★ Green Device Available
★ Super Low Gate Charge
★ Excellent CdV/dt effect decline
★ Advanced high cell density Trench technology
★ 100% EAS Guaranteed

Product Summary

RoHS

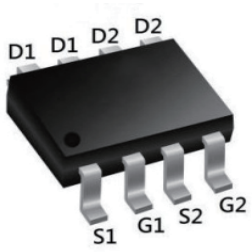
BVDSS	RDSON	ID
40V	12mΩ	12A

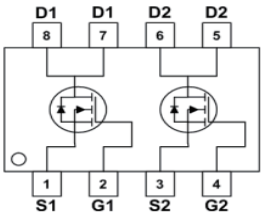
Description

The 4884 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 4884 meet the RoHS and Green Product, requirement 100% EAS guaranteed with full function reliability approved.

SOP8 Pin Configuration





Absolute Maximum Ratings

Symbol	Parameter	Value	Unit
V_{DS}	Drain-Source Voltage	40	V
V_{GS}	Gate-Source Voltage	±20	V
I_D@T_C=25℃	Continuous Drain Current[1]	12	A
I_D@T_C=100℃	Continuous Drain Current[1]	7	A
I_{DM}	Pulsed Drain Current[2]	40	A
EAS	Single Pulse Avalanche Energy[3]	31	mJ
I_{AS}	Avalanche Current	10	A
P_D@T_C=25℃	Total Power Dissipation[4]	2.9	W
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃

Thermal Data

Symbol	Parameter	Typ.	Max.	Units
$R_{\theta JA}$	Thermal Resistance Junction-ambient[1](t≤10s)	---	40	℃/W
	Thermal Resistance Junction-ambient[1]	---	65	℃/W

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

Symbol	Parameter	Test condition	Min.	Typ.	Max.	Units
Off Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V I_D=250μA	40	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=40V,V_{GS}=0V	-	-	1	μA
I_{GSS}	Gate-Body Leakage Current	V_{GS}=±20V,V_{DS}=0V	-	-	±100	nA
On Characteristics (Note 3)						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS},I_D=250μA	1	1.5	2	V
$R_{DS(ON)}$	Drain-Source On-State Resistance	V_{GS}=10V, I_D=8A	-	12	16	mΩ
		V_{GS}=4.5V, I_D=4A	-	18.9	24	mΩ
g_{FS}	Forward Transconductance	V_{DS}=5V,I_D=8A	33	-	-	S
Dynamic Characteristics (Note4)						
C_{lss}	Input Capacitance	V_{DS}=20V,V_{GS}=0V, F=1.0MHz	-	964	-	PF
C_{oss}	Output Capacitance		-	109	-	PF
C_{rss}	Reverse Transfer Capacitance		-	96	-	PF
Switching Characteristics (Note 4)						
$t_{d(on)}$	Turn-on Delay Time	V_{DD}=20V, R_L=2.5Ω V_{GS}=10V,R_{GEN}=3Ω	-	5.5	-	nS
t_r	Turn-on Rise Time		-	14	-	nS
$t_{d(off)}$	Turn-Off Delay Time		-	24	-	nS
t_f	Turn-Off Fall Time		-	12	-	nS
Q_g	Total Gate Charge	V_{DS}=20V,I_D=8A, V_{GS}=10V	-	22.9	-	nC
Q_{gs}	Gate-Source Charge		-	3.5	-	nC
Q_{gd}	Gate-Drain Charge		-	5.3	-	nC
Drain-Source Diode Characteristics						
V_{SD}	Diode Forward Voltage (Note 3)	V_{GS}=0V,I_S=9A	-	0.8	1.2	V

N- Channel Typical Electrical and Thermal Characteristics (Curves)

Figure1: Switching Test Circuit

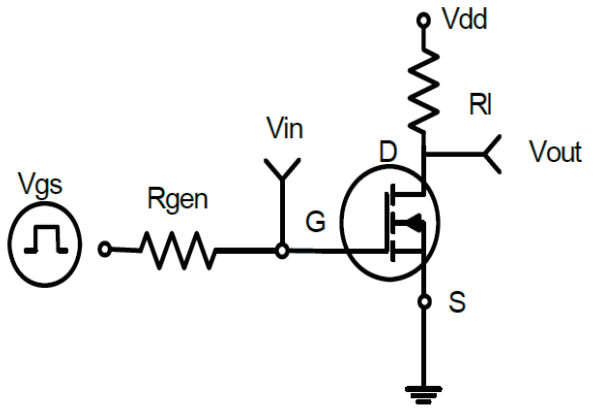


Figure 2: Switching Waveforms

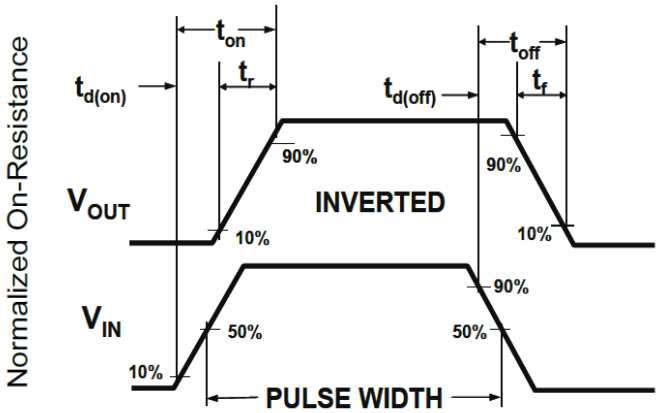


Figure 3:Output Characteristics

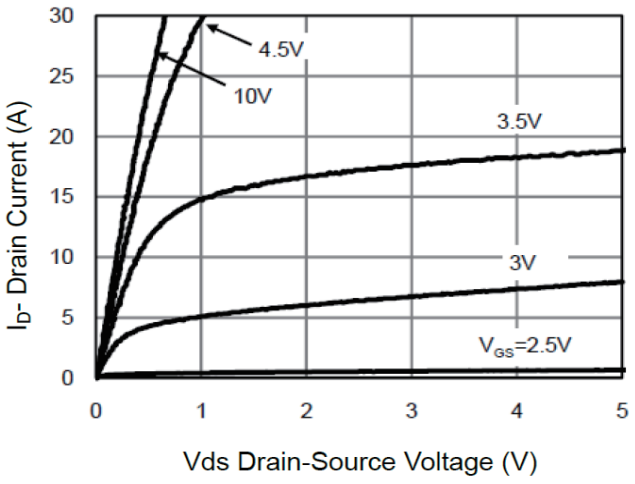


Figure 4: Transfer Characteristics

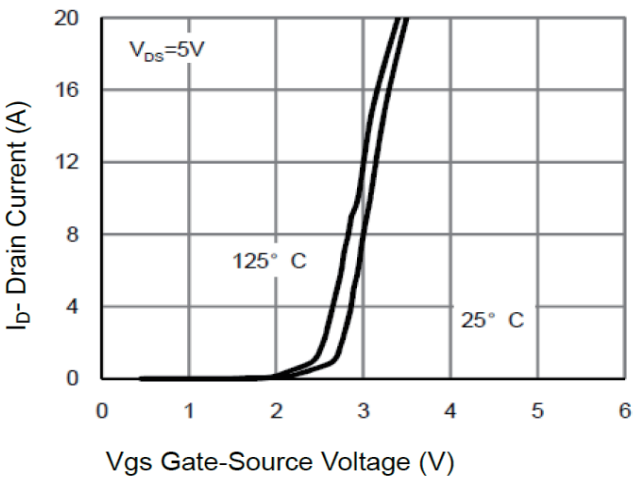


Figure 5: Drain-Source On-Resistance

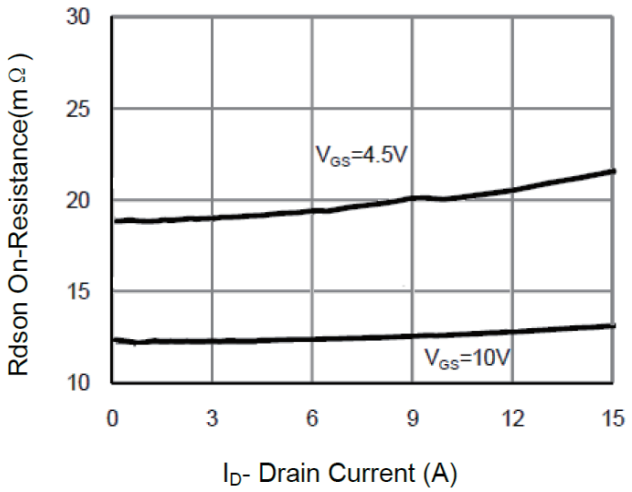
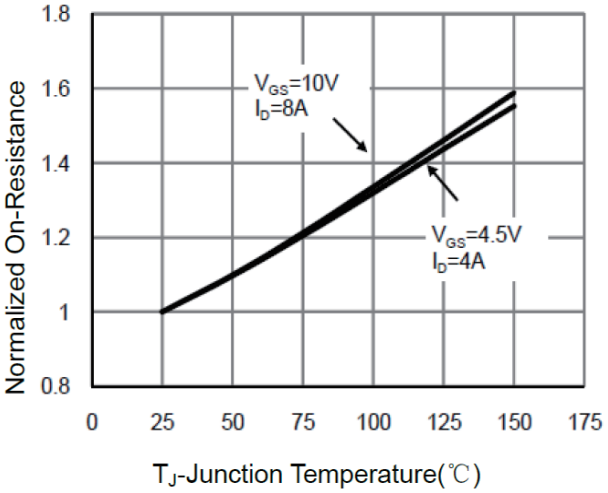


Figure 6: Drain-Source On-Resistance



Typical Performance Characteristics

Figure 7: Rdson vs Vgs Temperature

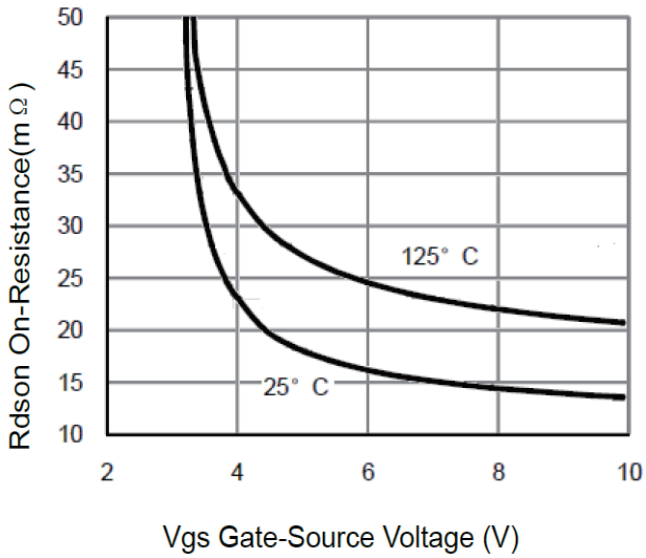


Figure 8: Power Dissipation

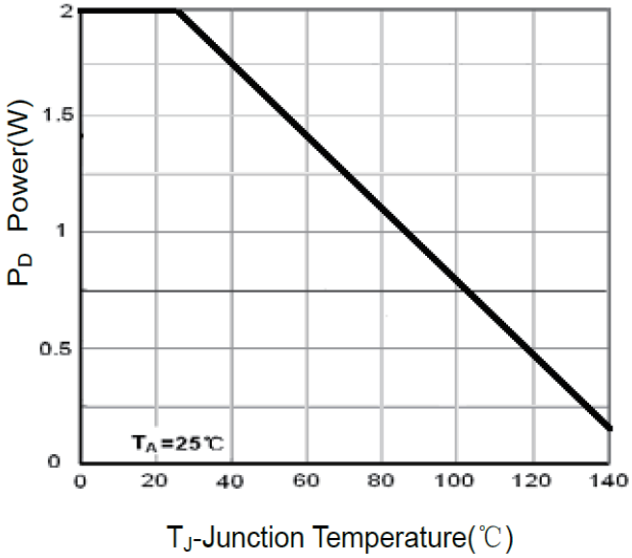


Figure 9: Gate Charge

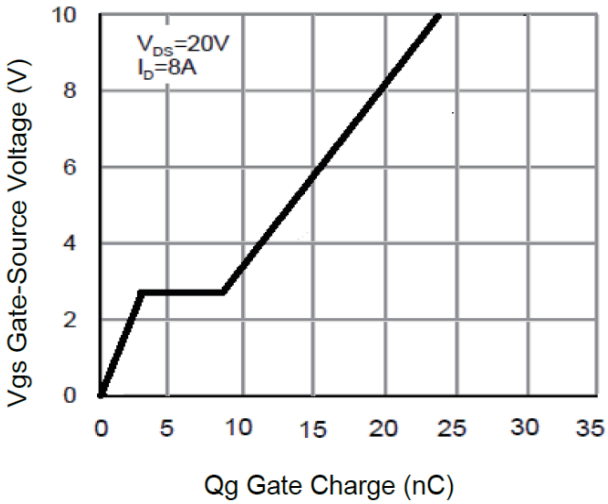


Figure 10: Source- Drain Diode Forward

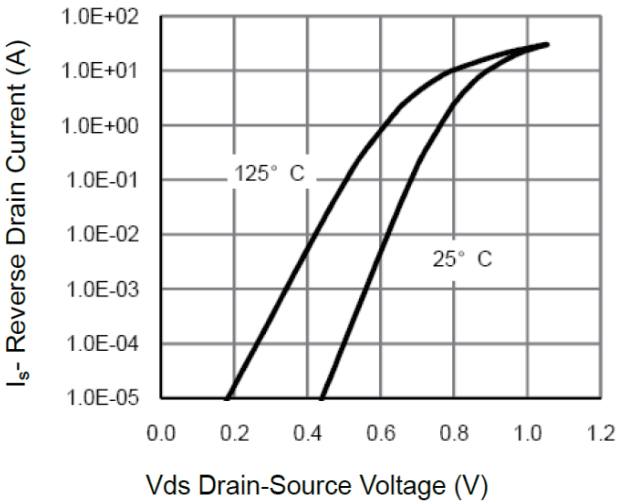


Figure.11: Capacitance vs Vds

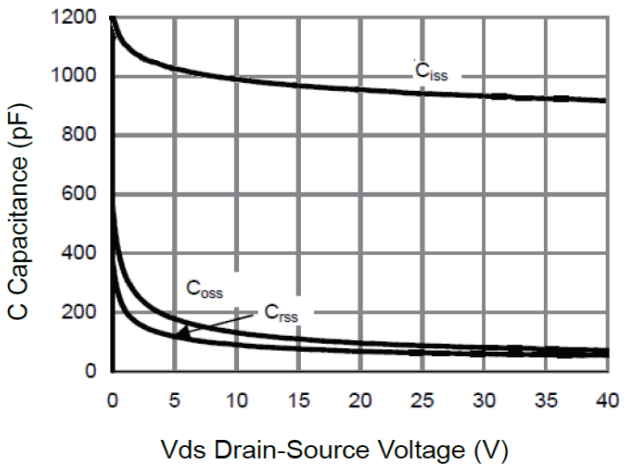
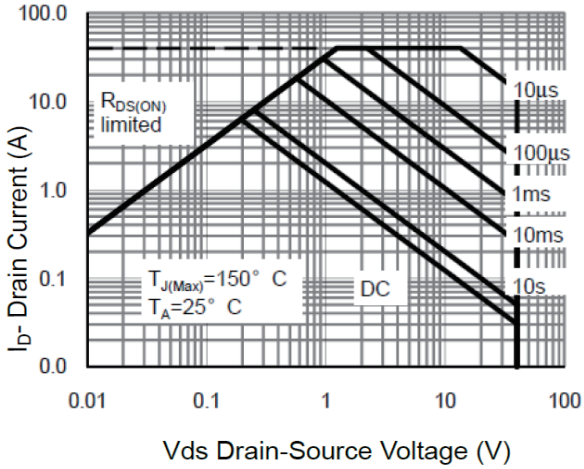
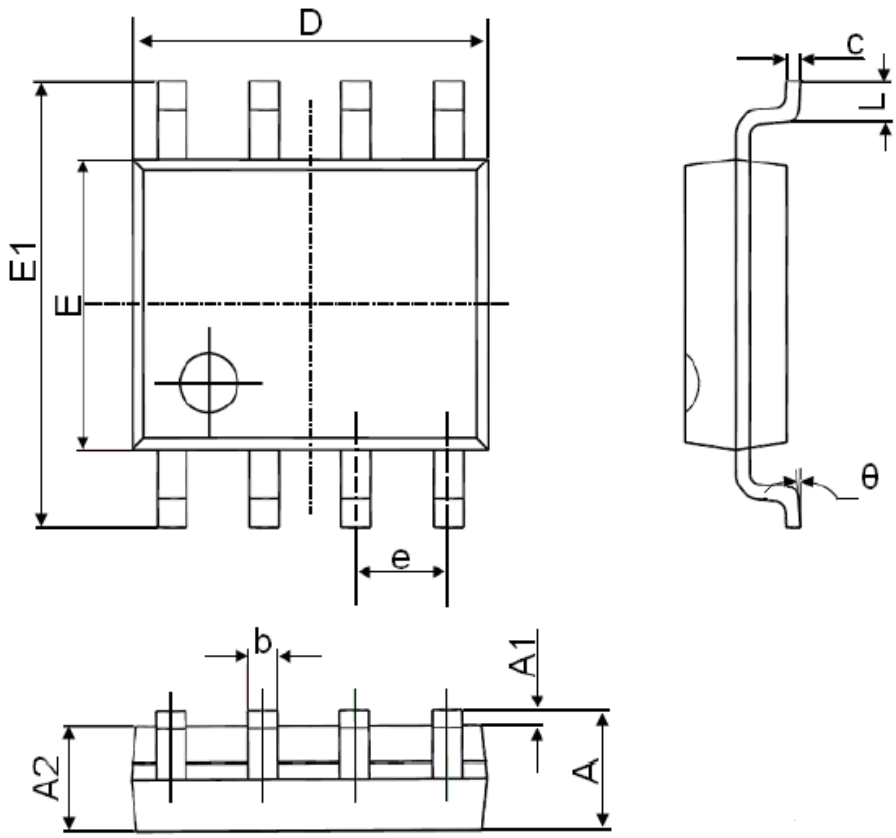


Figure.12: Safe Operation Area



SOP-8 Package Information



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°