



ER4822A

30V Dual N-Channel MOSFET

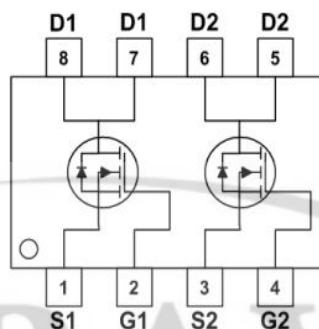
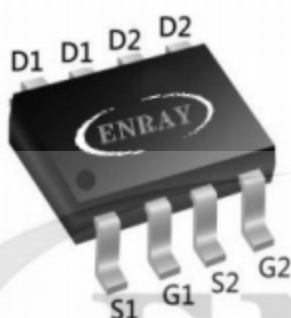
Features

The ER4822A is the high cell density trench dN-ch MOSFETs, which provide excellent RDSON and gate charge for most of the synchronous buck converter applications. The ER4822A meet the RoHS and Green Product requirement, 100% EAS guaranteed with full function reliability approved.

Product Summary

V _{DS}	30V
I _D	9.5A
R _{DS(ON)} (at V _{GS} =10V)	<20mΩ
R _{DS(ON)} (at V _{GS} =4.5V)	< 29mΩ

Dual SOP-8



Maximum Ratings(Ta=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	30	V
Gate-Source Voltage	V _{GS}	±20	
Continuous Drain Current, V _{GS} @10V ¹	I _{D@TA=25°C}	9.5	A
Continuous Drain Current, V _{GS} @ 10V	I _{D@TA=70°C}	5.8	
Pulsed Drain Current ²	I _{DM}	37	
Single Pulse Avalanche Energy	EAS	12.1	mJ
Avalanche Current	IAS	-	A
Total Power Dissipation	PD@TA=25°C	2.8	W
Storage Temperature Range	TSTG	-55 to 150	°C
Operating Junction Temperature Range	TJ	-55 to 150	

Thermal Data

Parameter	Symbol	Max.	Unit
Thermal Resistance Junction-ambient	RθJA		°C/W
Thermal Resistance Junction-Case	RθJC	46	



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

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static Parameters ③						
Drain-Source Breakdown Voltage	BVDSS	VGS = 0V, ID = 250μA	30			V
Gate Threshold Voltage	VGS(th)	VDS = VGS, ID = 250μA	1.0	1.5	2.5	V
Gate-Body leakage Current	IGSS	VDS = 0V, VGS = ±20V			±100	nA
Zero Gate Voltage Drain Current	IDSS	VDS = 30V, VGS = 0V			1	μA
Static Drain-Source On-Resistance	RDS(on)	VGS = 10V, ID = 5A		15	20	mΩ
		VGS = 4.5V, ID = 3A		21	29	mΩ
Dynamic Parameters ④						
Input Capacitance	Ciss	VDS = 15V, VGS = 0V, f = 1MHz		490		pF
Output Capacitance	Coss			79		pF
Reverse Transfer Capacitance	Crss			61		pF
Total Gate Charge	Qg	VDS = 15V, VGS = 5.8V, ID = 10A		10		nC
Gate Source Charge	Qgs			1.7		nC
Gate Drain Charge	Qgd			2.5		nC
Switching Parameters ④						
Turn-On Delay Time	td(on)	VDS = 15V, ID = 3A, VGS = 10V, RREN = 3Ω		6		ns
Turn-On Rise Time	tr			15		ns
Turn-Off Delay Time	td(off)			17		ns
Turn-Off Fall Time	tf			17		ns
Drain-Source Diode Characteristics and Maximum Ratings						
Maximum Continuous Drain to Source Diode Forward Current		IS			9	A
Maximum Pulsed Drain to Source Diode Forward Current		ISM			36	
Drain to Source Diode Forward Voltage	VSD	VGS = 0V, IS = 9A			1.2	V
Body Diode Reverse Recovery Time	trr	IF = 5A, dI/dt = 100A/μs		7		ns
Body Diode Reverse Recovery Charge	Qrr			2		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

Figure 1: Output Characteristics

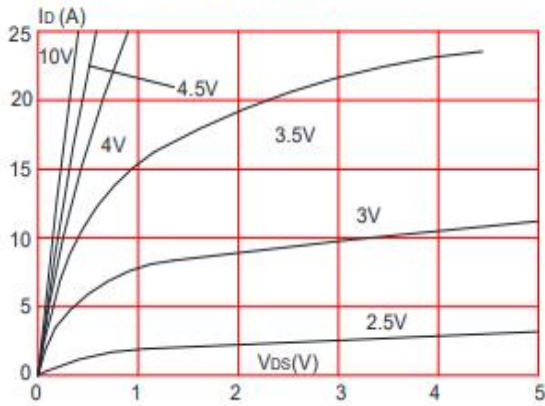


Figure 2: Typical Transfer Characteristics

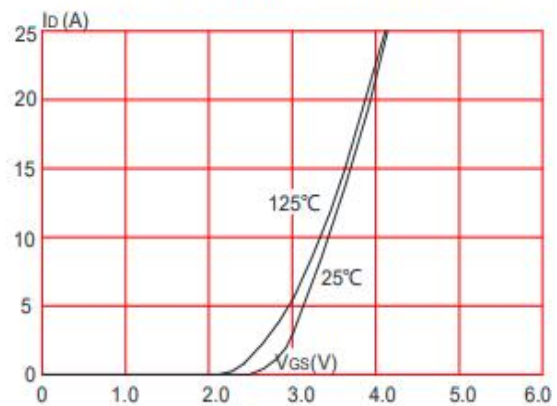


Figure 3: On-resistance vs. Drain Current

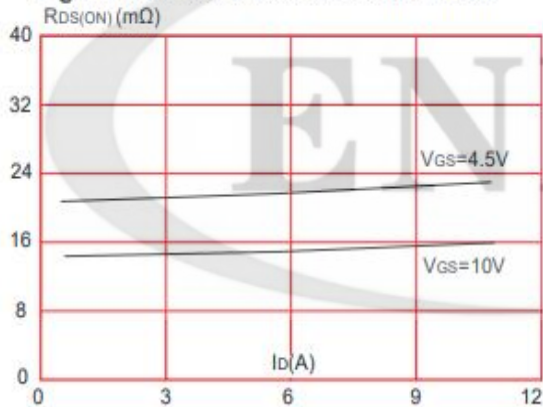


Figure 4: Body Diode Characteristics

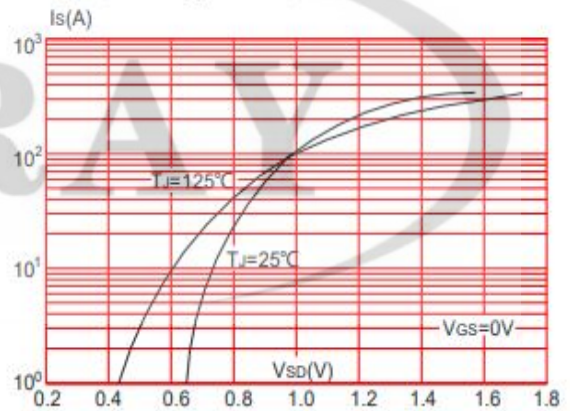


Figure 5: Gate Charge Characteristics

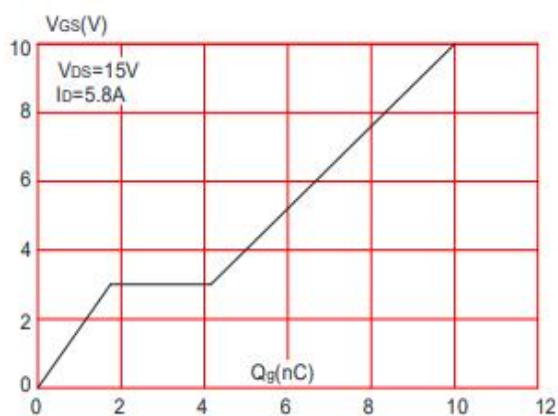
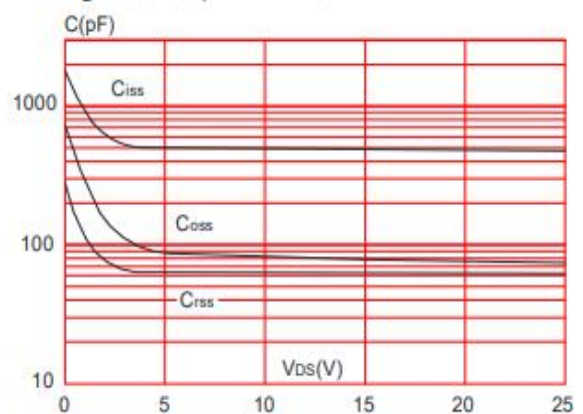


Figure 6: Capacitance Characteristics



Typical Electrical and Thermal Characteristics

Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

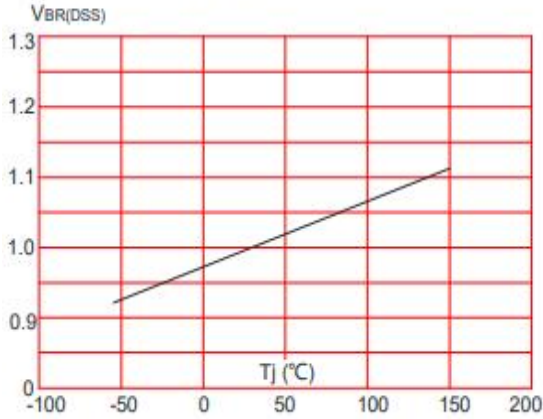


Figure 8: Normalized on Resistance vs. Junction Temperature

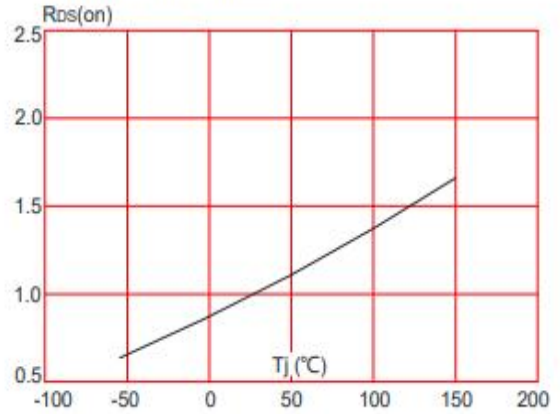


Figure 9: Maximum Safe Operating Area

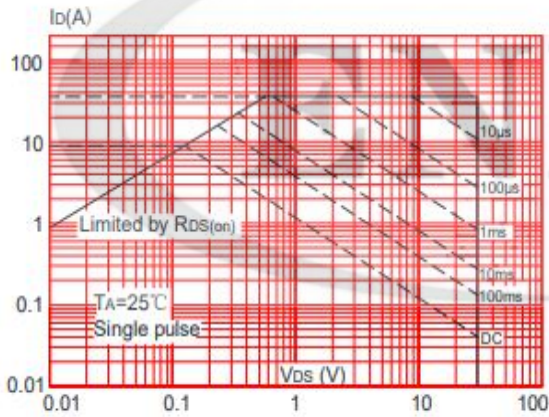


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

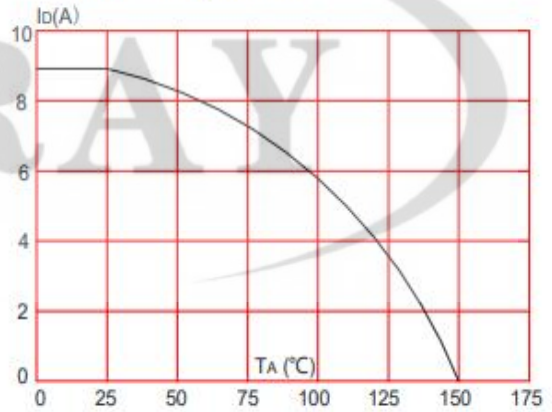
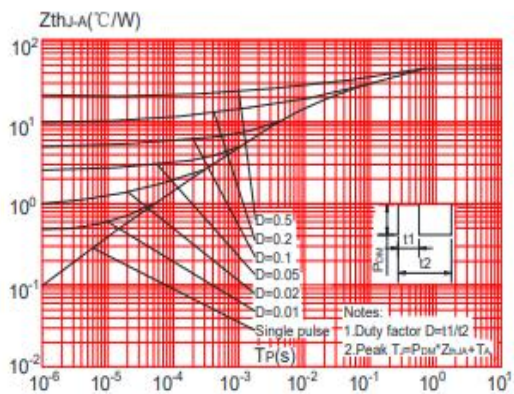
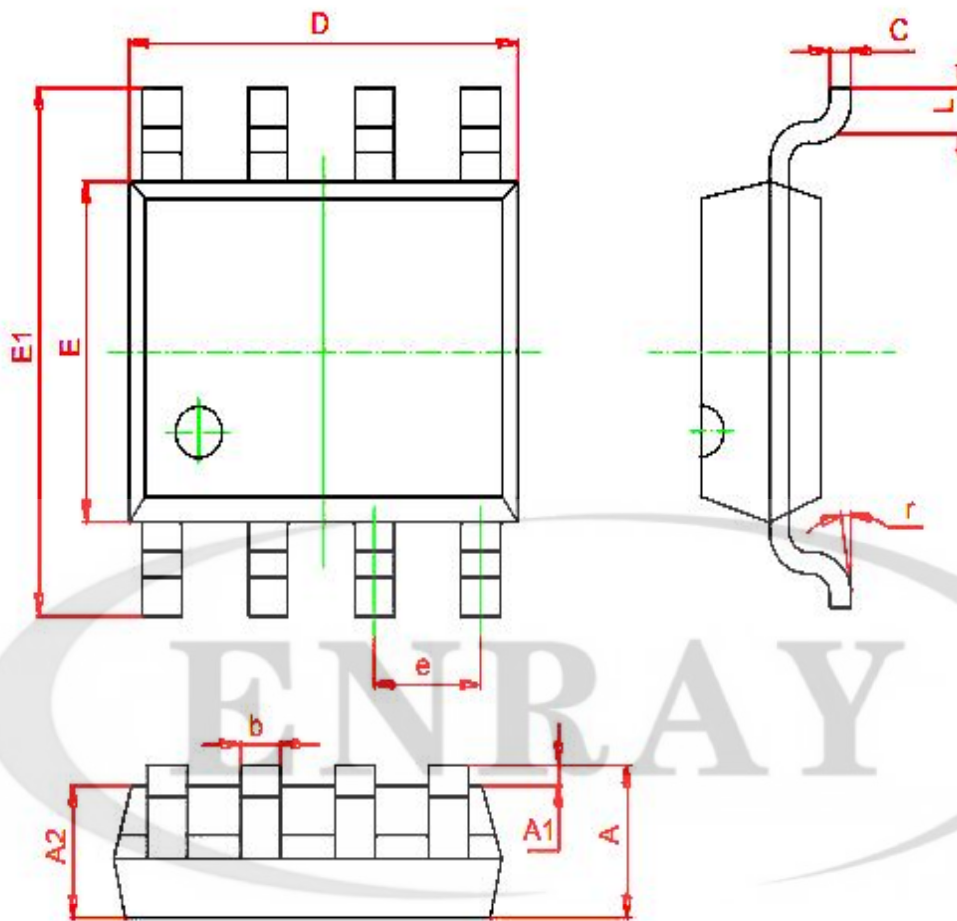


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambient



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°