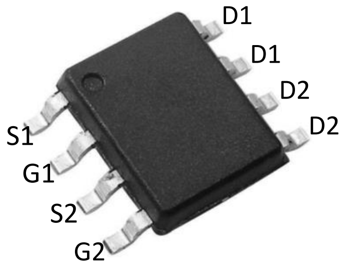
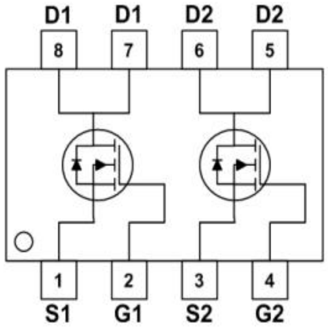
Features

The TW4884 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 TW4884 meet the RoHS and Green Product requirement, 100% EAS guaranteed with full function reliability approved.

Product Summary

V_{DS}	40V
I_D	10A
$R_{DS(ON)}$ (at V_{GS}=10V)	<13mΩ
$R_{DS(ON)}$ (at V_{GS} =4.5V)	< 16mΩ





Dual SOP-8

Maximum Ratings(Ta=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	40	V
Gate-Source Voltage	V_{GS}	±20	
Continuous Drain Current, VGS @10V[1]	ID@TA=25℃	10	A
Continuous Drain Current, VGS @ 10V	ID@TA=70℃	8	
Pulsed Drain Current [2]	I_{DM}	50	
Single Pulse Avalanche Energy	EAS	35	mJ
Avalanche Current	IAS	35	A
Total Power Dissipation	PD@TA=25℃	2	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	62.5	℃/W

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	40			V
Gate Threshold Voltage	$V_{GS(th)}$	VDS =VGS, ID = 250μA	1.55	2.2	2.7	V
Gate-Body leakage Current	I_{GSS}	VDS =0V, VGS = ±20V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	VDS = 32V, VGS =0V			1	μA
Static Drain-Source On-Resistance	$R_{DS(on)}$	VGS = 10V, ID = 10A		11	13	mΩ
		VGS = 4.5V, ID = 10A		12.7	16	mΩ
Dynamic Parameters						
Input Capacitance	C_{iss}	VGS=0V, VDS=20V f=1MHz	122	1505	1950	pF
Output Capacitance	C_{oss}		150	215	280	pF
Reverse Transfer Capacitance	C_{rss}		80	135	190	pF
Total Gate Charge	Q_g	VGS=10V, VDS=20V, ID=10A	22	27.2	33	nC
Gate Source Charge	Q_{gs}		3.6	4.5	5.4	nC
Gate Drain Charge	Q_{gd}		3.8	6.4	9	nC
Switching Parameters						
Turn-On DelayTime	$t_{d(on)}$	VGS=10V, VDS=20V, RL=2 Ω, RGEN=3Ω		6.4		ns
Turn-On Rise Time	t_r			17.2		ns
Turn-Off DelayTime	$t_{d(off)}$			29.6		ns
Turn-Off Fall Time	t_f			16.8		ns
Drain-Source Diode Characteristics and Maximum Ratings						
Body Diode Reverse Recovery Time	t_{rr}	IF=10A, dI/dt=500A/μs	9	13	17	ns
Body Diode Reverse Recovery Charge	Q_{rr}	IF=10A, dI/dt=500A/μs	25	35	45	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

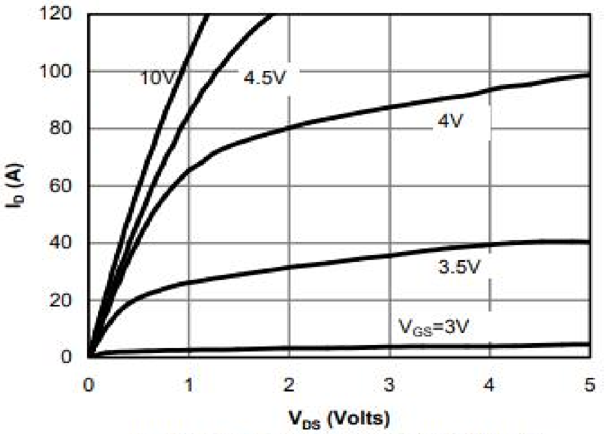


Fig 1: On-Region Characteristics (Note E)

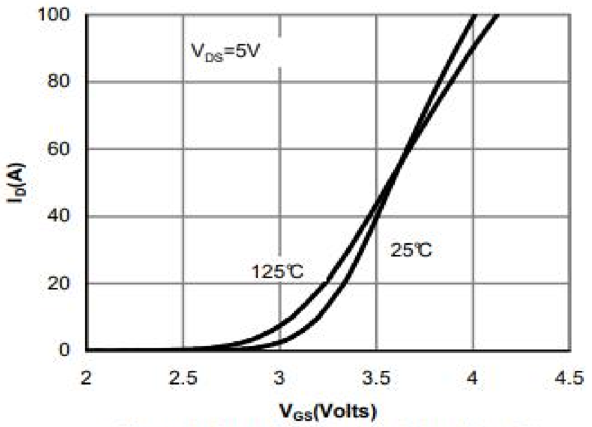


Figure 2: Transfer Characteristics (Note E)

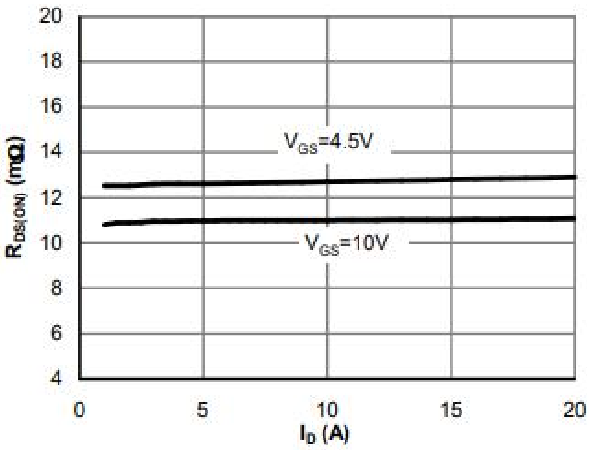


Figure 3: On-Resistance vs. Drain Current and Gate Voltage (Note E)

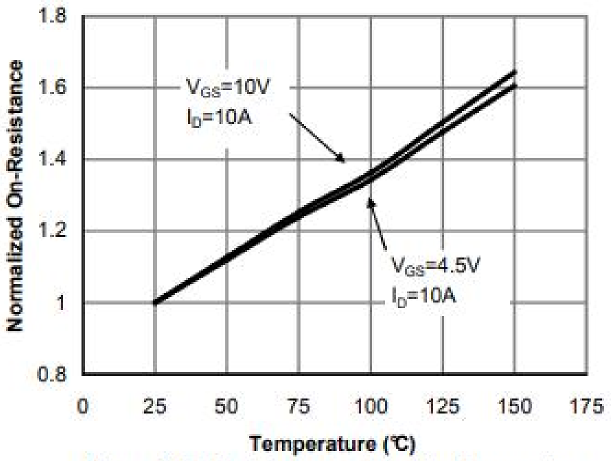


Figure 4: On-Resistance vs. Junction Temperature (Note E)

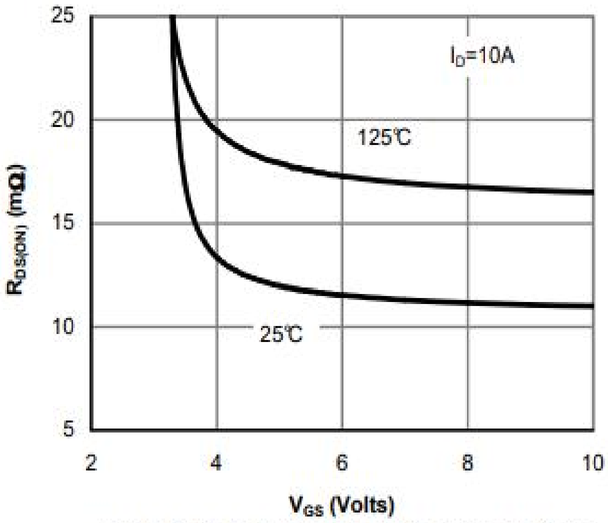


Figure 5: On-Resistance vs. Gate-Source Voltage (Note E)

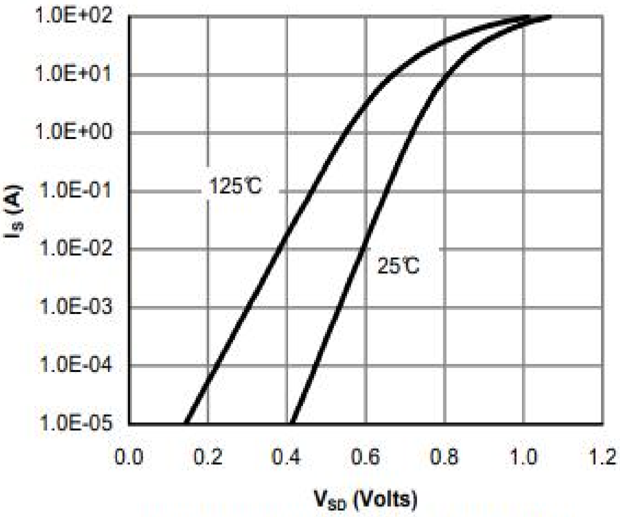


Figure 6: Body-Diode Characteristics (Note E)

Typical Electrical and Thermal Characteristics

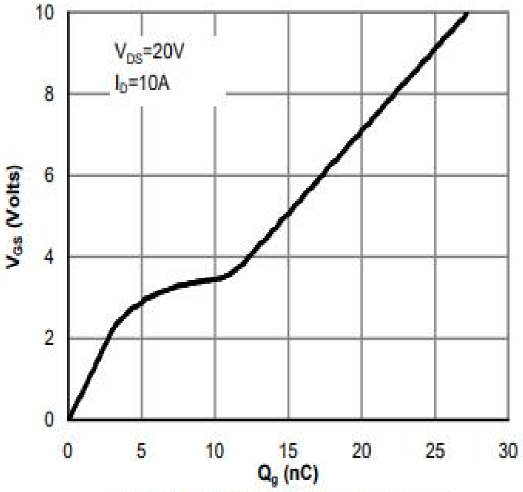


Figure 7: Gate-Charge Characteristics

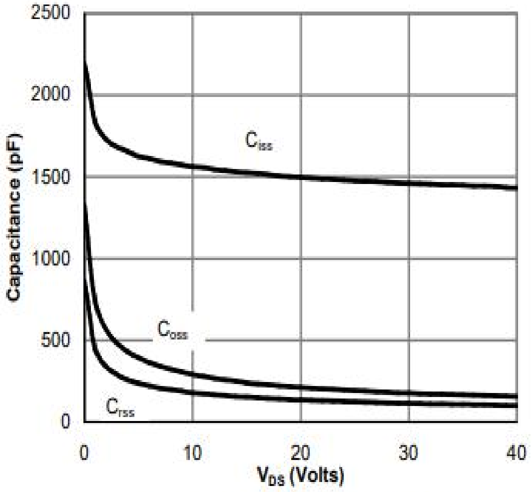


Figure 8: Capacitance Characteristics

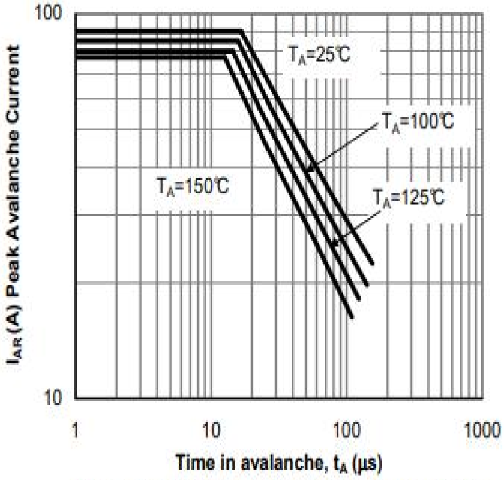


Figure 9: Single Pulse Avalanche capability (Note C)

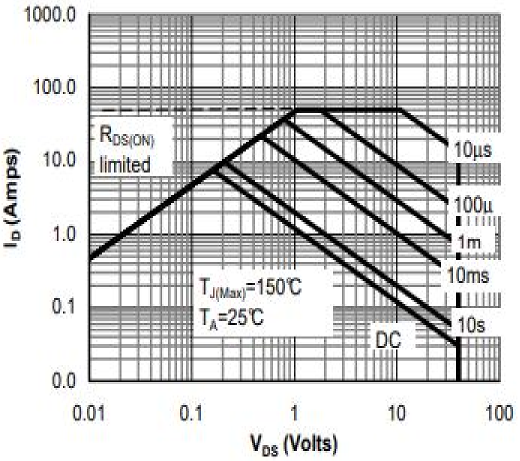


Figure 10: Maximum Forward Biased Safe Operating Area (Note F)

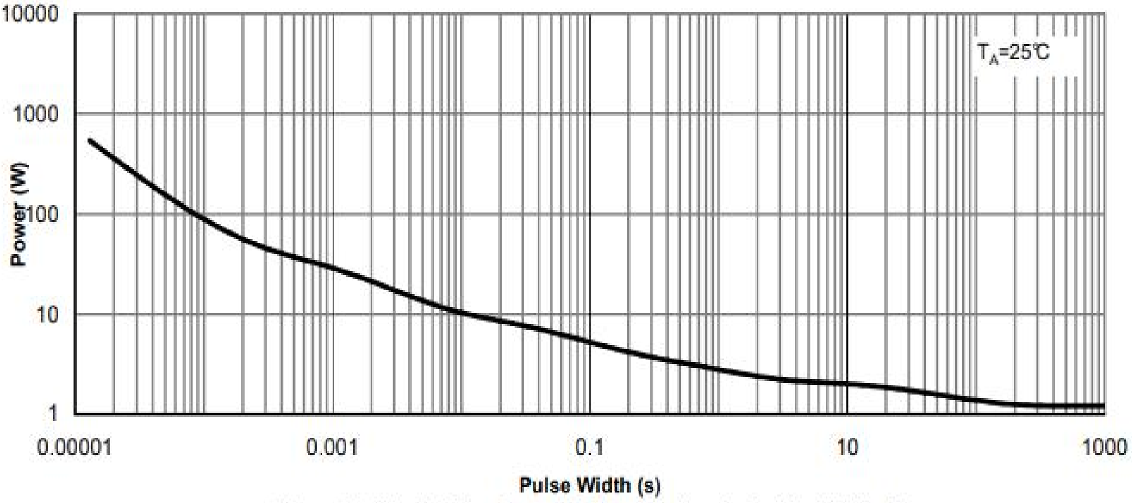
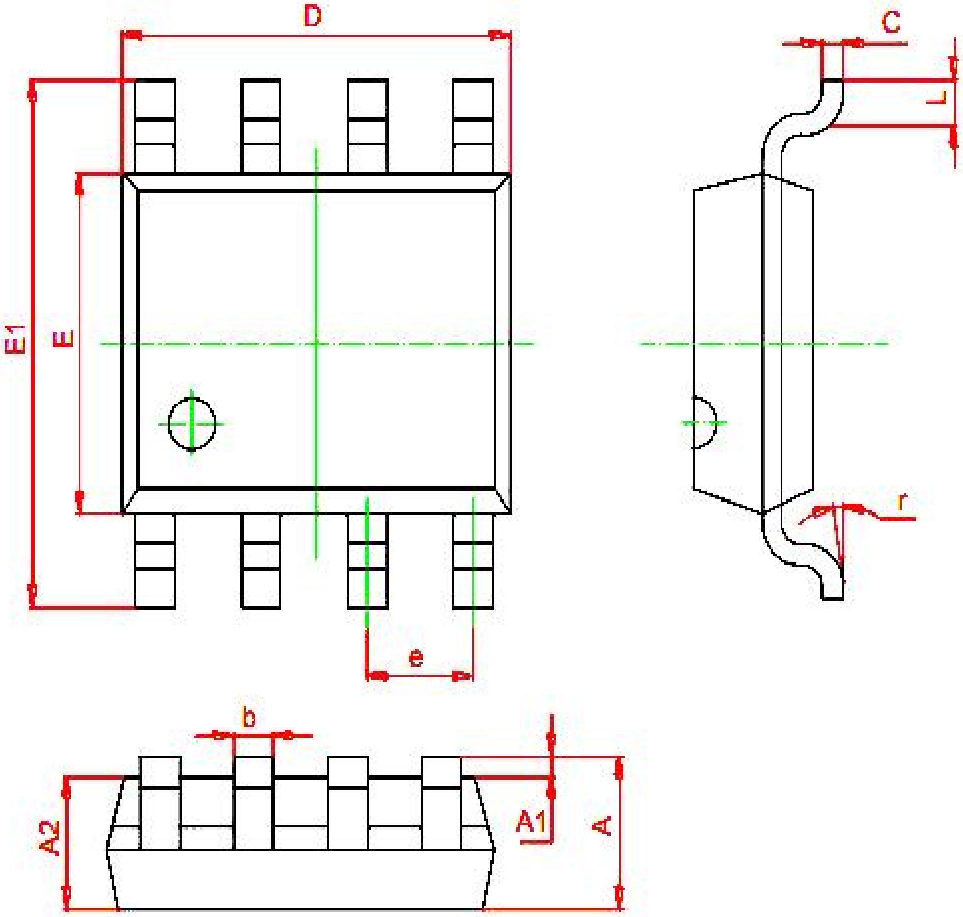


Figure 11: Single Pulse Power Rating Junction-to-Ambient (Note F)



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°