

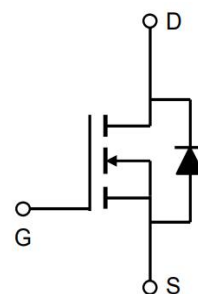
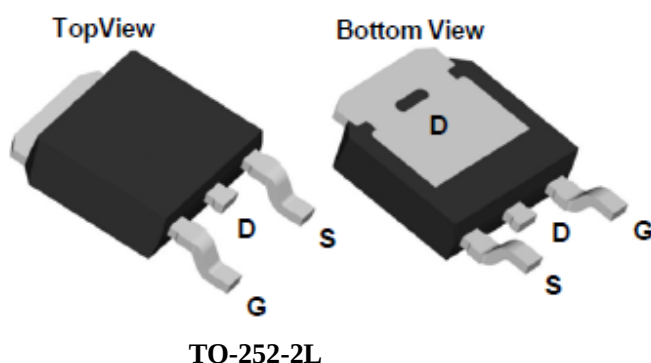
Features

The TW80N06D 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 TW80N06D meet the RoHS and Green Product requirement, 100% EAS guaranteed with full function reliability approved.

Product Summary

BVDSS	RDSON	ID
60V	6.3mΩ	80A



Maximum Ratings(Ta=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	VDS	60	V
Gate-Source Voltage	VGS	±20	
Continuous Drain Current, VGS @10V ¹	ID@TC=25℃	80	A
Continuous Drain Current, VGS @10V ¹	ID@TC=100℃	52	
Pulsed Drain Current ①	IDM	320	
Single Pulse Avalanche Energy	EAS	169	mJ
Power Dissipation ②	PD	108	W
Thermal Resistance Junction-Case	RθJC	1.4	℃/W
Operating Junction	TJ	-55~+175	℃
Storage Temperature	TSTG	-55~+175	℃

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

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static Parameters						
Drain-Source Breakdown Voltage	BVDSS	VGS = 0V, ID = 250μA	60			V
Gate Threshold Voltage	VGS(th)	VDS =VGS, ID = 250μA	2	3	4	V
Gate-Body leakage Current	IGSS	VDS =0V, VGS = ±20V			±100	nA
Zero Gate Voltage Drain Current	IDSS	VDS = 60V, VGS =0V			1	μA
Static Drain-Source On-Resistance	RDS(on)	VGS = 10V, ID = 30A		6.3	8	mΩ
Dynamic Parameters						
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						
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, ISD=30A, TJ=25℃			1.2	V
Reverse Recovery Time	trr	TJ=25℃, IF=30A, di/dt =100A/μs		33		ns
Reverse Recovery Charge	Qrr			46		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.

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Typical Electrical and Thermal Characteristics

Figure 1: Output Characteristics

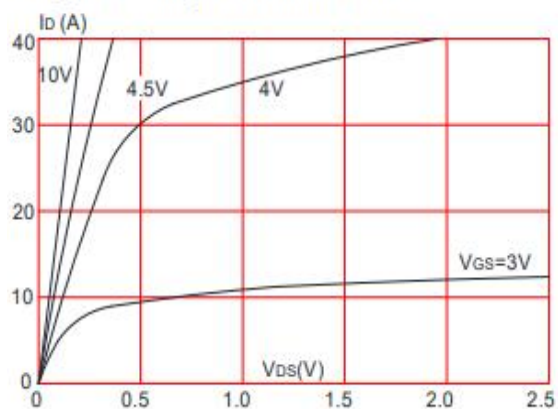


Figure 2: Typical Transfer Characteristics

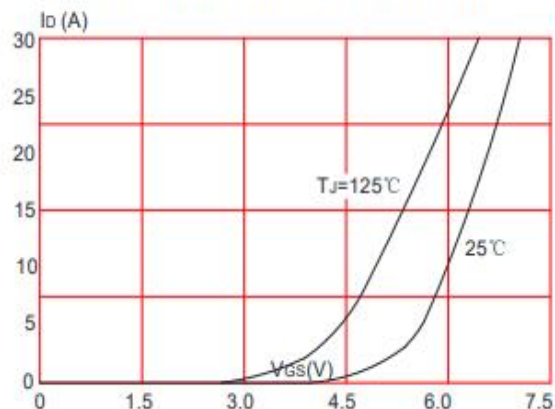


Figure 3: On-resistance vs. Drain Current

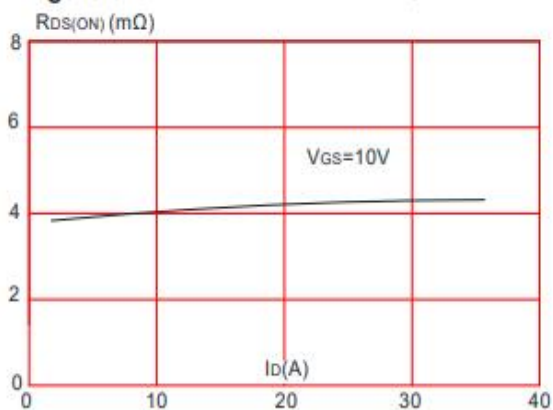


Figure 4: Body Diode Characteristics

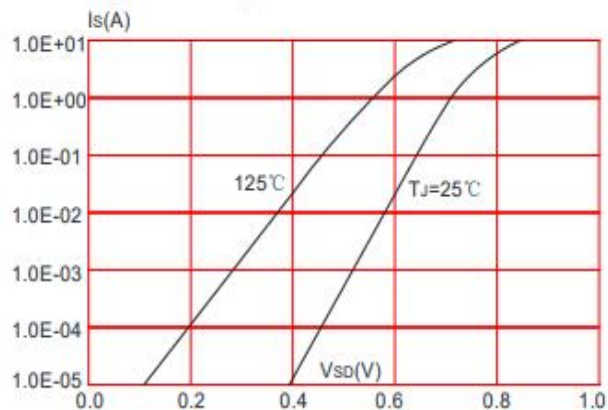


Figure 5: Gate Charge Characteristics

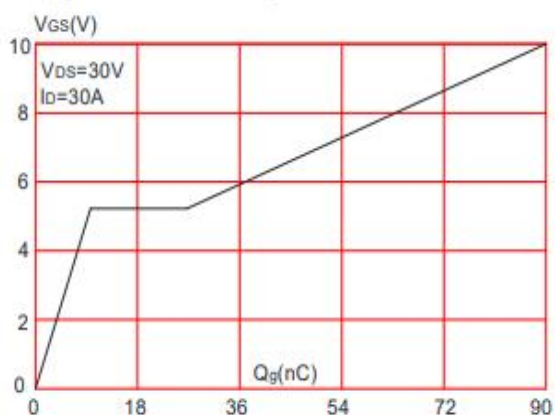
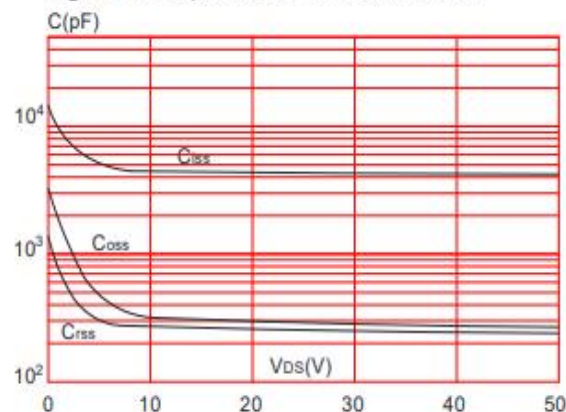


Figure 6: Capacitance Characteristics



Typical Electrical and Thermal Characteristics

Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

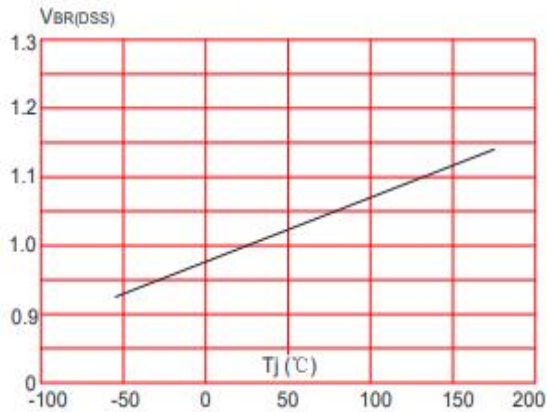


Figure 8: Normalized on Resistance vs. Junction Temperature

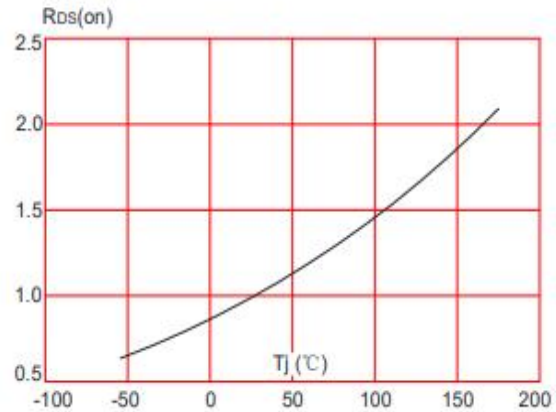


Figure 9: Maximum Safe Operating Area

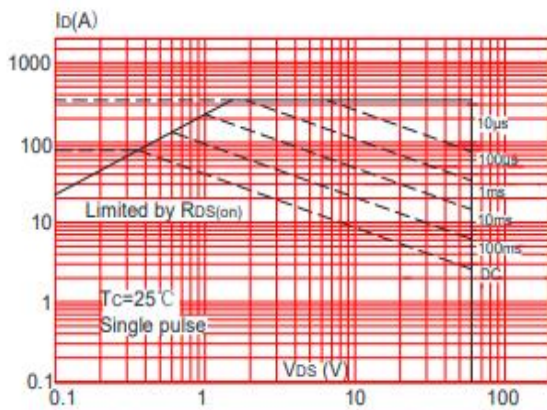


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

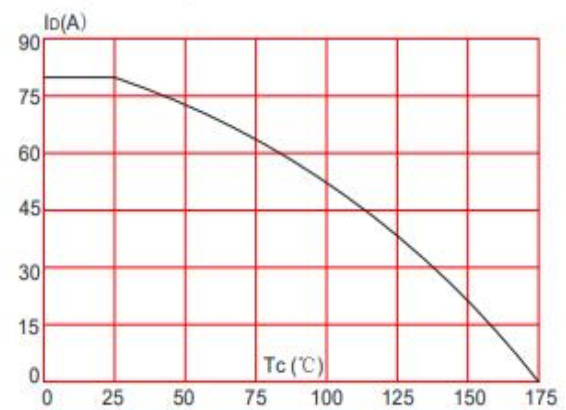
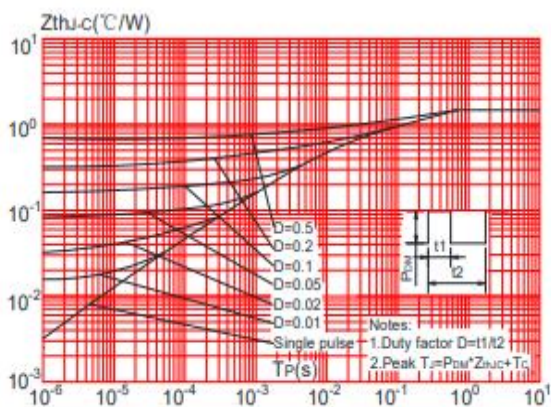


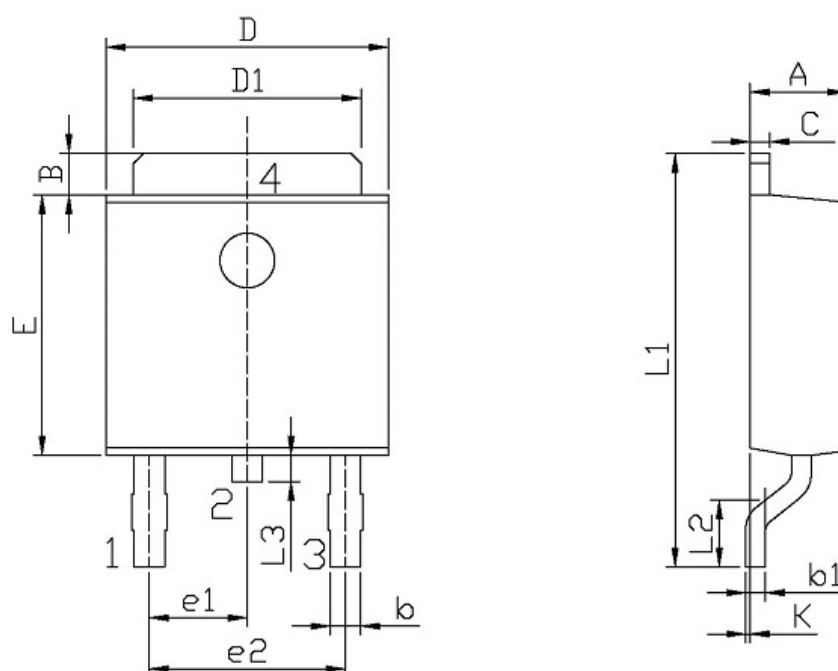
Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case



Package Mechanical Data

Unit : mm

TO-252(DPAK)



单位: mm

Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
A	2.20	2.40	E	5.95	6.25
B	0.95	1.25	e1	2.24	2.34
b	0.50	0.70	e2	4.43	4.73
b1	0.45	0.55	L1	9.45	9.95
C	0.45	0.55	L2	1.25	1.75
D	6.45	6.75	L3	0.60	0.90
D1	5.10	5.50	K	0.00	0.10