

### 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.

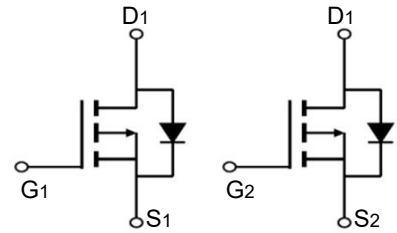
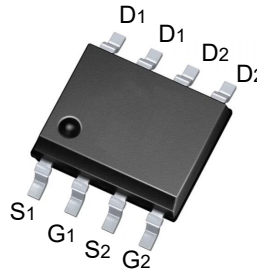


### Features

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

### Application

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



### Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
MY4805	SOP-8	4805	3000

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

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	$V_{DS}$	-30	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Drain Current <sup>a</sup>	$I_D$	$T_C=25^\circ C$	-12
		$T_C=70^\circ C$	-7.5
Drain Current – Pulsed <sup>a</sup>	$I_{DM}$	-40	A
Power Dissipation ( $T_C=25^\circ C$ )	$P_D$	2.1	W
Power Dissipation – Decrease above $25^\circ C$		0.017	W/ $^\circ C$
Storage Temperature Range	$T_{STG}$	-55 ~ +150	$^\circ C$
Operating Junction Temperature Range	$T_J$	-55 ~ +150	$^\circ C$
Thermal Resistance, Junction-to-Ambient1	$R_{\theta JA}$	62.5	$^\circ C/W$

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

Parameter	Symbol	Condition	Min	Typ	Max	Unit
<b>Off Characteristics</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-30	---	---	V
Zero Gate Voltage Drain Current	$I_{DSS}$	$T_J=25\text{ }^\circ\text{C}$ $V_{DS}=-30V, V_{GS}=0V$	---	---	-1	$\mu A$
		$T_J=125\text{ }^\circ\text{C}$ $V_{DS}=-24V, V_{GS}=0V$	---	---	-10	$\mu A$
Gate-Body Leakage	$I_{GSS}$	$V_{GS}=\pm 20V, V_{DS}=0V$	---	---	$\pm 100$	nA
<b>On Characteristics <sup>a</sup></b>						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1.2	-1.6	-2.5	V
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS}=-10V, I_D=-9.0A$	---	12	18	m $\Omega$
		$V_{GS}=-4.5V, I_D=-5.0A$	---	17	27	
Forward Transconductance	$g_{fs}$	$V_{DS}=-10V, I_D=-8A$	---	10.5	---	S
<b>Drain-Source Diode Characteristics <sup>a</sup></b>						
Continuous Source Current	$I_S$	$V_G=V_D=0V, \text{Force Current}$	---	---	-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
<b>Dynamic Characteristics <sup>b</sup></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	
<b>Switching Characteristics <sup>b</sup></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	$T_r$		---	21.8	41	
Turn-Off Delay Time	$T_{d(off)}$		---	59.8	114	
Fall Time	$T_f$		---	14.4	27	

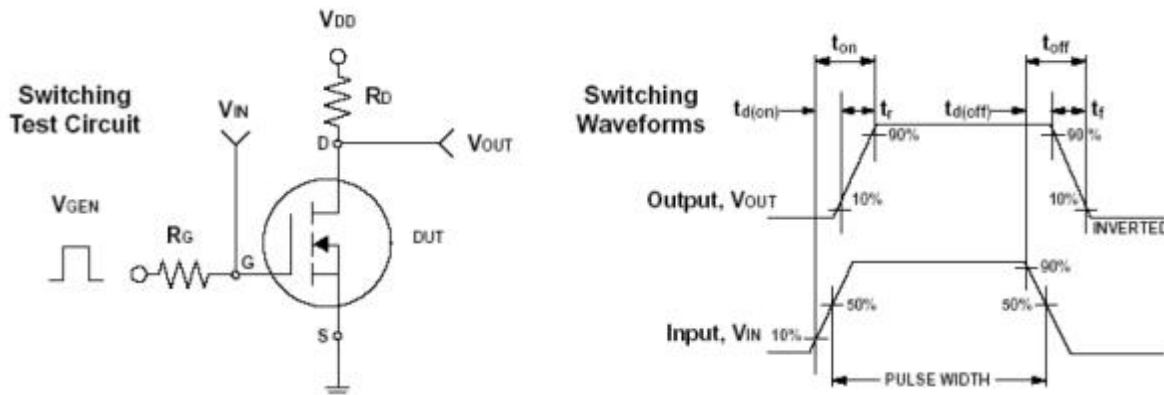
Notes: a. Repetitive Rating: Pulsed width limited by maximum junction temperature.

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

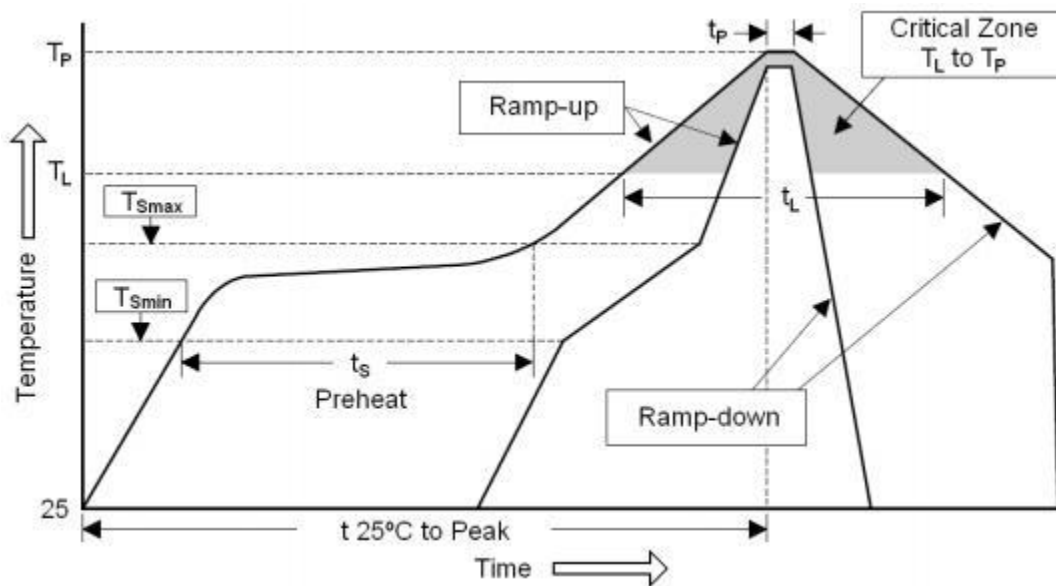
c. Guaranteed by design, not subject to production testing.

**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



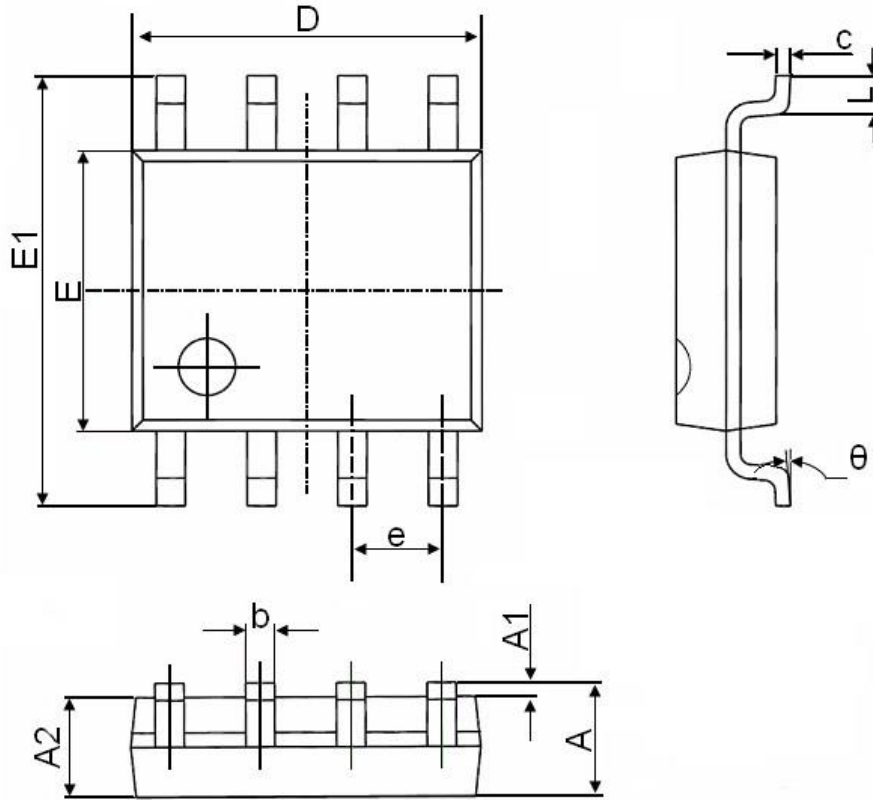
**Figure : Temperature Profile**

Profile Feature	Sn-Pb Eutectic Assembly	Pb-Free Assembly
Average ramp-up rate (T <sub>L</sub> to T <sub>P</sub> )	< 3°C/sec	< 3°C/sec
Preheat - Temperature Min (T <sub>Smin</sub> ) - Temperature Max (T <sub>Smax</sub> ) - Time (Min to Max) (t <sub>s</sub> )	100°C 150°C 60 ~ 120 sec	100°C 200°C 60 ~ 180 sec
T <sub>Smax</sub> to T <sub>L</sub> - Ramp-up rate	< 3°C/sec	< 3°C/sec
Time maintained above: - Temperature (T <sub>L</sub> )	183°C 60 ~ 150 sec	217°C 60 ~ 150 sec
Peak Temperature (T <sub>P</sub> )	240°C +0/-5°C	260°C +0/-5°C
Time within 5°C of actual Peak Temperature (t <sub>P</sub> )	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