

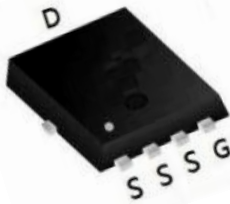
Features

The TW110P03EF is the high cell density trench P-ch MOSFETs, which provide excellent RDSON and gate charge for most of the synchronous buck converter applications.

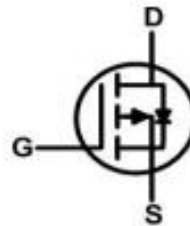
The TW110P03EF meet the RoHS and Green Product requirement with full function reliability approved.

Product Summary

BVDSS	RDSON	ID
-30V	2.5mΩ	-110A



PDFN5X6



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	VDS	-30	V
Gate-Source Voltage	VGS	±20	
Continuous Drain Current, VGS @ -10V	ID@TC =25°C	-110	A
Continuous Drain Current, VGS @ -10V	ID@TC=100°C	-70	
Pulsed Drain Current ①	IDM	-300	
Single Pulse Avalanche Energy3	EAS	576	mJ
Avalanche Current	IAS	-70	A
Total Power Dissipation	PD@TC=25°C	60	W
StorageTemperature Range	TSTG	-55 to 175	°C
Operating Junction Temperature	TJ	-55 to 175	°C

Thermal Data

Parameter	Symbol	Max.	Unit
Thermal Resistance Junction-Ambient(t ≤ 10S)	RθJA	20	°C/W
Thermal Resistance Junction-ambient ¹ (SteadyState)		50	°C/W
Thermal Resistance Junction-Case	RθJC	3.6	°C/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}	V _{GS} = 0V, I _D = -250μA	-30			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-30V , V _{GS} =0V			-1	μA
Gate-Body leakage Current	I _{GSS}	V _{GS} =±20V , V _{DS} =0V			±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{GS} =V _{DS} , I _D =-250uA	-1	-1.7	-2.5	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =- 10V, I _D = -20A		2.5	3.1	mΩ
		V _{GS} =- 4.5V, I _D = -20A		4	5.2	mΩ
Dynamic Parameters						
Input Capacitance	C _{iss}	V _{DS} =-15V, V _{GS} =0V, f=1.0MHz		7000		pF
Output Capacitance	C _{oss}			820		pF
Reverse Transfer Capacitance	C _{rss}			540		pF
Total Gate Charge	Q _g	V _{GS} =-10V, V _{DS} =-15V, I _D =-20A		130		nC
Gate Source Charge	Q _{gs}			12		nC
Gate Drain Charge	Q _{gd}			31		nC
Switching Parameters						
Turn-On DelayTime	td(on)	V _{GS} =-10V, V _{DS} =-15V, RL=0.75Ω, RGEN=3Ω		14		ns
Turn-On Rise Time	tr			13		ns
Turn-Off DelayTime	td(off)			65		ns
Turn-Off Fall Time	tf			37		ns
Drain-Source Diode Characteristics and Maximum Ratings						
Source-Drain Current (Body Diode)	I _{SD}				-108	A
Forward on Voltage ^(Note 3)	V _{SD}	V _{GS} =0V, I _S =-20A			-1.2	V
Reverse Recovery Time	trr	I _F =-20A, di/dt=100A/μs		30		NS
Reverse Recovery Charge	Qrr	I _F =-20A, di/dt=100A/μs		40		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

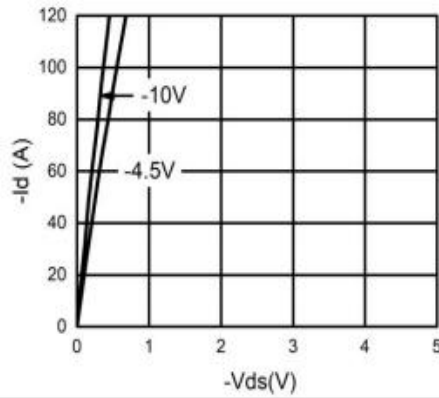


Figure 2. Transfer Characteristics

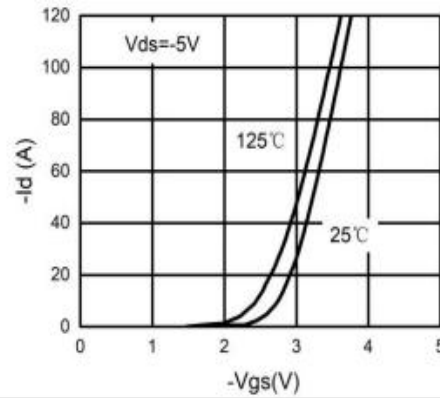


Figure 3. Power Dissipation

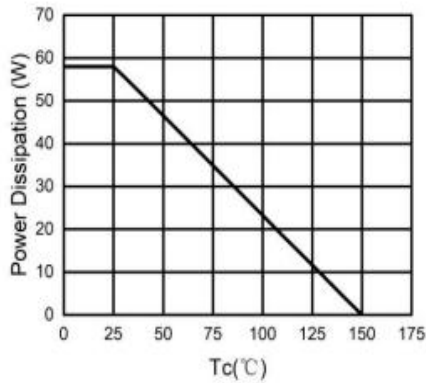


Figure 4. Drain Current

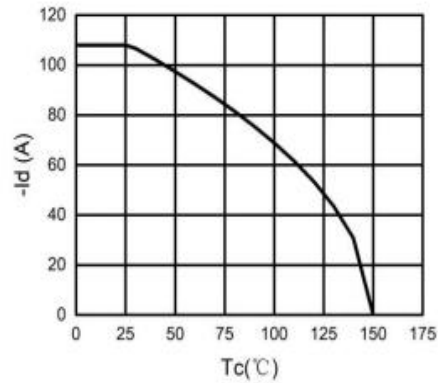


Figure 5. BV_{DSS} vs Junction Temperature

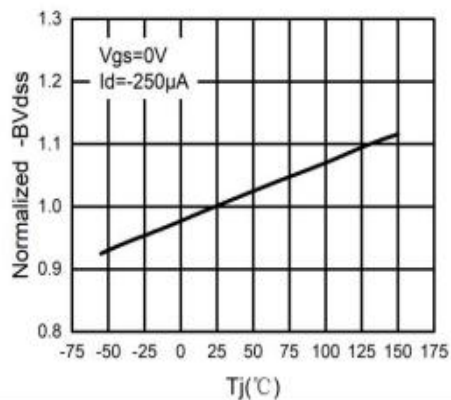
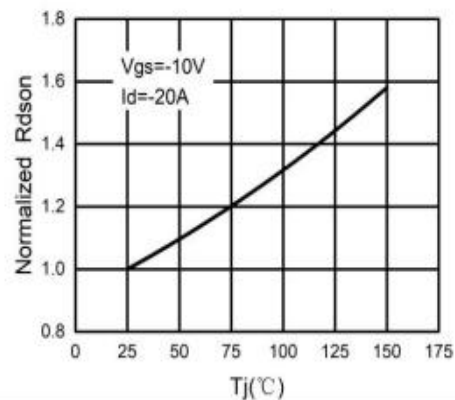
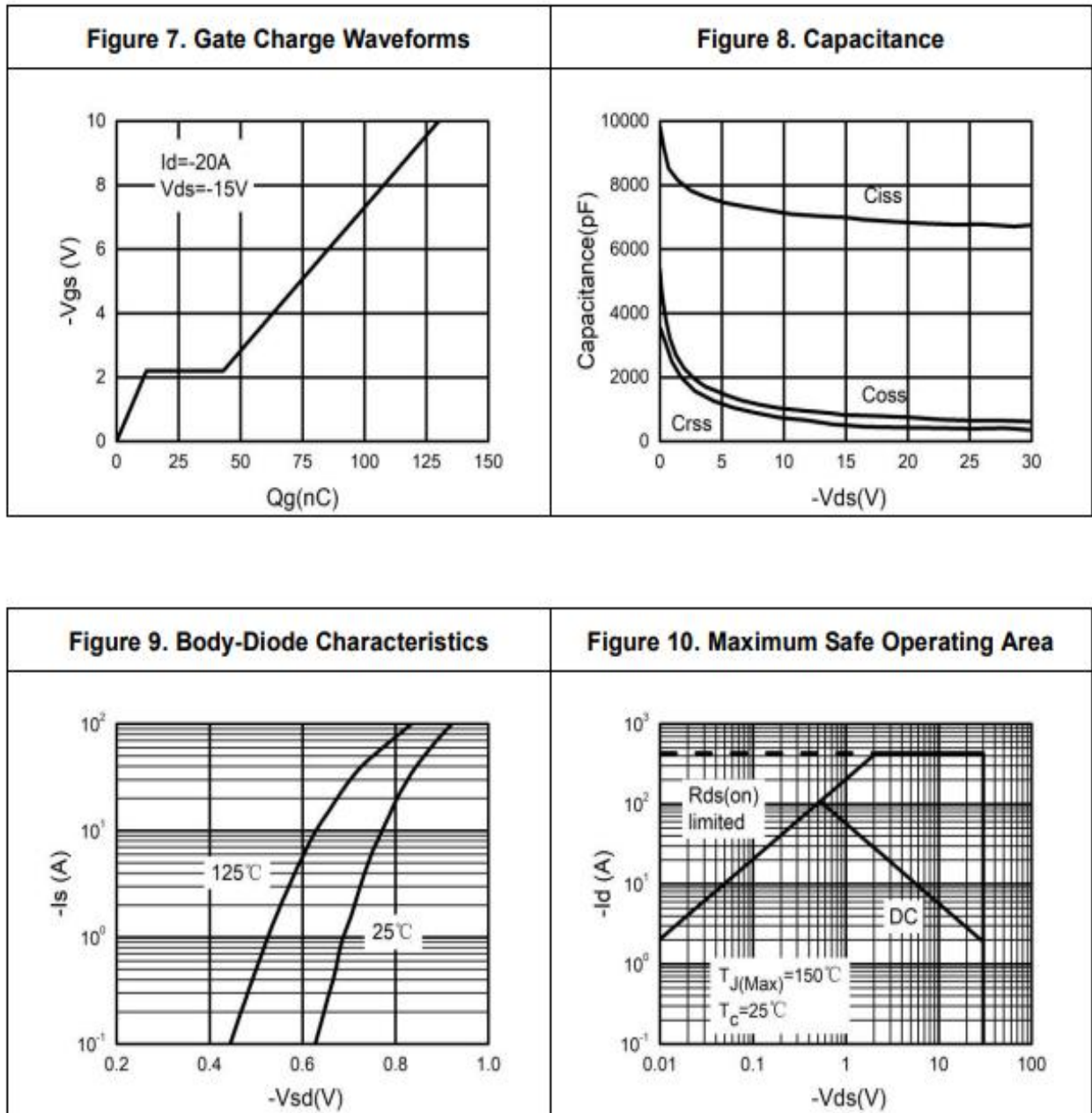


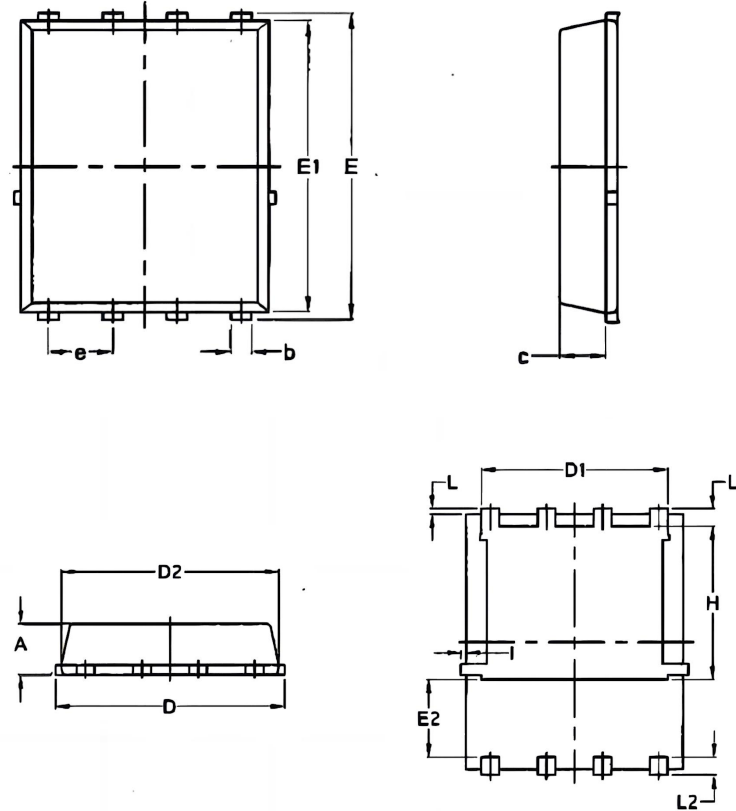
Figure 6. $R_{DS(ON)}$ vs Junction Temperature



Typical Electrical and Thermal Characteristics



PDFN5X6 Package Outline Dimesions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.03	1.17	0.0406	0.0461
b	0.34	0.48	0.0134	0.0189
c	0.824	0.0970	0.0324	0.082
D	4.80	5.40	0.1890	0.2126
D1	4.11	4.31	0.1618	0.1697
D2	4.80	5.00	0.1890	0.1969
E	5.95	6.15	0.2343	0.2421
E1	5.65	5.85	0.2224	0.2303
E2	1.60	/	0.0630	/
e	1.27 BSC		0.05 BSC	
L	0.05	0.25	0.0020	0.0098
L1	0.38	0.50	0.0150	0.0197
L2	0.38	0.50	0.0150	0.0197
H	3.30	3.50	0.1299	0.1378
I	/	0.18	/	0.0070