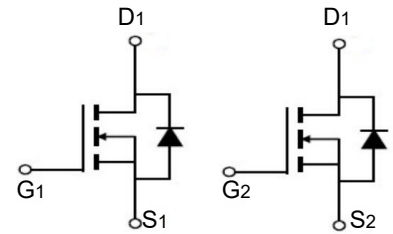
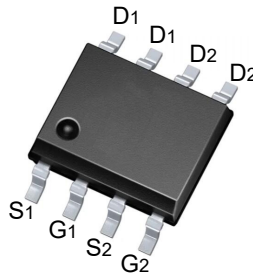


General Description

The AO4842A 30V dual N-channel enhancement mode power field transistors in one package are using trench DMOS technology. This advanced technology has been especially tailored to minimize on-state resistance, provide superior switching performance, and withstand high energy pulse in the avalanche and commutation mode. These devices are well suited for high efficiency fast switching applications.

Application

- Battery protection
- Load switch
- Uninterruptible power supply



Features

V_{DS}	30	V
I_D	8	A
$R_{DS(ON)}(at V_{GS}=10V)$	15	mΩ
$R_{DS(ON)}(at V_{GS}=4.5V)$	18	mΩ

Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
MY4842	SOP-8	4842	3000

Absolute 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
Drain Current ^a	T _C =25°C	I _D	8.0	A
	T _C =70°C		4.68	
Drain Current –Pulsed ^a		I _{DM}	34	A
Power Dissipation (T _C =25°C)		P _D	2.1	W
Power Dissipation – Derate above 25°C			0.017	W/°C
Storage Temperature Range		T _{STG}	-55 ~ +150	°C
Operating Junction Temperature Range		T _J	-55 ~ +150	°C
Thermal Resistance, Junction-to-Ambient		R _{θJA}	62.5	°C/W

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

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	30	---	---	V
Zero Gate Voltage Drain Current	I_{DSS}	$T_J=25^{\circ}\text{C}, V_{DS}=30V, V_{GS}=0V$	---	---	1	μA
		$T_J=125^{\circ}\text{C}, V_{DS}=24V, V_{GS}=0V$	---	---	10	μA
Gate-Body Leakage	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	---	---	± 100	nA

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

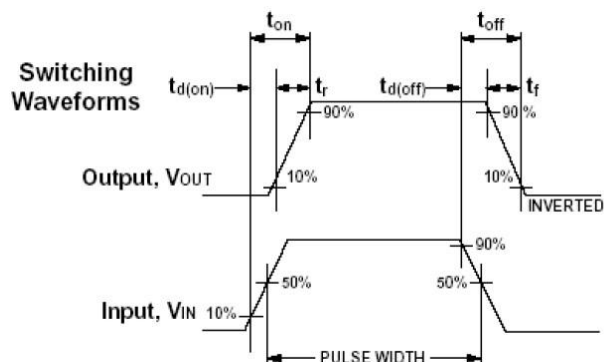
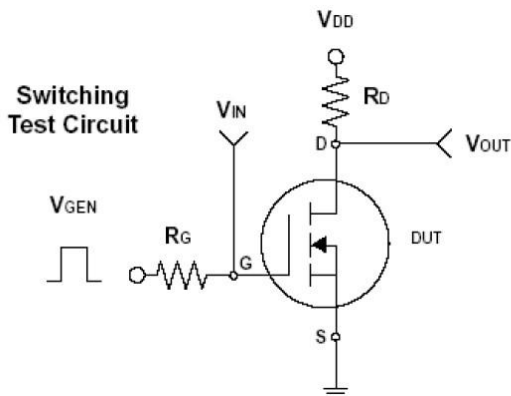
On Characteristics ^a						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1.0	1.6	2.5	V
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} =10V, I _D =8.5A	---	15	20	mΩ
		V _{GS} =4.5V, I _D =6A	---	18	25	
Forward Transconductance	g _{fs}	V _{DS} =10V, I _D =5A	---	4	---	S
Drain-Source Diode Characteristics ^a						
Continuous Source Current	I _S	V _G =V _D =0V, Force Current	---	---	8.0	A
Pulsed Source Current	I _{SM}		---	---	36	A
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =1.0A, T _J =25℃	---	---	1.2	V
Gate Resistance	R _G	V _{GS} =0V, V _{DS} =0V, F=1MHz	---	3.2	6.4	Ω
Dynamic Characteristics ^b						
Input Capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V, F=1MHz	---	330	480	pF
Output Capacitance	C _{oss}		---	50	75	
Reverse Transfer Capacitance	C _{rss}		---	30	42	
Switching Characteristics ^b						
Total Gate Charge	Q _g	V _{DS} =15V, V _{GS} =4.5V, I _D =8A	---	4.1	8	nC
Gate-Source Charge	Q _{gs}		---	1	2	
Gate-Drain Charge	Q _{gd}		---	2.1	4	
Turn-On Delay Time	T _{d(on)}	V _{DD} =15V, V _{GS} =10V, R _G =6Ω I _D =1A	---	2.6	5	ns
Rise Time	T _r		---	7.2	14	
Turn-Off Delay Time	T _{d(off)}		---	15.8	30	
Fall Time	T _f		---	4.6	9	

Notes: a. Repetitive Rating: Pulsed width limited by maximum junction temperature.

b. Pulse test: pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.

c. Guaranteed by design, not subject to production testing.

Switching Time Test Circuit and Waveforms



Soldering Methods For Products

1. Storage environment : Temperature=10°C~35°C, Humidity=65%±15%
2. Reflow soldering of surface mount devices

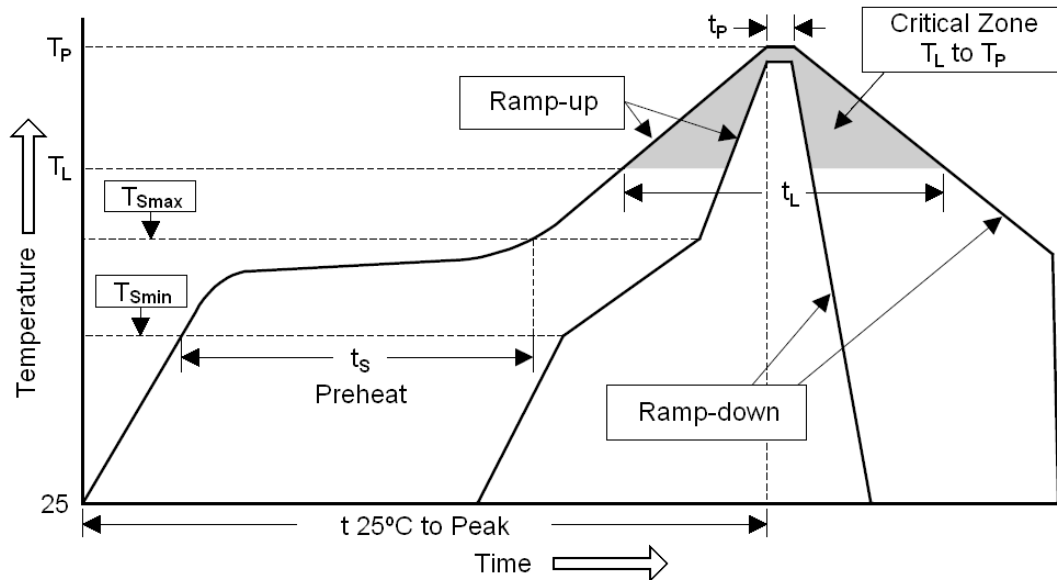


Figure : Temperature Profile

Profile Feature	Sn-Pb Eutectic Assembly	Pb-Free Assembly
Average ramp-up rate (T_L to T_P)	< 3°C/sec	< 3°C/sec
Preheat		
- Temperature Min (T_{Smin})	100°C	100°C
- Temperature Max (T_{Smax})	150°C	200°C
- Time (Min to Max) (t_s)	60 ~ 120 sec	60 ~ 180 sec
T_{Smax} to T_L		
- Ramp-up rate	< 3°C/sec	< 3°C/sec
Time maintained above:		
- Temperature (T_L)	183°C	217°C
- Time (t_L)	60 ~ 150 sec	60 ~ 150 sec
Peak Temperature (T_P)	240°C +0/-5°C	260°C +0/-5°C
Time within 5°C of actual Peak Temperature (t_p)	10 ~ 30 sec	20 ~ 40 sec
Ramp-down rate	< 6°C/sec	< 6°C/sec
Time 25°C to Peak Temperature	< 6 minutes	< 8 minutes

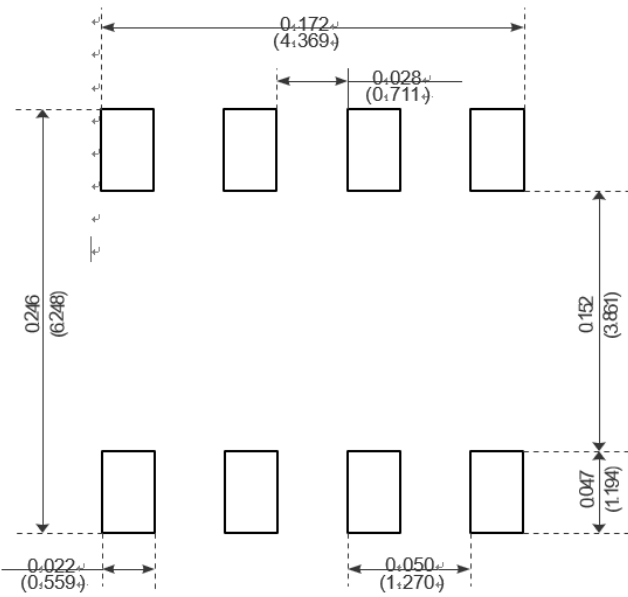
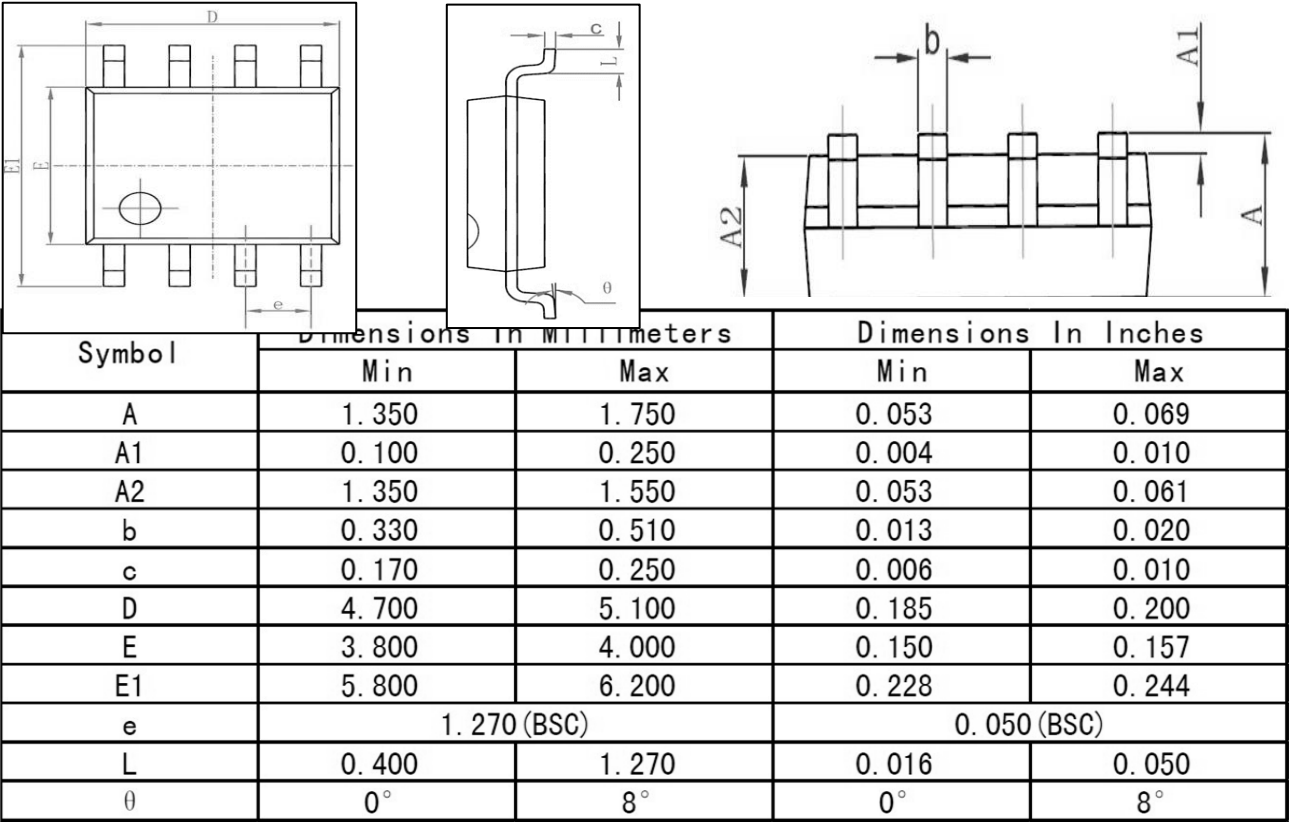
3. Flow (wave) soldering (solder dipping)

Product	Peak Temperature	Dipping Time
Pb devices	245°C ±5°C	5sec ±1sec
Pb-Free devices	260°C +0/-5°C	5sec ±1sec

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- MOS 管电路是静电敏感元器件，且对生产环境要求较严，建议在存放及生产操作时一定要避免静电干扰，经锡炉或回焊炉的温度切勿超过 260 度。

Package Mechanical Data-SOP-8



Recommended Minimum Pads