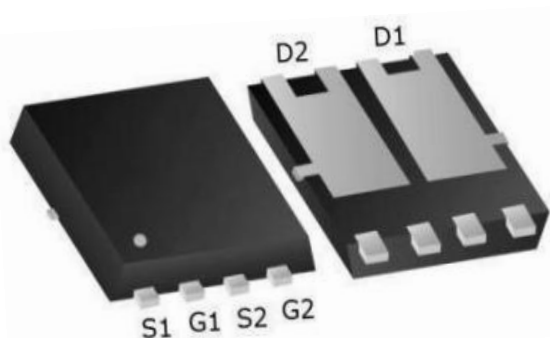


Features

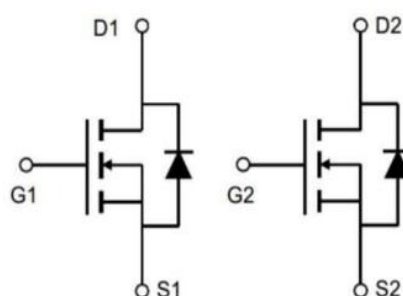
The TWS4866C is the high cell density trench N- ch MOSFETs, which provide excellent RDSON and gate charge for most of the synchronous buck converter applications. The TWS4866C meet the RoHS and Green Product requirement, 100% EAS guaranteed with full function reliability approved.

Product Summary

V_{DS}	40V
I_D	33A
$R_{DS(ON)}$ (at $V_{GS} = 10V$)	< 15m Ω
$R_{DS(ON)}$ (at $V_{GS} = 4.5V$)	< 23m Ω



PDFN3X3



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	40	V
Gate-Source Voltage	V_{GS}	± 20	
Continuous Drain Current, $V_{GS} @ 10V$	$I_{D@TC=25^{\circ}C}$	33	A
Continuous Drain Current, $V_{GS} @ 10V$	$I_{D@TC=100^{\circ}C}$	21	
Pulsed Drain Current ①	I_{DM}	55	
Single Pulse Avalanche Energy ³	EAS	22.1	mJ
Avalanche Current	IAS	10	A
Power Dissipation ②	P_D	31.3	W
Storage Temperature	T_{STG}	$-55 \sim +150$	$^{\circ}C$
Operating Junction	T_J	$-55 \sim +150$	$^{\circ}C$

Thermal Data

Parameter	Symbol	Typ.	Max.	Unit
Thermal Resistance Junction-Case ¹	$R_{\theta JC}$		5.5	$^{\circ}C/W$

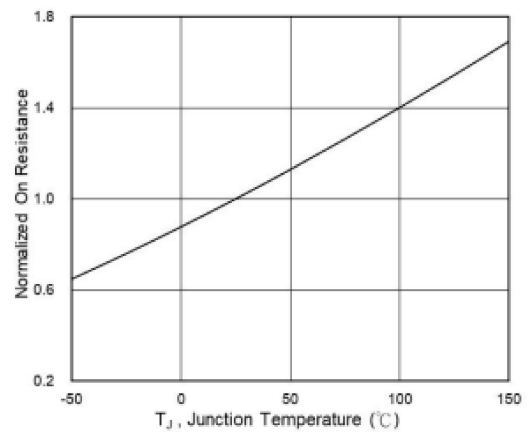
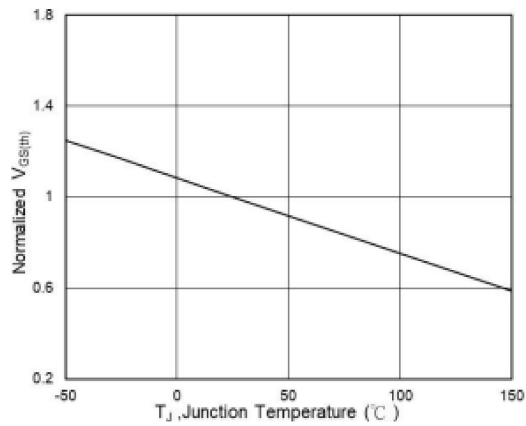
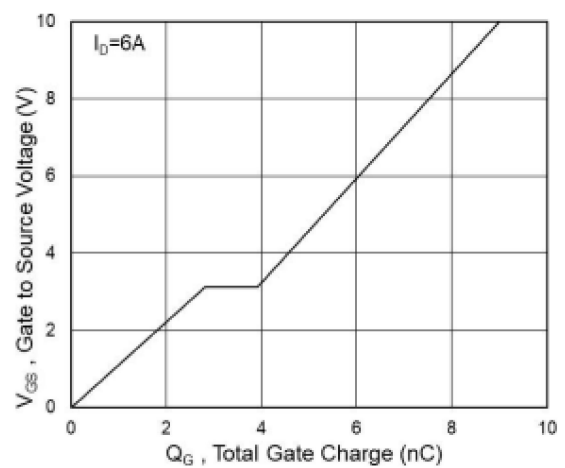
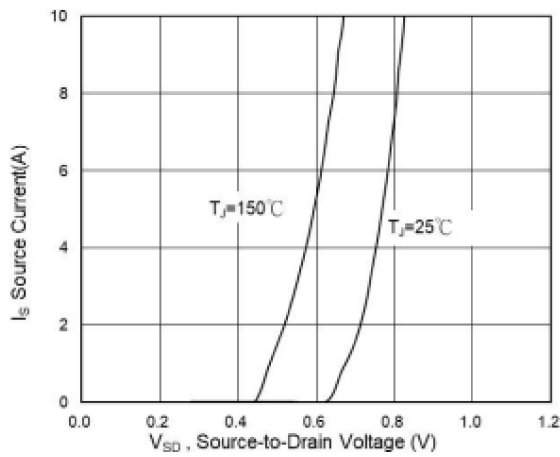
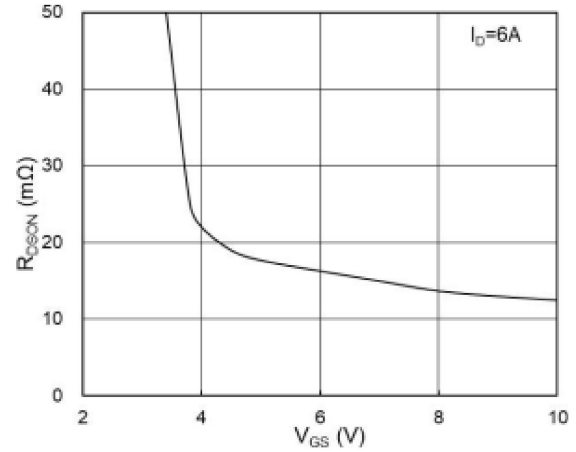
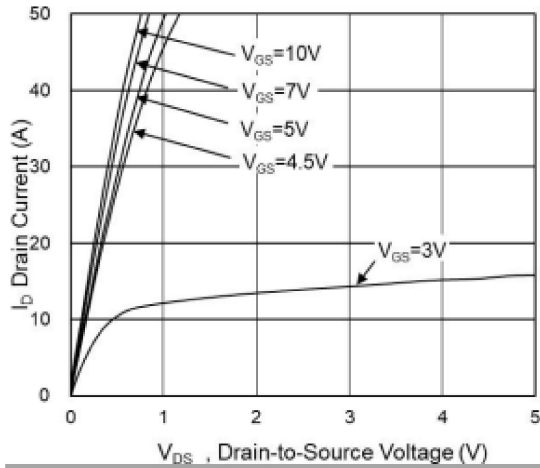
Electrical Characteristics(TJ=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static Parameters						
Drain-Source Breakdown Voltage	BVDSS	VGS = 0V, ID = 250μA	40			V
Zero Gate Voltage Drain Current	IDSS	VDS = 32V, VGS =0V			1	μA
Gate-Body leakage Current	IGSS	VDS =0V, VGS = ±32V			±100	nA
Gate Threshold Voltage	VGS(th)	VDS =VGS, ID = 250μA	1.2	1.7	2.4	V
Static Drain-Source On-Resistance	RDS(on)	VGS=10V , ID=6A		13	15	mΩ
		VGS=4.5V , ID=5A		19	23	mΩ
Dynamic Parameters						
Input Capacitance	Ciss	VDS=15V , VGS=0V , f=1MHz		376		pF
Output Capacitance	Coss			240		pF
Reverse Transfer Capacitance	Crss			19		pF
Total Gate Charge	Qg	VDS = 32V,VGS = 4.5V, ID = 6A		3.8		nC
Gate Source Charge	Qgs			2.8		nC
Gate Drain Charge	Qgd			1.1		nC
Switching Parameters						
Turn-On DelayTime	td(on)	VDD=20V , VGS=10V , RG=3.3Ω ID=1A		12.2		ns
Turn-On Rise Time	tr			5.3		ns
Turn-Off DelayTime	td(off)			18		ns
Turn-Off Fall Time	tf			9		ns
Drain-Source Diode Characteristics and Maximum Ratings						
Maximum Continuous Drain to Source Diode Forward Current		IS			33	A
Drain to Source Diode Forward Voltage	VSD	VGS=0V, IS=30A			1.2	V
Body Diode Reverse Recovery Time	trr	IF=20A,dI/dt=100A/μs		20		NS
Body Diode Reverse Recovery Charge	Qrr			35		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



Typical Electrical and Thermal Characteristics

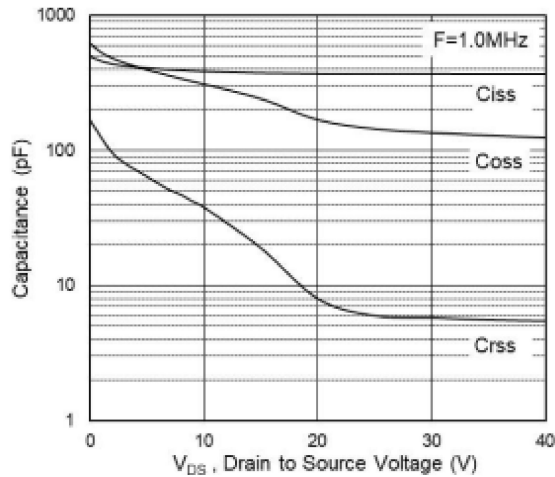


Fig.7 Capacitance

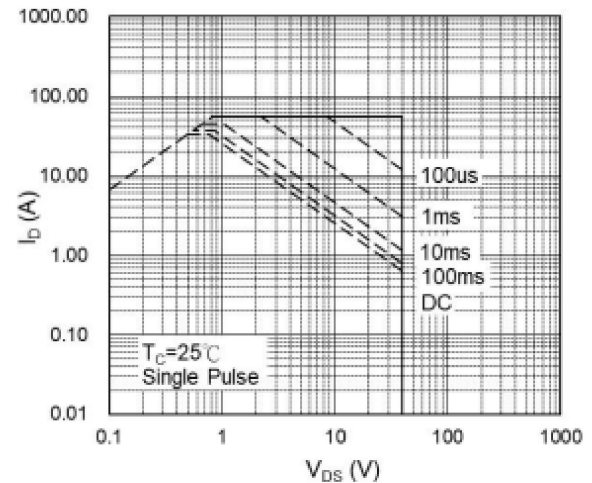


Fig.8 Safe Operating Area

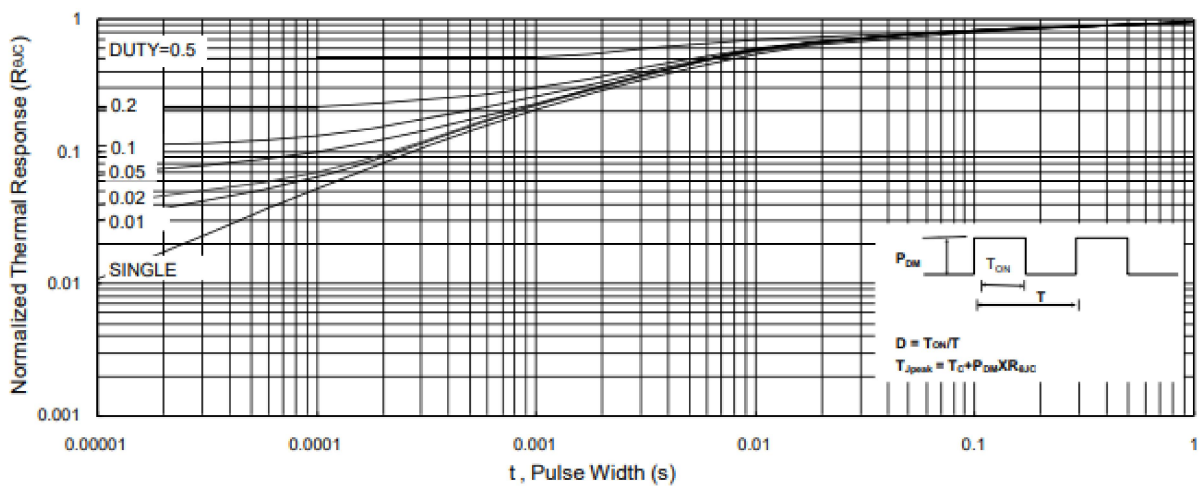


Fig.9 Normalized Maximum Transient Thermal Impedance

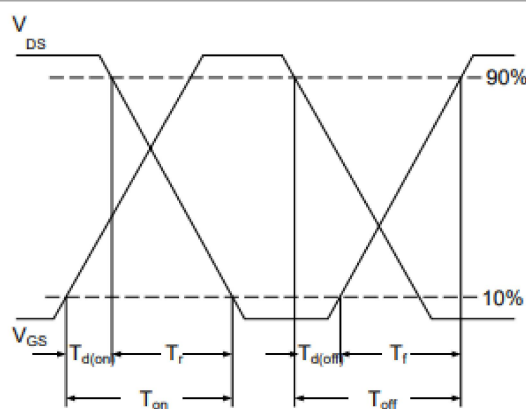


Fig.10 Switching Time Waveform

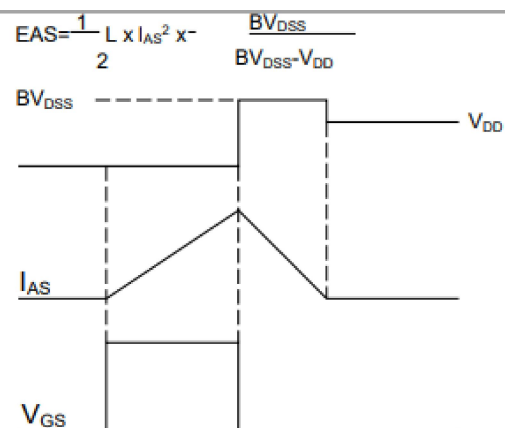


Fig.11 Unclamped Inductive Switching Waveform

Package Information

