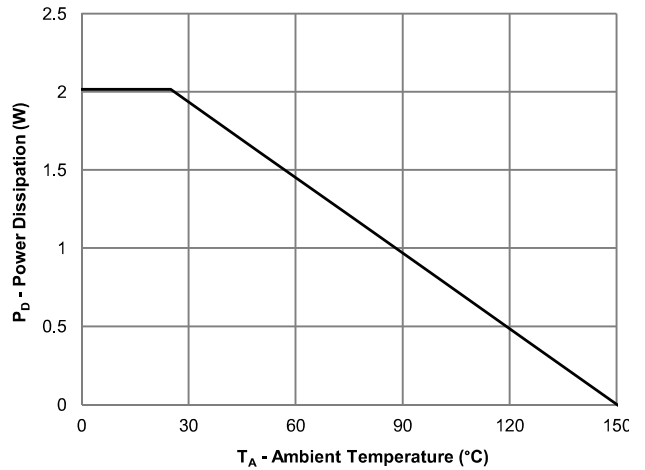


Figure 10: Power Derating

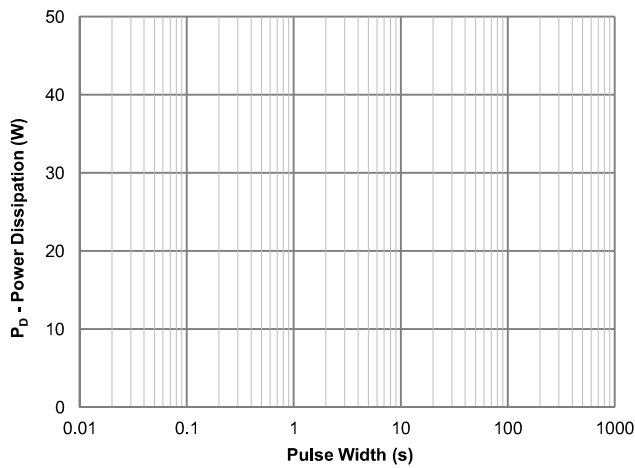


Figure 11: Single Pulse Power, Junction-to-Ambient

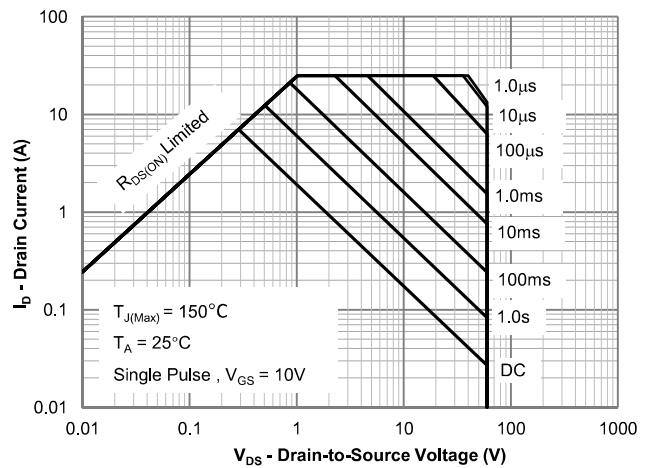


Figure 12: Safe Operating Area

Typical Characteristics (@  $T_J = 25^\circ\text{C}$ , unless otherwise specified.)

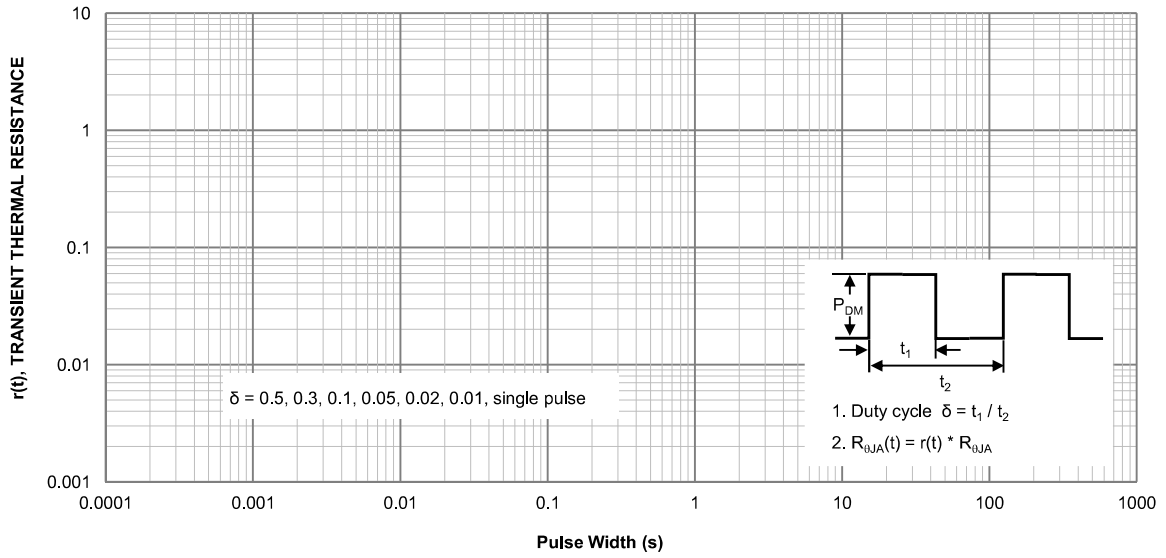
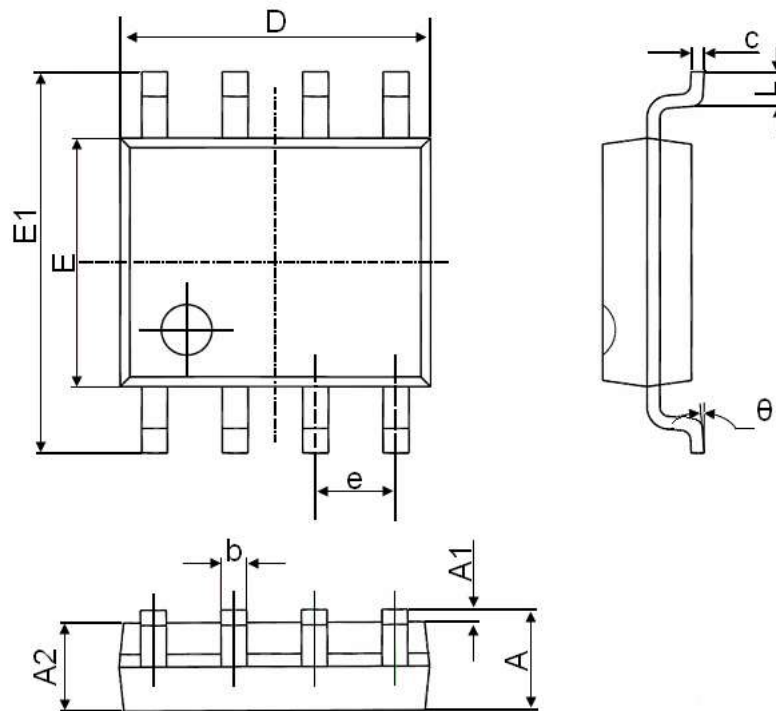


Figure 13: Normalized Thermal Transient Impedance

**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
θ	0°	8°	0°	8°

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