

General Description

The MY4805 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.

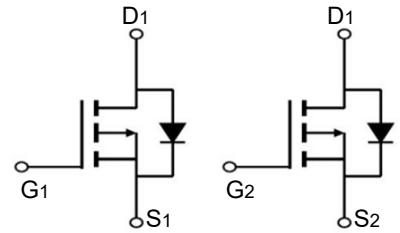
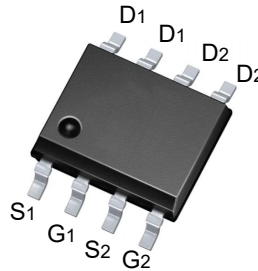
Application

- MB / VGA / Vcore
- POL Applications
- Load Switch
- LED Applications



Features

V_{DSS}	-30	V
I_D	-12	A
$R_{DS(ON)}(at V_{GS} = -10V)$	12	m Ω
$R_{DS(ON)}(at V_{GS} = -4.5V)$	17	m Ω



Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
MY4805	SOP-8	4805	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	-12	A
	T _C =70°C		-7.5	
Drain Current – Pulsed ^a		I _{DM}	-40	A
Power Dissipation (T _C =25°C)		P _D	2.1	W
Power Dissipation – Decrease 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-Ambient1		R _{θJA}	62.5	°C/W

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

Parameter		Symbol	Condition	Min	Typ	Max	Unit
Off Characteristics							
Drain-Source Breakdown Voltage		BV _{DSS}	V _{GS} =0V, I _D =-250μA	-30	---	---	V
Zero Gate Voltage Drain Current	T _J =25 °C	I _{DSS}	V _{DS} =-30V, V _{GS} =0V	---	---	-1	μA
	T _J = 125°C		V _{DS} =-24V, V _{GS} =0V	---	---	-10	μA
Gate-Body Leakage		I _{GSS}	V _{GS} =±20V, V _{DS} =0V	---	---	±100	nA
On Characteristics ^a							
Gate Threshold Voltage		V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-1.2	-1.6	-2.5	V
Drain-Source On-State Resistance		R _{DS(on)}	V _{GS} =-10V, I _D =-9.0A	---	12	18	mΩ
			V _{GS} =-4.5V, I _D =-5.0A	---	17	27	
Forward Transconductance		g _{fs}	V _{DS} =-10V, I _D =-8A	---	10.5	---	S
Drain-Source Diode Characteristics ^a							
Continuous Source Current		I _S	V _G =V _D =0V, Force Current	---	---	-10	A
Pulsed Source Current		I _{SM}		---	---	-40	A
Diode Forward Voltage		V _{SD}	V _{GS} =0V, I _S =-1.0A, T _J =25C	---	---	-1.0	V
Dynamic Characteristics ^b							
Input Capacitance		C _{iss}	V _{DS} =-15V, V _{GS} =0V, F=1MHz	---	1730	2510	pF
Output Capacitance		C _{oss}		---	180	260	
Reverse Transfer Capacitance		C _{rss}		---	125	180	
Switching Characteristics		^b					
Total Gate Charge		Q _g	V _{DS} =-15V, V _{GS} =-4.5V, I _D =-8A	---	14.6	21	nC
Gate-Source Charge		Q _{gs}		---	4.1	6	
Gate-Drain Charge		Q _{gd}		---	6.3	9	
Turn-On Delay Time		T _{d(on)}	V _{DD} =-15V, V _{GS} =-10V, R _G =6Q I _D =-1A	---	9	17	ns
Rise Time		Tr		---	21.8	41	
Turn-Off Delay Time		T _{d(off)}		---	59.8	114	
Fall Time		T _f		---	14.4	27	

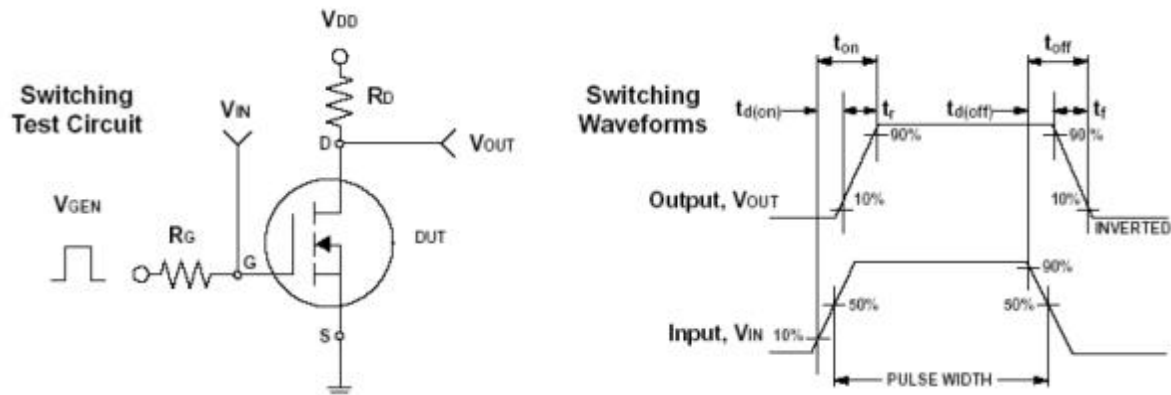
Notes: a. Repetitive Rating: Pulsed width limited by maximum junction temperature.

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

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

Typical Electrical and Thermal Characteristics

Switching Time Test Circuit and Waveforms



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

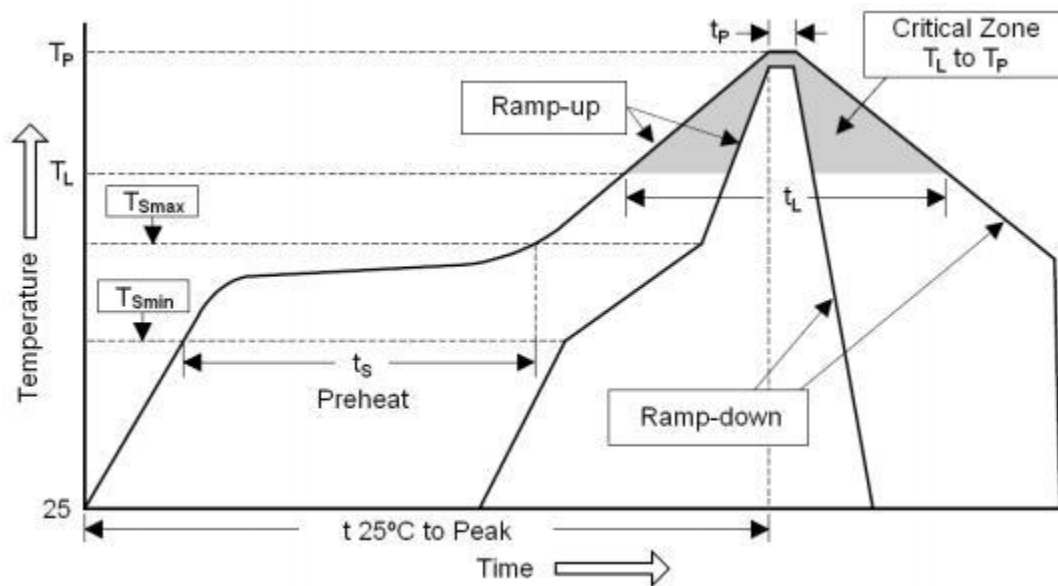


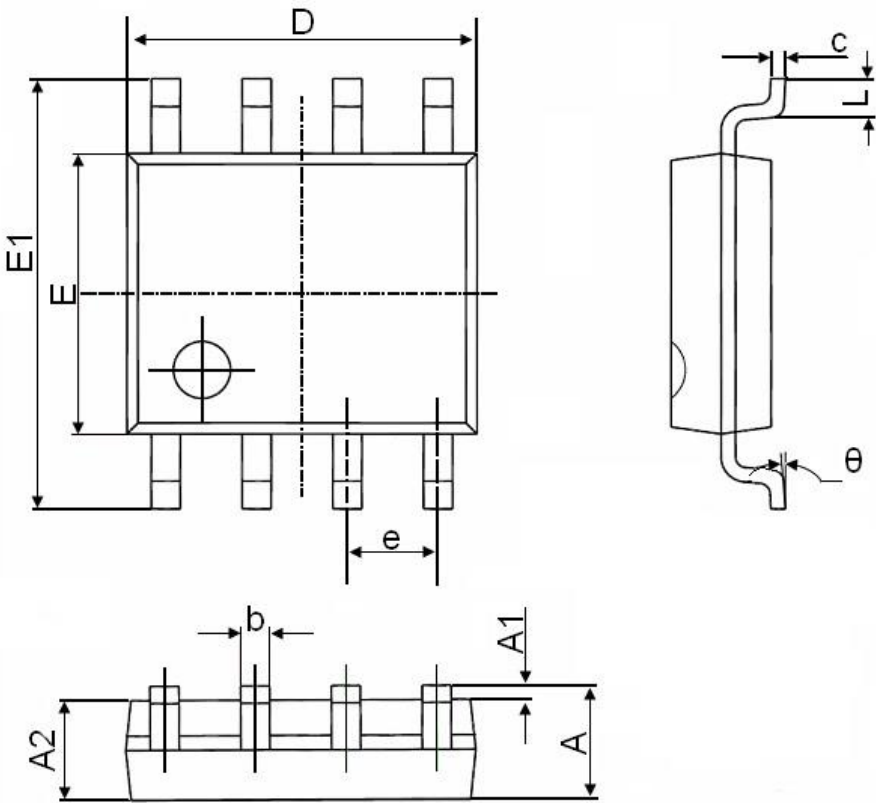
Figure : Temperature Profile

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}) - Temperature Max (T_{Smax}) - Time (Min to Max) (t_s)	100°C 150°C 60 ~ 120 sec	100°C 200°C 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 60 ~ 150 sec	217°C 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

Package Mechanical Data-SOP-8



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