

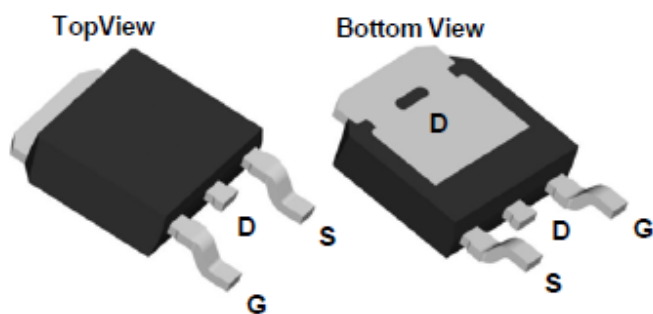
Features

The TW3RNG04 is the high cell density trench N ch MOSFETs, which provide excellent RDSON and gate charge for most of the synchronous buck converter applications .

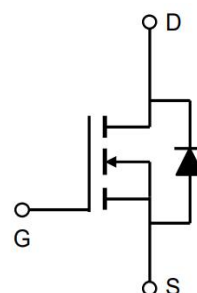
The TW3RNG04 i meet the RoHS and Green Product requirement, 100% EAS guaranteed with full function reliability apprvd.

Product Summary

BVDSS	RDSON	ID
40V	3.4mΩ	120A



TO-252-2L



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	VDS	40	V
Gate-Source Voltage	VGS	±20	
Continuous Drain Current,VGS @10V ¹	ID@TC=25°C	120	A
Continuous Drain Current,VGS @10V ¹	ID@TC=100°C	101	
Pulsed Drain Current ①	IDM	480	
Single Pulse Avalanche Energy	EAS	338	mJ
Avalanche Current	I _{AS}	55	A
Drain power dissipation	Ptot	104	W
Thermal Resistance Junction-ambient	RθJA	46	°C/W
Thermal Resistance Junction-Case	RθJC	1.2	°C/W
Operating Junction	TJ	150	°C
Storage Temperature	TSTG	-55~+150	°C

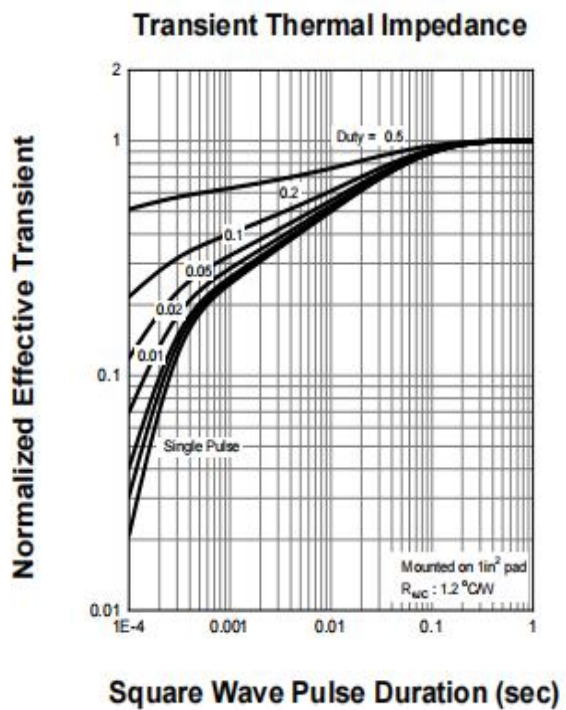
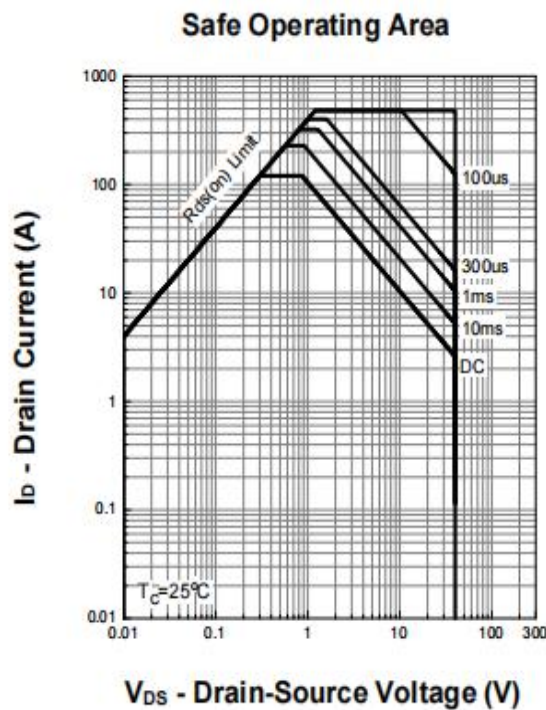
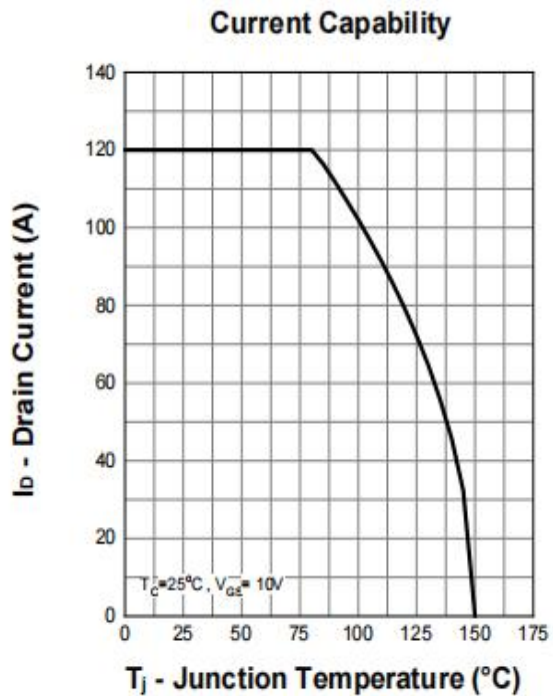
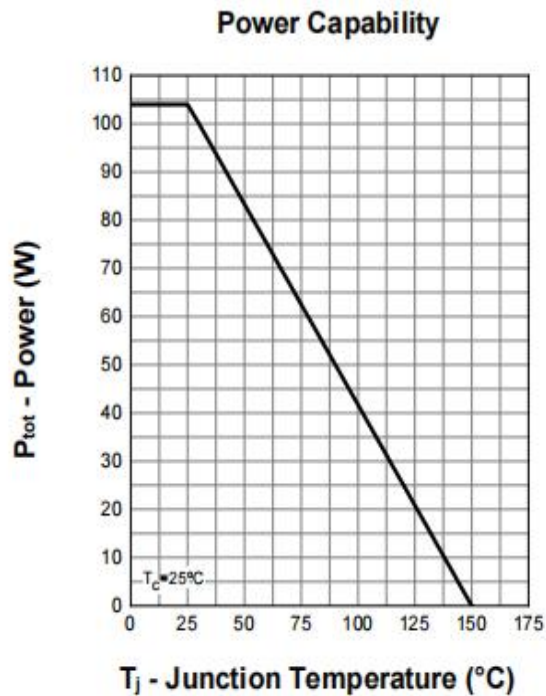
Electrical Characteristics(TJ 25 C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static Parameters						
Drain-Source Breakdown Voltage	BVDSS	VGS = 0V, ID = 250μA	40			V
Gate Threshold Voltage	VGS(th)	VDS =VGS, ID = 250μA	1	1.5	2.0	V
Gate-Body leakage Current	IGSS	VDS =0V, VGS = ±20V			±100	nA
Zero Gate Voltage Drain Current	IDSS	VDS = 40V, VGS = 0V			1	μA
Static Drain-Source On-Resistance	RDS(on)	VGS = 10V, ID = 20A		3.4	3.8	mΩ
	RDS(on)	VGS = 4.5V, ID = 10A		4.1	4.6	mΩ
Dynamic Parameters						
Input Capacitance	Ciss	VGS = 0 V, VDS = 20 V Frequency = 1 MHz		2294		pF
Output Capacitance	Coss			885		pF
Reverse Transfer Capacitance	Crss			90		pF
Total Gate Charge	Qg	VDS = 20 V, VGS = 10 V, IDS = 20 A		48		nC
Gate Source Charge	Qgs			8		nC
Gate Drain Charge	Qgd			9		nC
Switching Parameters						
Turn-On DelayTime	td(on)	VDS = 20 V, VGEN = 10 V, RG = 3.9 Ω, RL = 1 Ω, IDS = 20 A		10		ns
Turn-On Rise Time	tr			57		ns
Turn-Off DelayTime	td(off)			50		ns
Turn-Off Fall Time	tf			81		ns
Drain-Source Diode Characteristics						
Diode Forward Voltage	VSD	VGS=0V,IS=9A		0.8	1.2	V
Diode Characteristics						
Diode Forward Voltage	VSD	ISD = 20 A, VGS = 0 V			1.3	V
Reverse Recovery Time	trr	IDS = 20 A, VGS = 0 V dISD/dt = 100 A/μs		17		nS
Reverse Recovery Charge	Qrr			22		nC

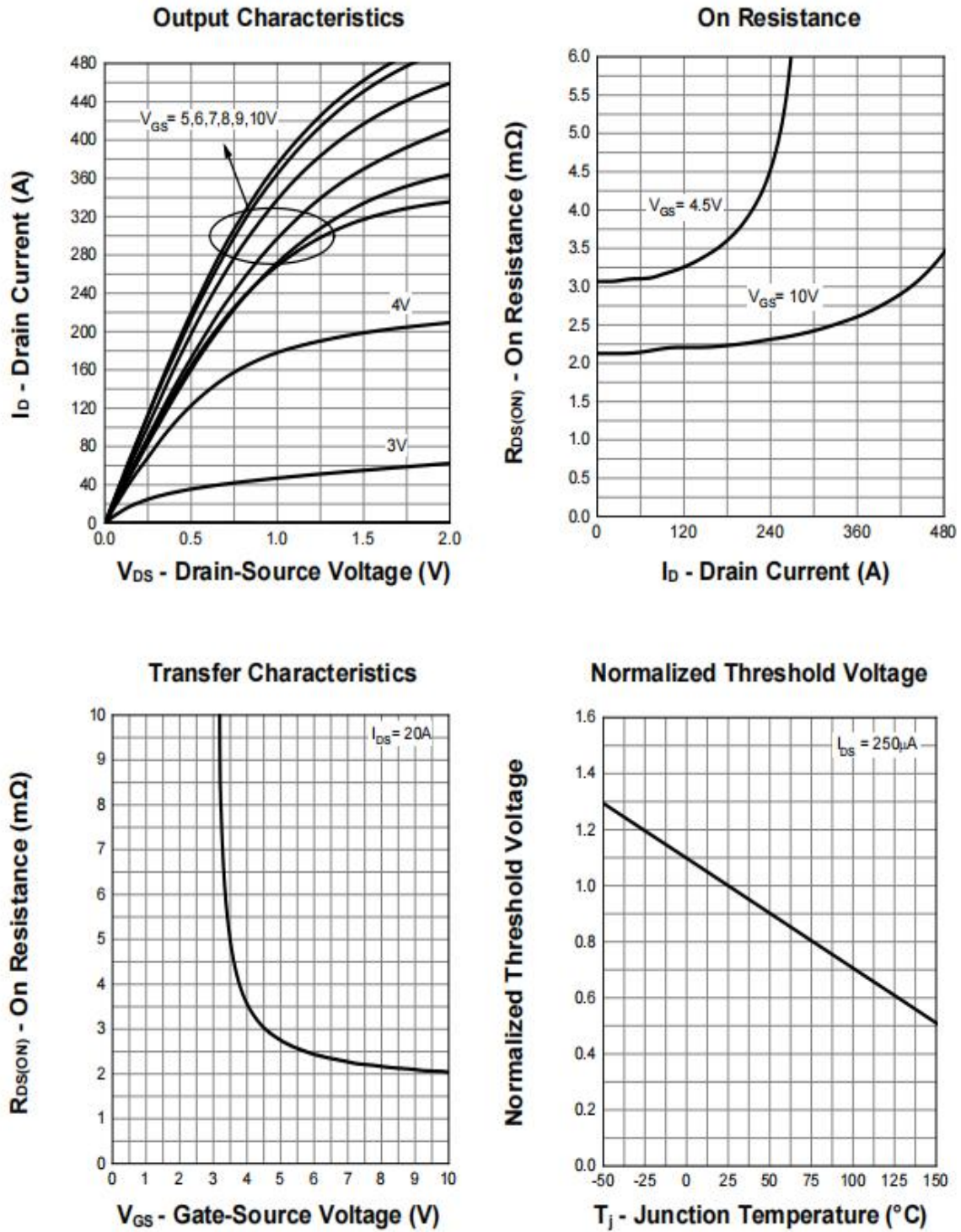
Note :

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.

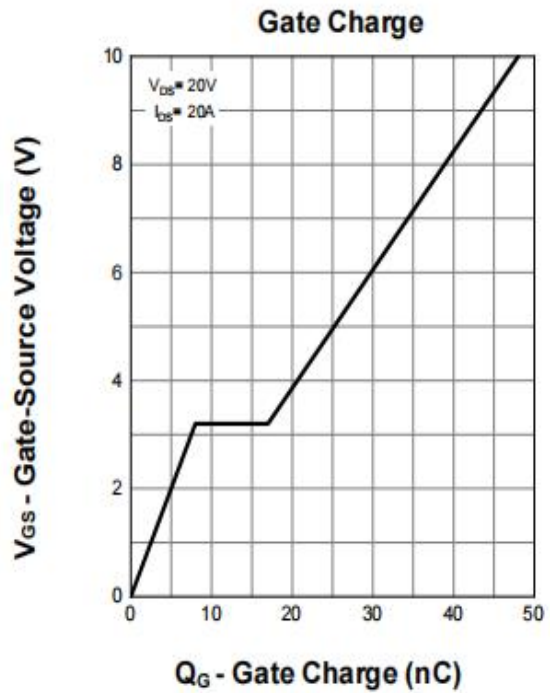
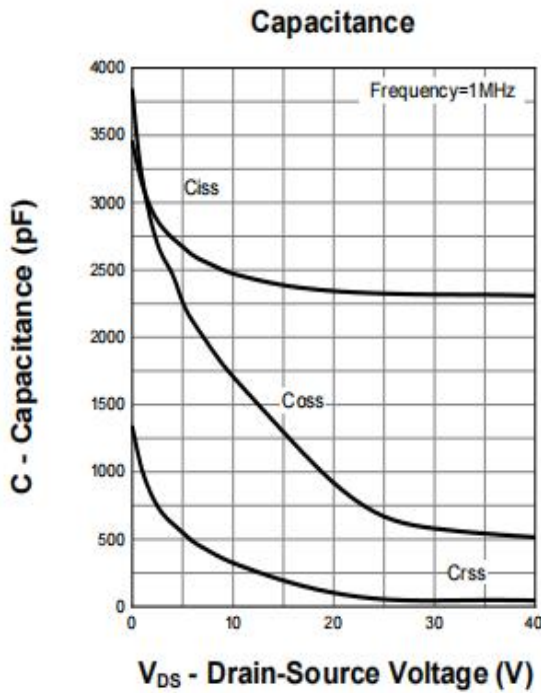
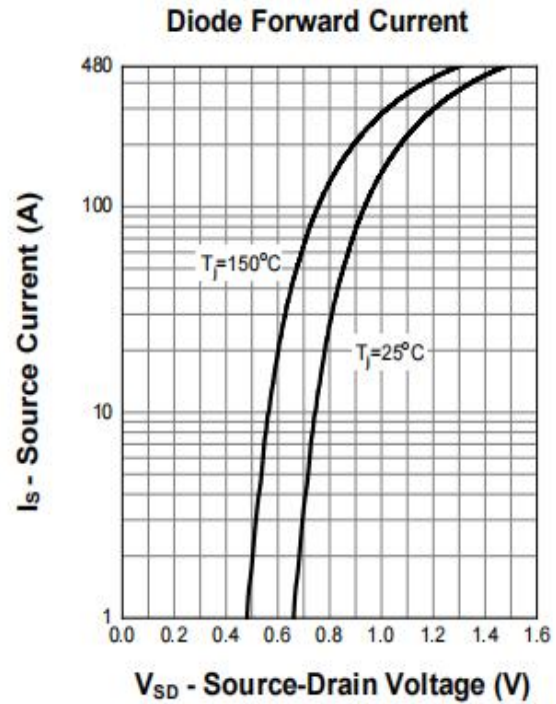
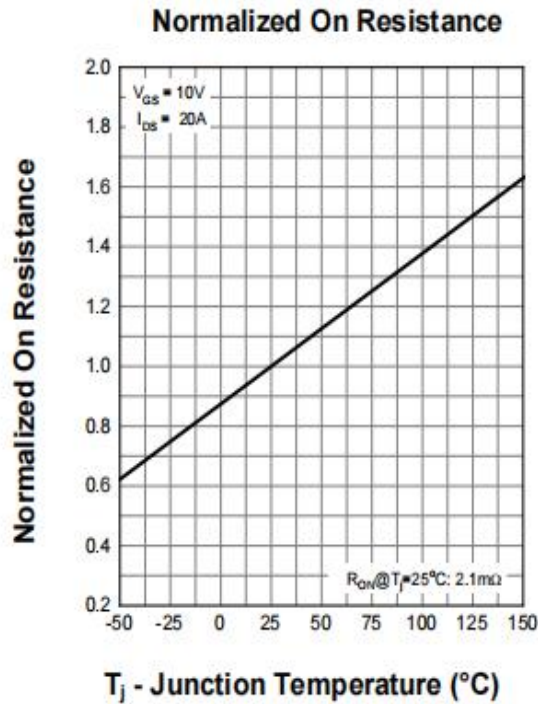
Typical Electrical and Thermal Characteristics



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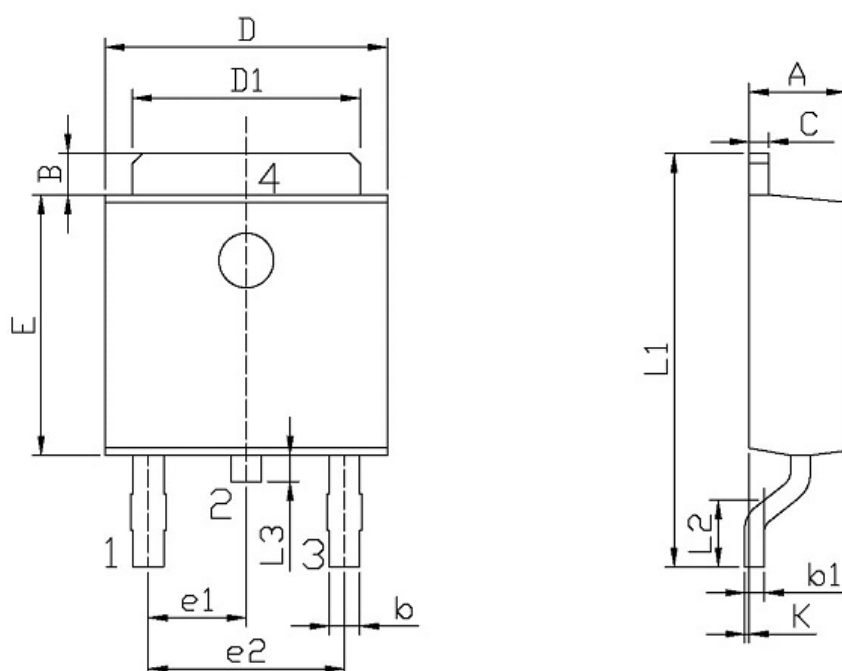
Typical Electrical and Thermal Characteristics



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