

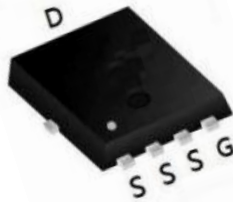
Features

The TW80N06EF is the high cell density trench N- ch MOSFETs, which provide excellent RDSON and gate charge for most of the synchronous buck converter applications.

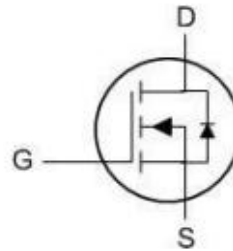
The TW80N06EF meet the RoHS and Green Product requirement, 100% EAS guaranteed with full function reliability approved.

Product Summary

V_{DS}	60V
I_D	80A
$R_{DS(ON)}$ (at $V_{GS} = 10V$)	< 7 mΩ



PDFN5X6



Maximum Ratings($T_a=25^{\circ}C$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 25	
Continuous Drain Current	$I_{D@TC=25^{\circ}C}$	80	A
Continuous Drain Current	$I_{D@TC=100^{\circ}C}$	52	
Pulsed Drain Current ①	I_{DM}	190	
Single Pulse Avalanche Energy ³	EAS	169	mj
Power Dissipation ②	$PD@TC=25^{\circ}C$	108	W
Storage Temperature	T_{STG}	-55 to 175	$^{\circ}C$
Operating Junction	T_J	-55 to 175	

Thermal Data

Parameter	Symbol	Typ.	Max.	Unit
Thermal Resistance Junction-Case	$R_{\theta JC}$		1.4	$^{\circ}C/W$

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	60			V
Zero Gate Voltage Drain Current	IDSS	VDS = 60V, VGS =0V			1	μA
Gate-Body leakage Current	IGSS	VDS =0V, VGS = ±20V			±100	nA
Gate Threshold Voltage	VGS(th)	VDS =VGS, ID = 250μA	2	3	4	V
Static Drain-Source On-Resistance	RDS(on)	VGS = 10V, ID = 30A		6	7	mΩ
Dynamic Parameters ④						
Input Capacitance	Ciss	VDS=30V, VGS=0V, f=1.0MHz		4136		pF
Output Capacitance	Coss			286		pF
Reverse Transfer Capacitance	Crss			257		pF
Total Gate Charge	Qg	VDS=30V, ID=30A, VGS=10V		90		nC
Gate Source Charge	Qgs			9		nC
Gate Drain Charge	Qgd			18		nC
Switching Parameters ④						
Turn-On DelayTime	td(on)	VDS=30V, ID=30A, RG=1.8Ω, VGS=10V		9		ns
Turn-On Rise Time	tr			7		ns
Turn-Off DelayTime	td(off)			40		ns
Turn-Off Fall Time	tf			15		ns
Drain-Source Diode Characteristics and Maximum Ratings						
Maximum Continuous Drain to Source Diode Forward Current		IS			80	A
Maximum Pulsed Drain to Source Diode Forward Current		ISM			320	A
Drain to Source Diode Forward Voltage	VSD	VGS=0V, IS=30A			1.2	V
Body Diode Reverse Recovery Time	trr	F=30A, dI/dt=100A/μs		33		ns
Body Diode Reverse Recovery Charge	Qrr			46		nC
Note :						
1. Repetitive Rating : Pulse width limited by maximum junction temperature.						
2. Surface Mounted on FR4 Board, t < 10 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

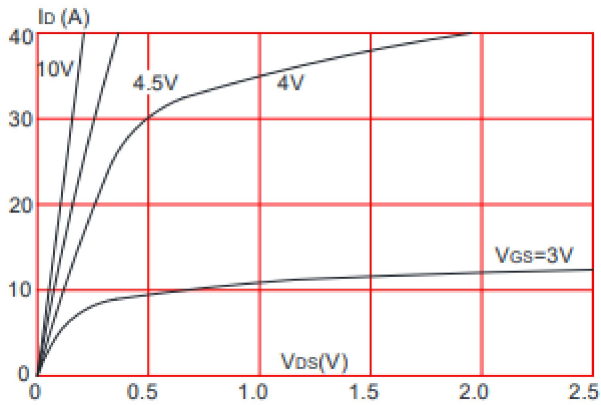


Figure 2: Typical Transfer Characteristics

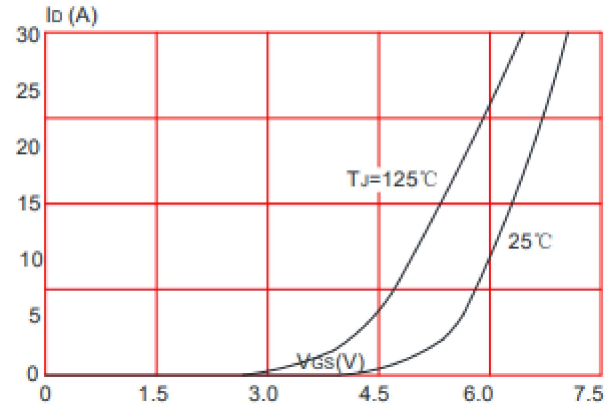


Figure 3: On-resistance vs. Drain Current

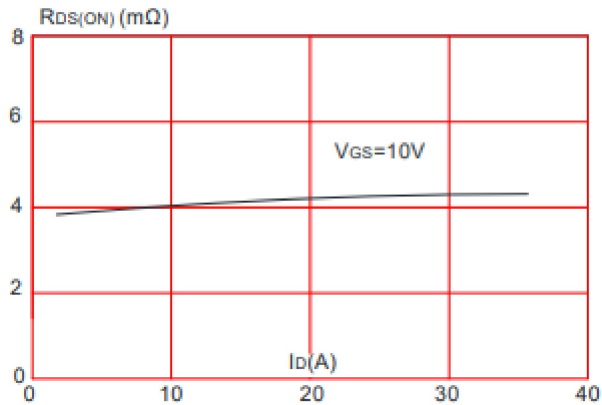


Figure 4: Body Diode Characteristics

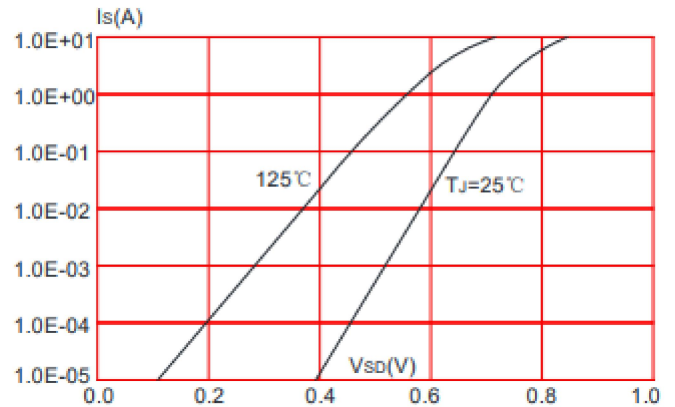


Figure 5: Gate Charge Characteristics

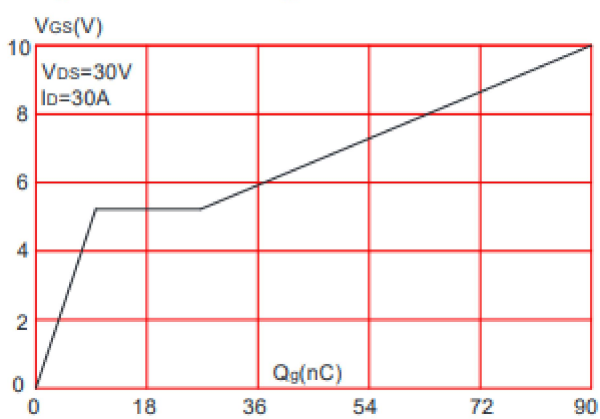


Figure 6: Capacitance Characteristics

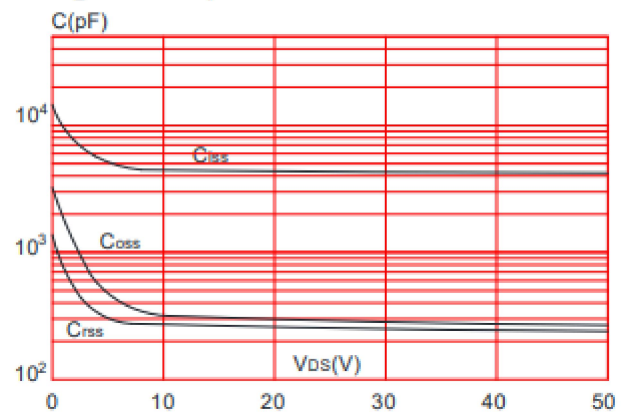


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

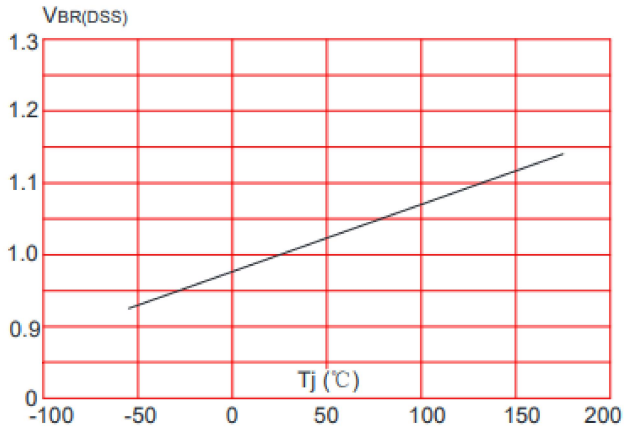


Figure 8: Normalized on Resistance vs. Junction Temperature

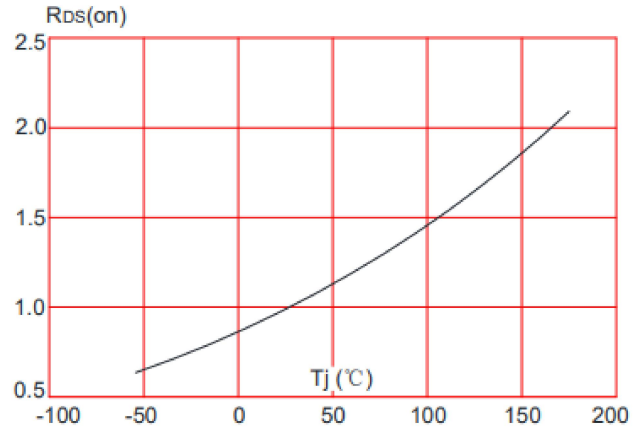


Figure 9: Maximum Safe Operating Area

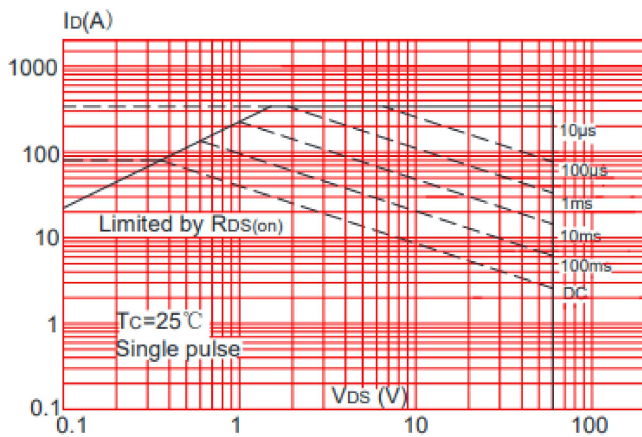


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

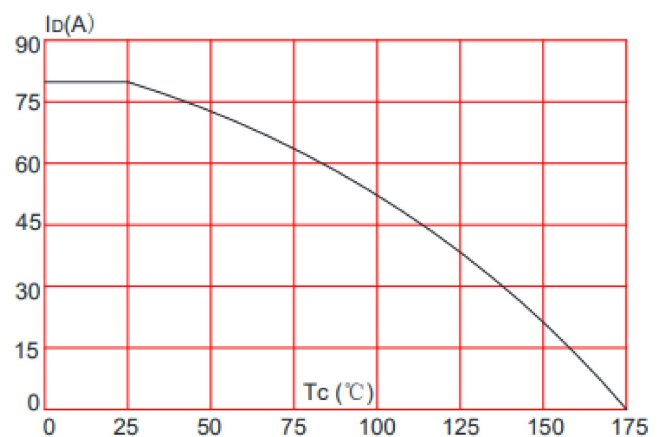
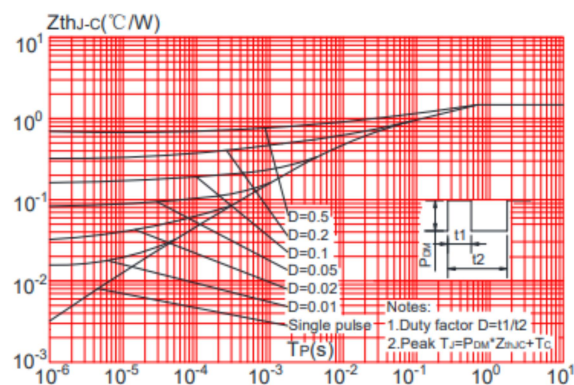
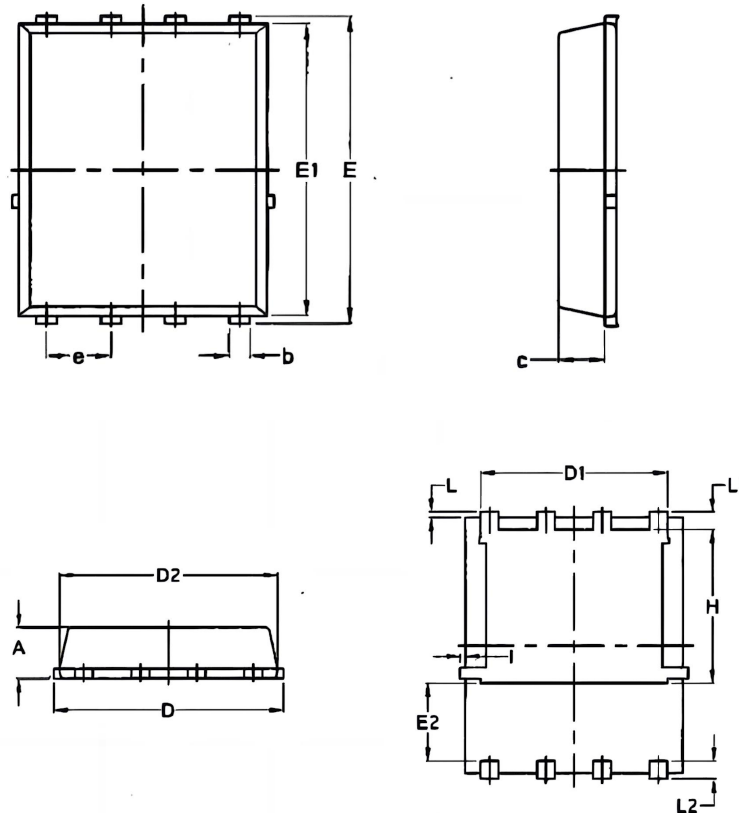


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case



PDFN5X6 Package Outline Dimesions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Mim	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