

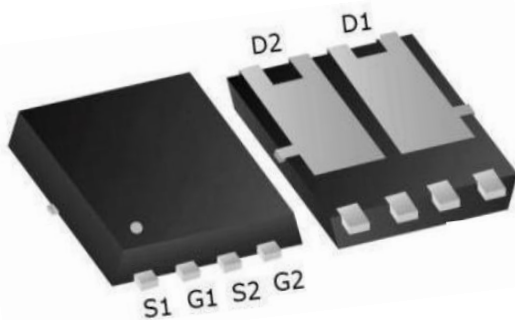
Features

The TW302CC is the high cell density trench N- ch MOSFETs, which provide excellent RDSON and gate charge for most of the synchronous buck converter applications.

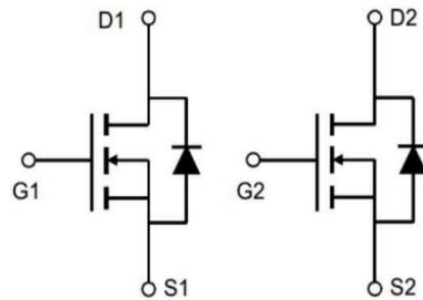
The TW302CC meet the RoHS and Green Product requirement, 100% EAS guaranteed with full function reliability approved.

Product Summary

V _{DS}	30V
I _D	30A
R _{DS(ON)} (at V _{GS} = 10V)	< 14mΩ
R _{DS(ON)} (at V _{GS} = 4.5V)	< 25mΩ



PDFN3X3



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

Parameter		Symbol	Value		Unit
Drain-Source Voltage		V _{DS}	30		V
Gate-Source Voltage		V _{GS}	±20		
Continuous Drain Current, V _{GS} @ 10V ¹		ID@TA =25℃	30		A
Continuous Drain Current, V _{GS} @ 10V ¹		ID@TA=70℃	18		
Pulsed Drain Current ①		IDM	50		
Single Pulse Avalanche Energy ³		EAS	24.2		mj
Avalanche Current		IAS	22		A
Power Dissipation ②		PD	1.5		W
Storage Temperature		TSTG	-55~+150		℃
Operating Junction		TJ	-55~+150		℃
Thermal Data					
Parameter		Symbol	Typ.	Max.	Unit
Thermal Resistance Junction-ambient		RθJA		85	℃/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	BV _{DSS}	V _{GS} = 0V, I _D = 250μA	30			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 24V, V _{GS} =0V			1	μA
Gate-Body leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} = ±20V			±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D = 250μA	1	1.5	2.5	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V , I _D =10A		10	14	mΩ
		V _{GS} =4.5V , I _D =5A		18	25	mΩ
Dynamic Parameters ④						
Input Capacitance	C _{iss}	V _{DS} = 15V,V _{GS} =0V, f=1MHz		614		pF
Output Capacitance	C _{oss}			118		pF
Reverse Transfer Capacitance	C _{rss}			98		pF
Total Gate Charge	Q _g	V _{DS} = 15V,V _{GS} = 10V, I _D = 10A		16		nC
Gate Source Charge	Q _{gs}			2.7		nC
Gate Drain Charge	Q _{gd}			4.5		nC
Switching Parameters ④						
Turn-On DelayTime	t _{d(on)}	V _{DS} =15V,RL=1.35Ω, RGEN=3Ω, V _{GS} =10V		6		ns
Turn-On Rise Time	t _r			10		ns
Turn-Off DelayTime	t _{d(off)}			30		ns
Turn-Off Fall Time	t _f			6.5		ns
Drain-Source Diode Characteristics and Maximum Ratings						
Maximum Continuous Drain to Source Diode Forward Current		I _S			30	A
Maximum Pulsed Drain to Source Diode Forward Current		I _{SM}			60	A
Drain to Source Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =30A			1.2	V

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

Figure1: Output Characteristics

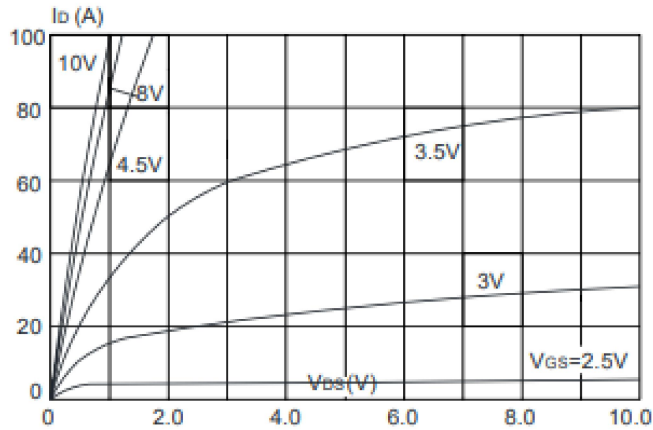


Figure 2: Typical Transfer Characteristics

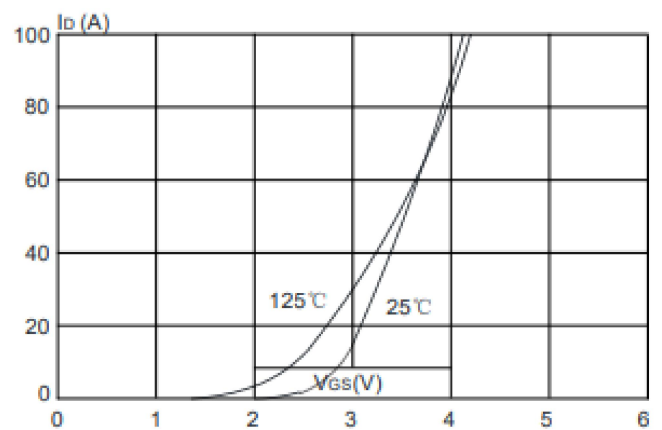


Figure 3: On-resistance vs. Drain Current

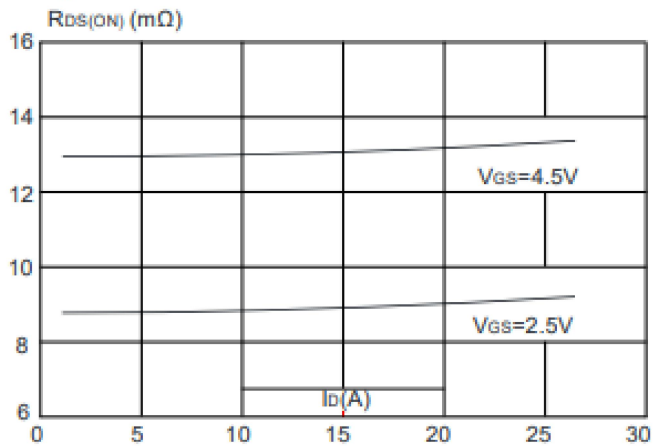


Figure 4: Body Diode Characteristics

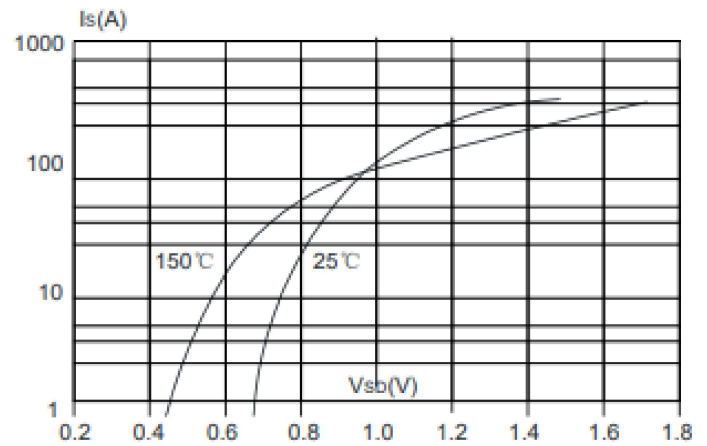


Figure 5: Gate Charge Characteristics

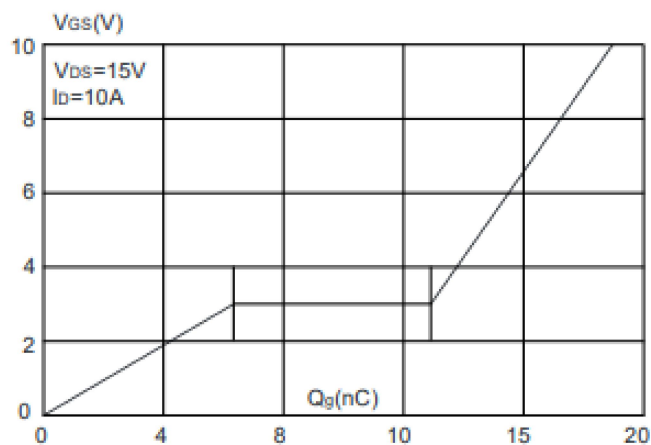


Figure 6: Capacitance Characteristics

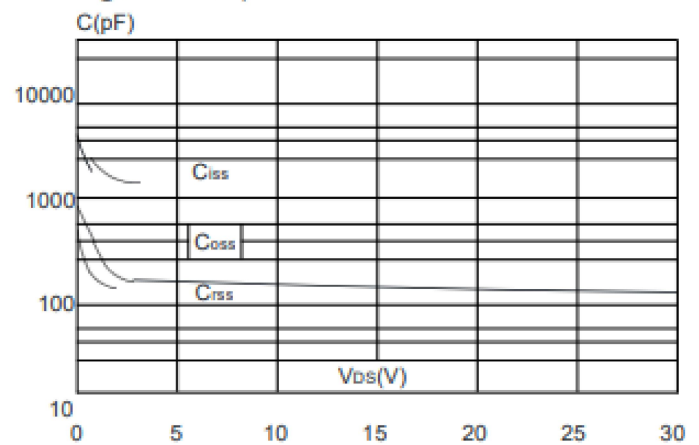


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

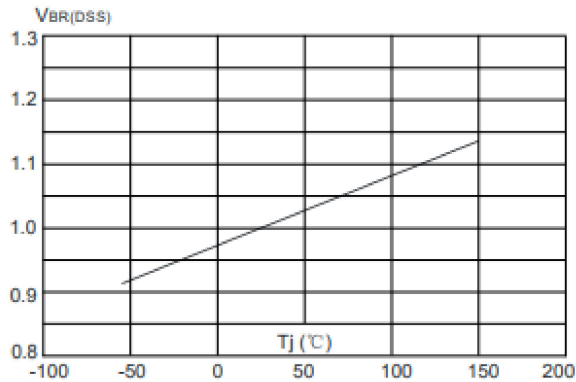


Figure 8: Normalized on Resistance vs. Junction Temperature

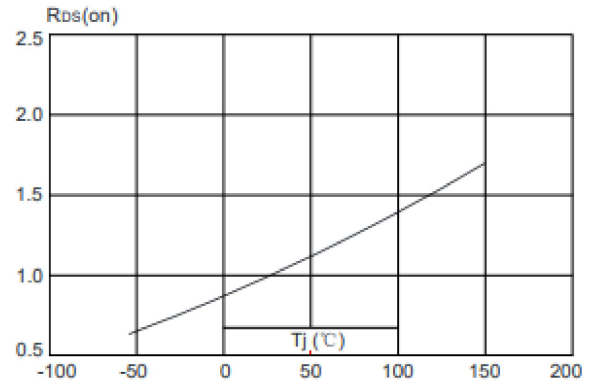


Figure 9: Maximum Safe Operating Area

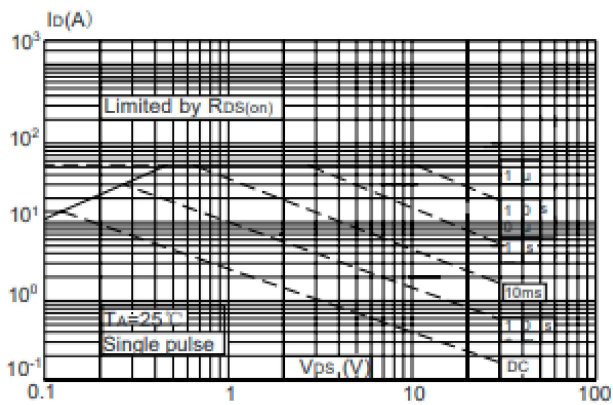


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

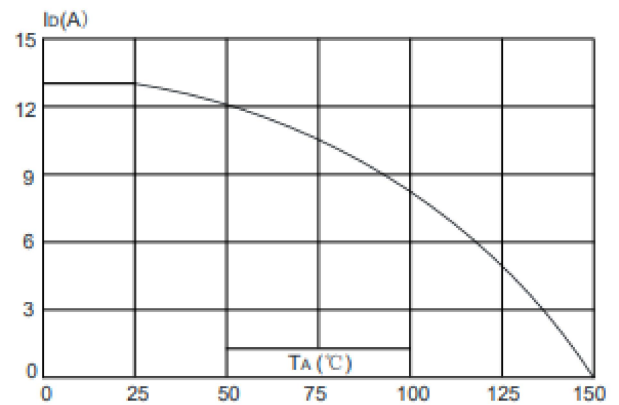
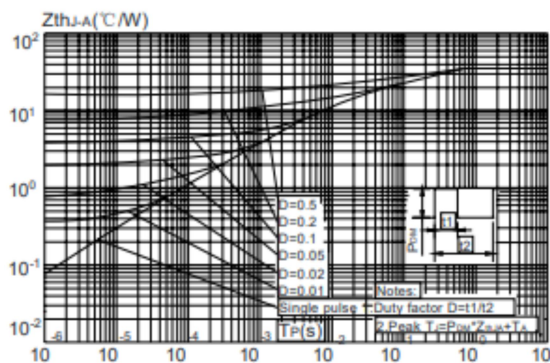
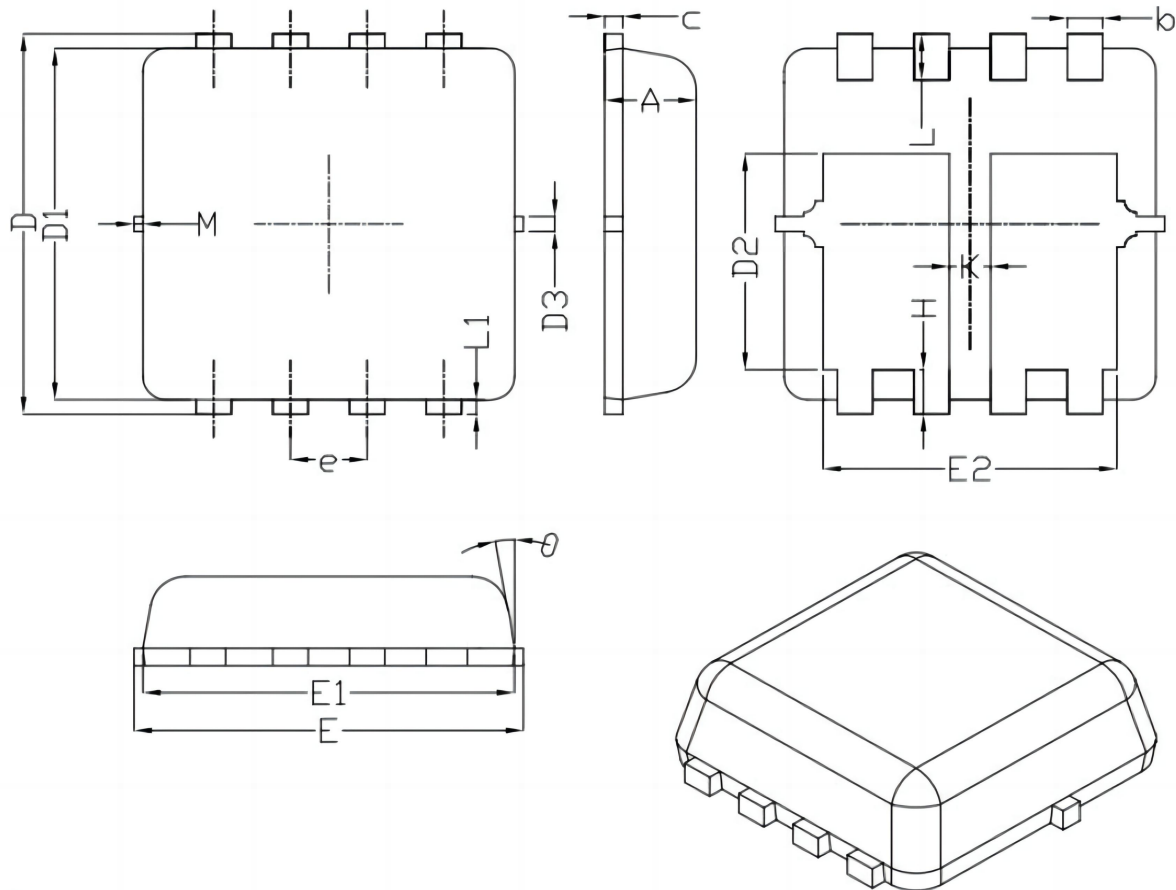


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambient



PDFN3X3 Package Outline Dimesions



DIMENSIONS(unit:mm)

Symbol	Min	Typ	Max	Sybol	Min	Typ	Max
A	0.70	0.75	0.80	b	0.25	0.30	0.35
c	0.10	0.15	0.25	D	3.25	3.35	3.45
D1	3.00	3.10	3.20	D2	1.78	1.88	1.98
D3	--	0.13	--	E	3.20	3.30	3.40
E1	3.00	3.15	3.20	E2	2.39	2.49	2.59
e	0.65BSC			H	0.30	0.39	0.50
L	0.30	0.40	0.50	L1		0.13	
θ	--	10°	12°	M	★	★	0.15
K	0.30	--	--				