ER4805A

-30V Dual P-Channel MOSFET

Features

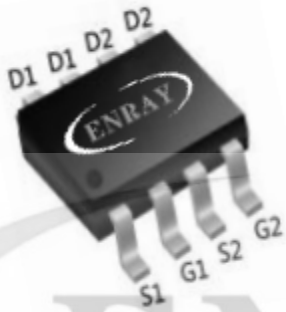
The E R 4805A is the high cell density trenched P-ch MOSFETs, which provide excellent RDSON and gate charge for most of the synchronous buck converter applications.

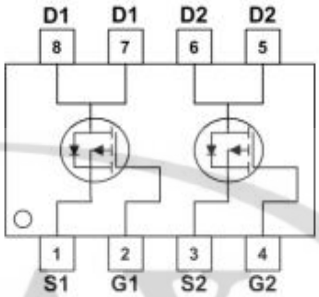
The DS4805A meet the RoHS and Green Product

Product Summary

V_{DS}	-30V
I_D	-9.5A
$R_{DS(ON)}$ (at V_{GS}=-10V)	<25mΩ
$R_{DS(ON)}$ (at V_{GS} =-4.5V)	< 42mΩ

)ual SOP-8





Maximum Ratings(Ta=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	±20	
Continuous Drain Current VGS @ 10V[1]	ID@TA=25℃	-9.5	A
Continuous Drain Current VGS @ 10V[1]	ID@TA =100℃	-5.9	
Pulsed Drain Current [2]	I_{DM}	-36	
Single Pulse Avalanche Energy	EAS	25	mJ
Total Power Dissipation	PD@TA=25℃	3.3	W
Storage Temperature Range	TSTG	-55 to 150	℃
Operating Junction Temperature Range	TJ	-55 to 150	

Thermal Data

Parameter	Symbol	Max.	Unit
Thermal Resistance Junction-ambient	RθJA	38	℃/W

Electrical Characteristics(TJ=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static Parameters ③						
Drain-Source Breakdown Voltage	BV_{DSS}	VGS = 0V, ID = -250μA	-30			V
Gate Threshold Voltage	$V_{GS(th)}$	VDS =VGS, ID = -250μA	-1.0		-2.5	V
Gate-Body leakage Current	I_{GSS}	VDS = 0V, VGS = ±20V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	VDS = -24V, VGS = 0V			-1	μA
Static Drain-Source On-Resistance	$R_{DS(on)}$	VGS = -10V, ID = -6A		18	25	mΩ
		VGS = -4.5V, ID = -4A		25	42	mΩ
Dynamic Parameters ④						
Input Capacitance	Ciss	VDS = -15V, VGS =0V, f =1MHz		1345		pF
Output Capacitance	Coss			194		pF
Reverse Transfer Capacitance	Crss			158		pF
Total Gate Charge	Qg	VDS=- 15V , VGS=-4.5V , ID=-6A		12.6		nC
Gate Source Charge	Qgs			4.8		nC
Gate Drain Charge	Qgd			4.8		nC
Switching Parameters ④						
Turn-On DelayTime	td(on)	VDD=- 15V , VGS=- 10V , RG=3.3Ω ID=-6A		4.6		ns
Turn-On Rise Time	tr			14.8		ns
Turn-Off DelayTime	td(off)			41		ns
Turn-Off Fall Time	tf			19.6		ns
Drain-Source Diode Characteristics and Maximum Ratings						
Continuous Source Current[1,4]	IS	VG=VD=0V , Force Current			-6.5	A
Pulsed Source Current	ISM				-26	A
Diode Forward Voltage[2]	VSD	VGS=0V , IS=- 1A , TJ=25C			-1.2	V
Reverse Recovery Time	trr	IF=-6A , dI/dt=100A/μs , TJ=25℃		16.3		ns
Reverse Recovery Charge	Qrr			5.9		nc

Note :

1. Repetitive Rating : Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t < 5 sec.
3. Pulse Test : Pulse Width≤300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production testing.

Typical Electrical and Thermal Characteristics

Figure1 : Output Characteristics

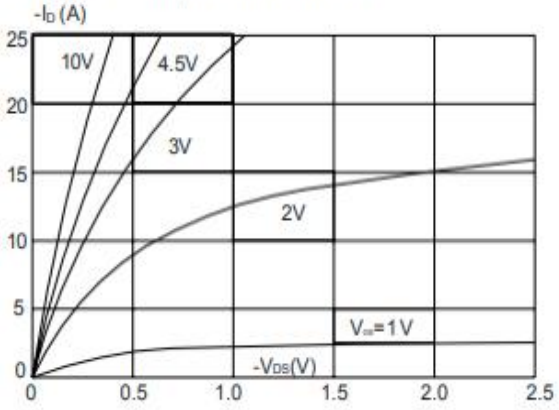


Figure 2 : Typical Transfer Characteristics

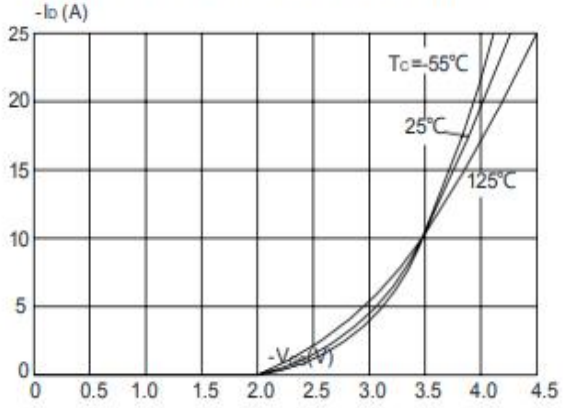


Figure 3: On-resistance vs. Drain Current

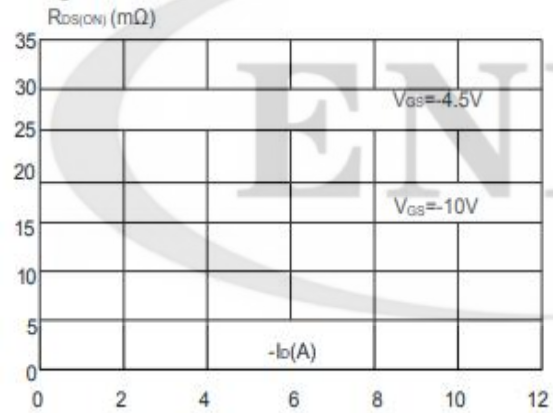


Figure 4 : Body Diode Characteristics

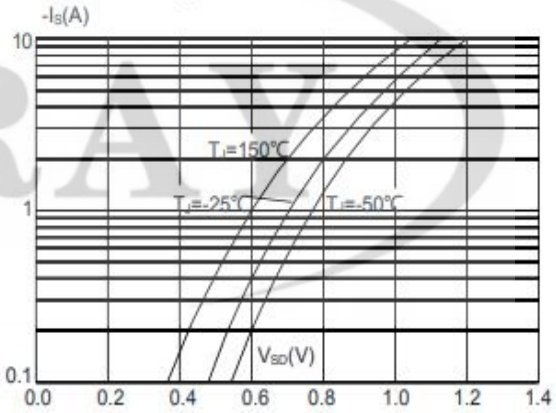


Figure 5: Gate Charge Characteristics

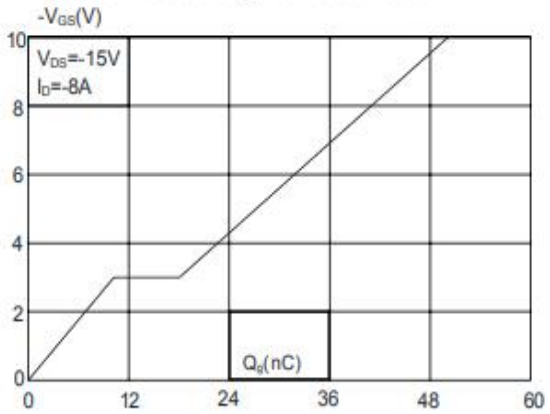
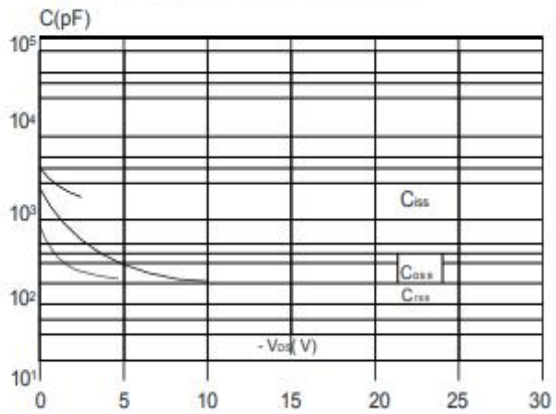


Figure 6: Capacitance Characteristics



Typical Electrical and Thermal Characteristics

Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

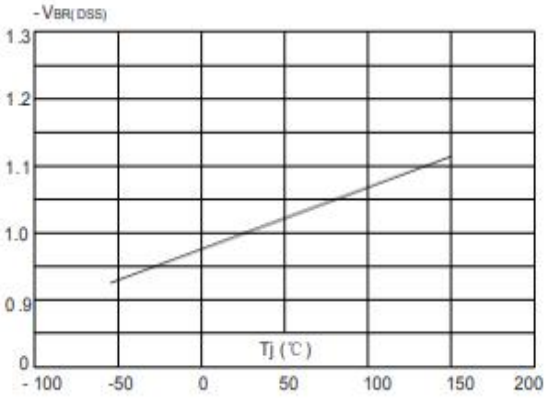


Figure 8: Normalized on Resistance vs. Junction Temperature

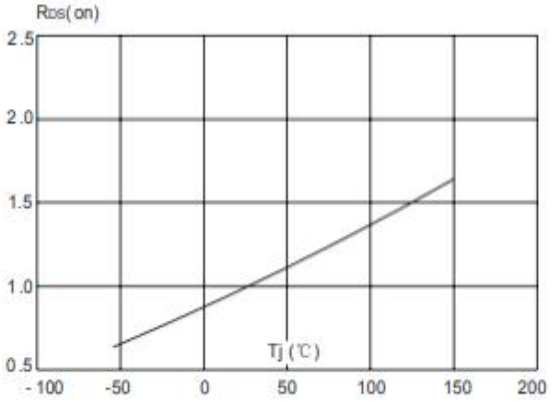


Figure 9: Maximum Safe Operating Area

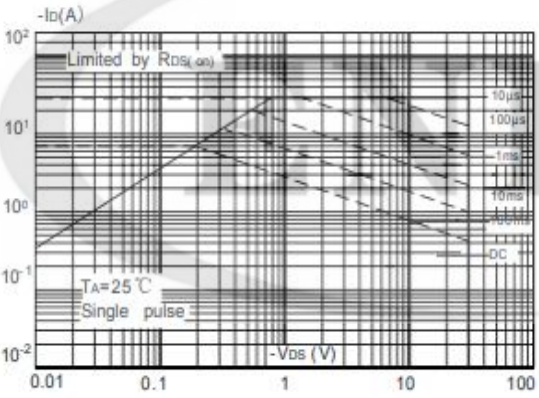
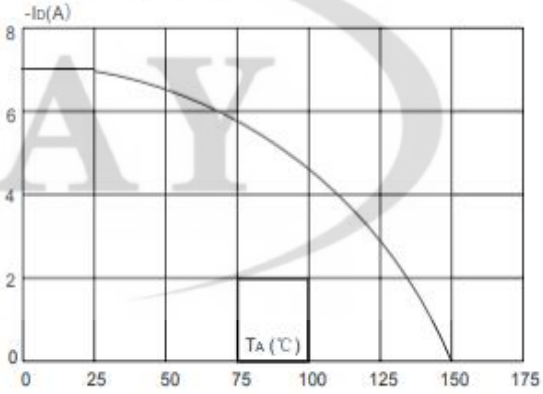
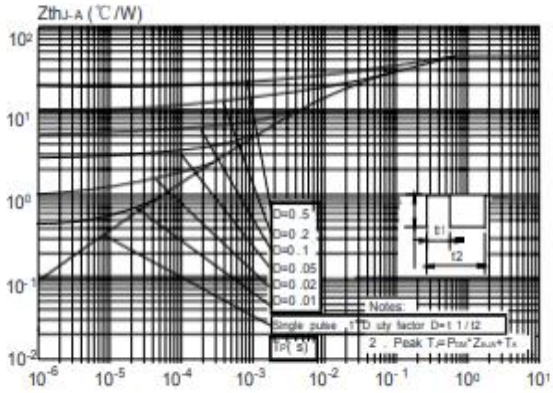


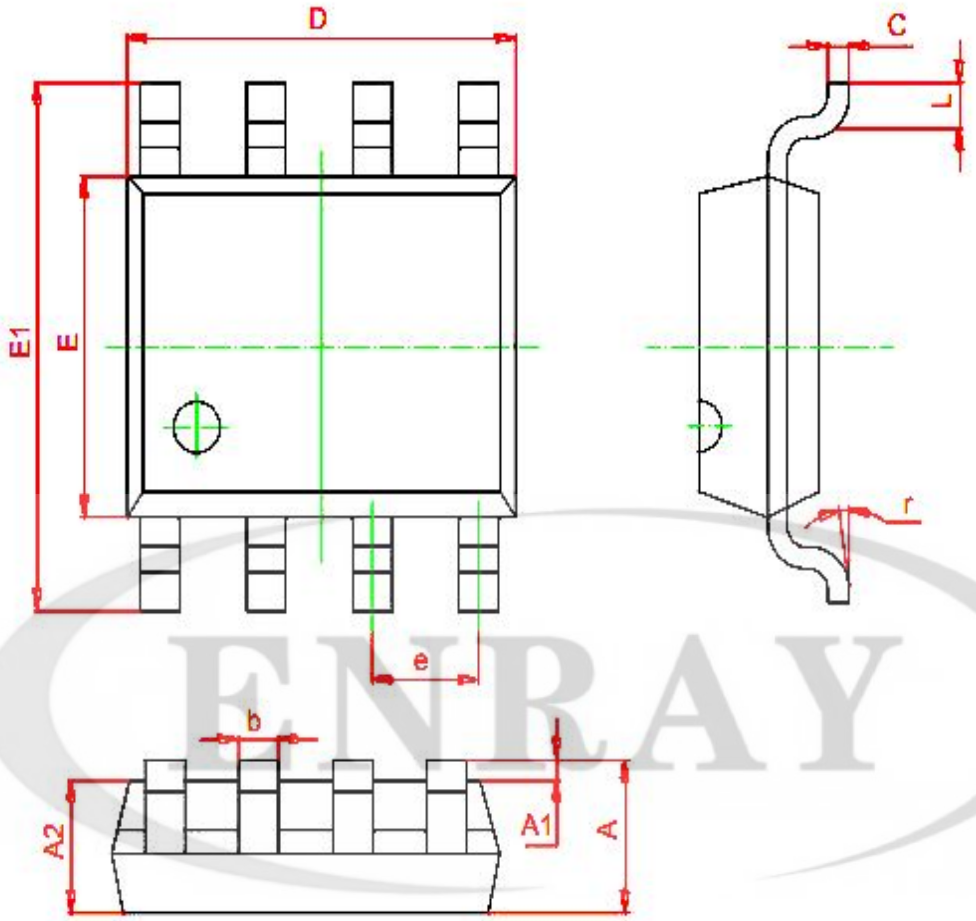
Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature



Maximum Effective Transient Thermal Impedance, Junction-to-Ambient



Dual SOP-8 Package Outline Dimesions



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°