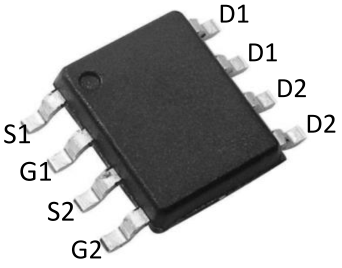
TW4828

Features

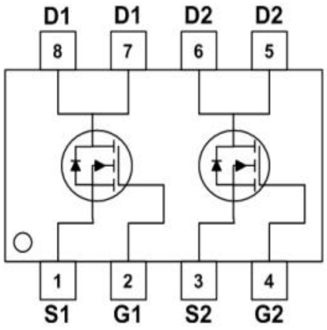
The TW4828 is the high cell density trenched N-ch MOSFETs, which provide excellent RDSON and gate charge for most of the synchronous buck converter applications. The TW4828 meet the RoHS and Green Product requirement, 100% EAS guaranteed with full function reliability approved.

Product Summary

V_{DS}	60V
I_D	6.0A
$R_{DS(ON)}$ (at V_{GS}=10V)	<40mΩ
$R_{DS(ON)}$ (at V_{GS} =4.5V)	< 50mΩ



Dual SOP-8



Maximum Ratings(Ta=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	
Continuous Drain Current, VGS @10V[1]	ID@TA=25℃	6.0	A
Continuous Drain Current, VGS @ 10V	ID@TA=70℃	4.5	
Pulsed Drain Current [2]	I_{DM}	22	
Single Pulse Avalanche Energy	EAS	22	mJ
Avalanche Current	IAS	23	A
Total Power Dissipation	PD@TA=25℃	1.5	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	85	℃/W
Thermal Resistance Junction-Case	RθJC	25	

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

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static Parameters						
Drain-Source Breakdown Voltage	BV_{DSS}	VGS = 0V, ID = 250μA	60			V
Gate Threshold Voltage	$V_{GS(th)}$	VDS =VGS, ID = 250μA	1.0	1.6	2.5	V
Gate-Body leakage Current	I_{GSS}	VDS =0V, VGS = ±20V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	VDS = 60V, VGS =0V			1	μA
Static Drain-Source On-Resistance	$R_{DS(on)}$	VGS = 10V, ID = 5A		28	40	mΩ
		VGS = 4.5V, ID = 3A		36	50	mΩ
Dynamic Parameters						
Input Capacitance	C_{iss}	VDS = 25V,VGS =0V, f=1MHz		1148		pF
Output Capacitance	C_{oss}			58.5		pF
Reverse Transfer Capacitance	C_{rss}			49.4		pF
Total Gate Charge	Q_g	VDS=30V, ID=2.5A, VGS=10V		20.3		nC
Gate Source Charge	Q_{gs}			3.7		nC
Gate Drain Charge	Q_{gd}			5.3		nC
Switching Parameters						
Turn-On DelayTime	$t_{d(on)}$	VDS=30V, ID=5A, RG=1.8Ω, VGS=10V		7.6		ns
Turn-On Rise Time	t_r			20		ns
Turn-Off DelayTime	$t_{d(off)}$			15		ns
Turn-Off Fall Time	t_f			24		ns
Drain-Source Diode Characteristics and Maximum Ratings						
Maximum Continuous Drain to Source Diode Forward Current	Is				5	A
Maximum Pulsed Drain to Source Diode Forward Current	ISM				20	
Drain to Source Diode Forward Voltage	VSD	VGS=0V, IS=5A			1.2	V
Body Diode Reverse Recovery Time	trr	IF=5A,dI/dt=100A/μs		29		ns
Body Diode Reverse Recovery Charge	Qrr			43		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

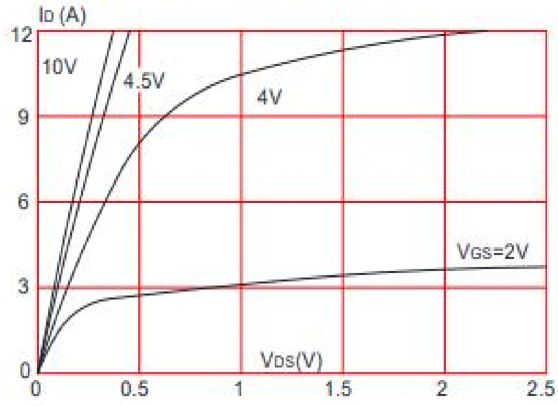


Figure 2: Typical Transfer Characteristics

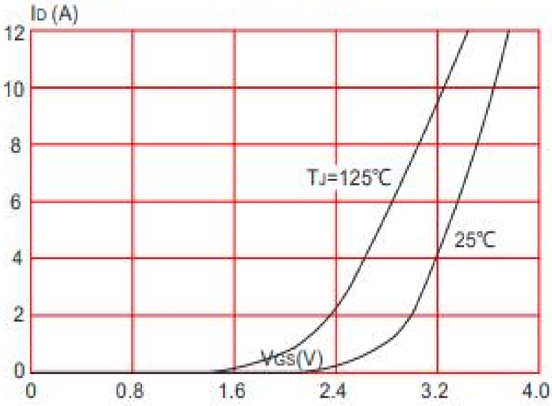


Figure 3: On-resistance vs. Drain Current

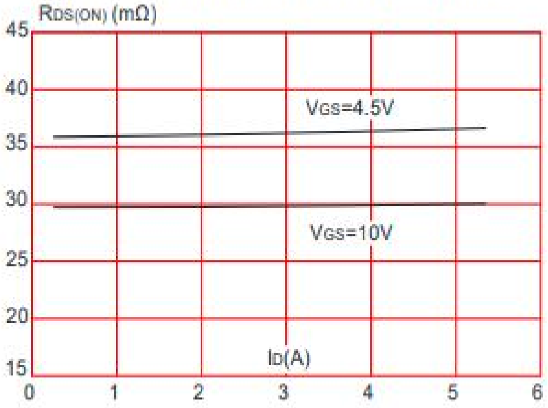


Figure 4: Body Diode Characteristics

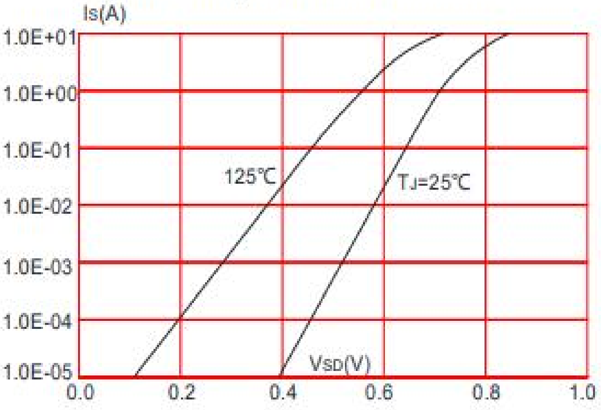


Figure 5: Gate Charge Characteristics

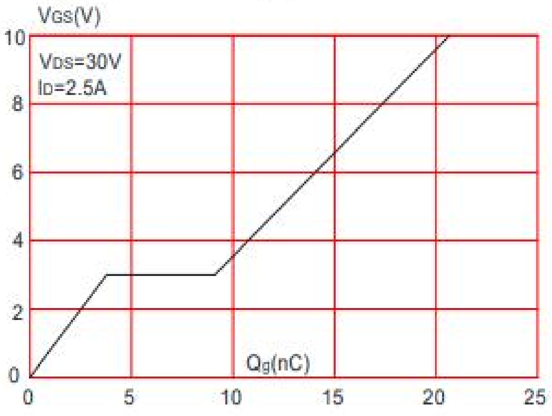
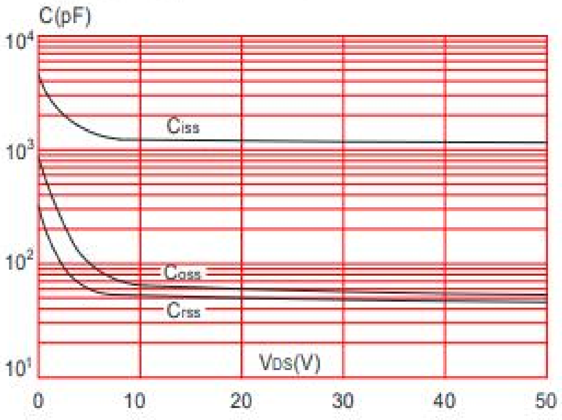


Figure 6: Capacitance Characteristics



Typical Electrical and Thermal Characteristics

Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

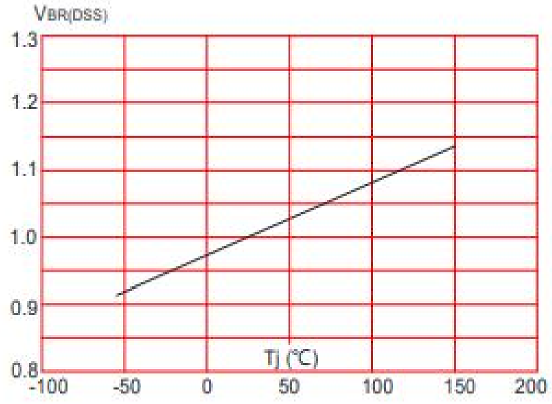


Figure 8: Normalized on Resistance vs. Junction Temperature

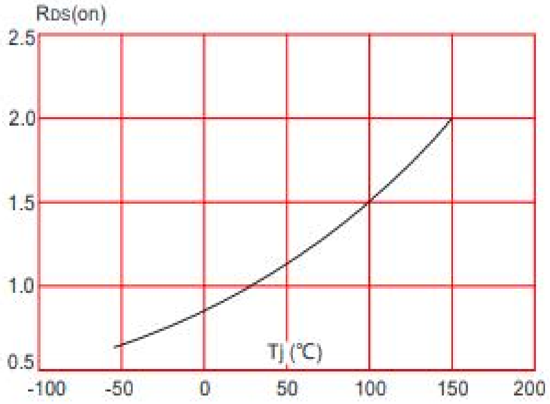


Figure 9: Maximum Safe Operating Area

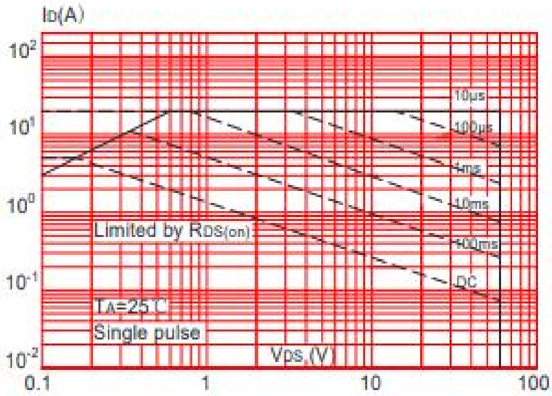


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

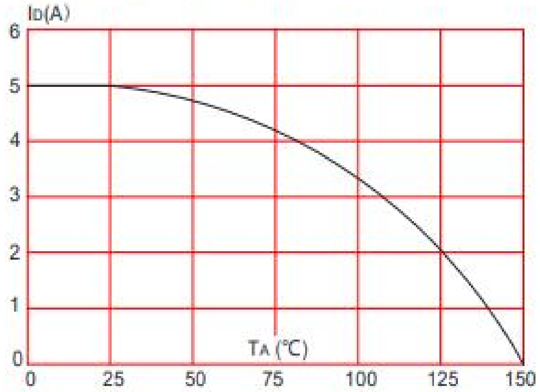
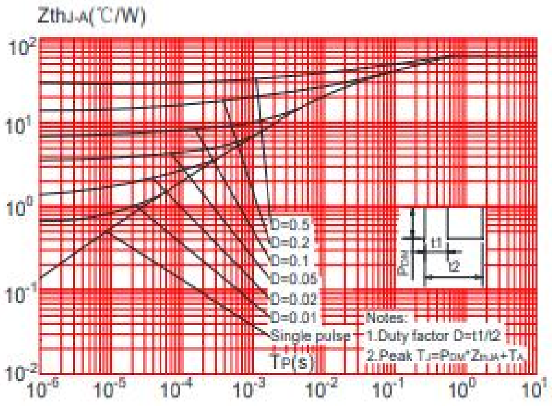
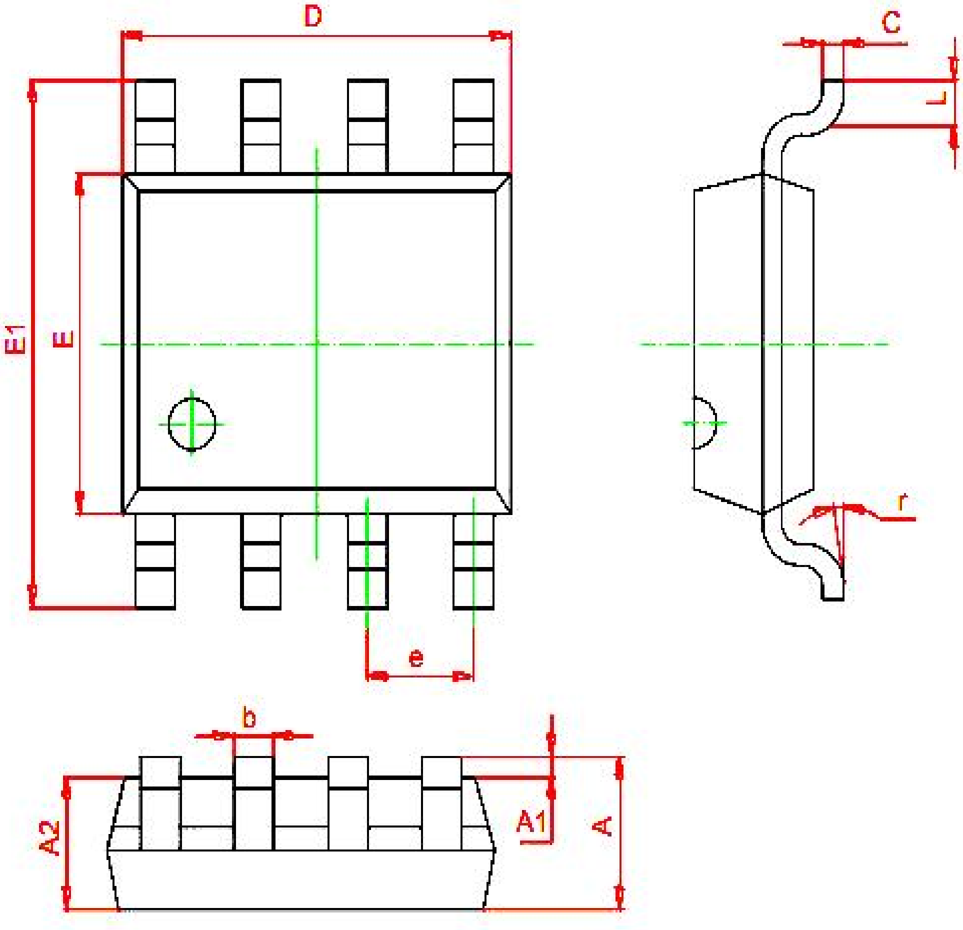


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambient



Notes:
1.Duty factor D=t1/t2
2.Peak $T_J=P_{DM}*Z_{thJA}+T_A$

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°