

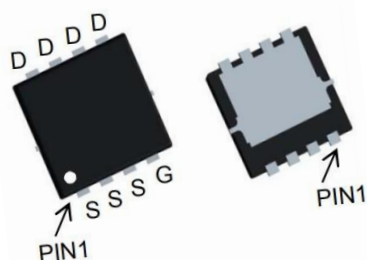
Features

The TW70P03CC is the high cell density trench P-ch MOSFETs, which provide excellent $R_{DS(on)}$ and gate charge for most of the synchronous buck converter applications.

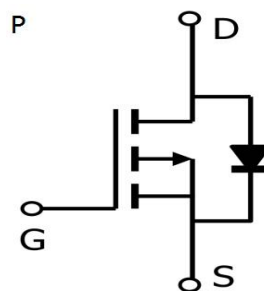
The TW70P03CC meet the RoHS and Gree Product requirement 100% EAS guaranteed with full function reliability approved.

Product Summary

V_{DS}	-30V
I_D	-65A
$R_{DS(on)}$ (at $V_{GS} = -10V$)	< 9.3m Ω
$R_{DS(on)}$ (at $V_{GS} = -4.5V$)	< 14.5m Ω



PDFN3X3



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	± 20	
Continuous Drain Current	$I_{D@TC=25^{\circ}C}$	-65	A
Continuous Drain Current	$I_{D@TC=75^{\circ}C}$	-35	
Pulsed Drain Current ①	I_{DM}	-175	
Single Pulse Avalanche Energy	EAS	31	mJ
Avalanche Current	I_{AS}	-70	A
Total Power Dissipation	$PD@TC=25^{\circ}C$	31.2	W
Storage Temperature Range	TSTG	-55 to 150	$^{\circ}C$
Operating Junction Temperature	T_J	-55 to 150	$^{\circ}C$
Thermal Data			
Parameter	Symbol	Max.	Unit
Thermal Resistance Junction-Ambient	$R_{\theta JA}$	61	$^{\circ}C/W$
Thermal Resistance from Junction-to-Case	$R_{\theta JC}$	4	$^{\circ}C/W$

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	-30			V
Zero Gate Voltage Drain Current	IDSS	VDS=-24V , VGS=0V			-1	μA
Gate-Body leakage Current	IGSS	VGS=±20 V , VDS=0V			±100	nA
Gate Threshold Voltage	VGS(th)	VGS=VDS , ID=-250uA	-1.0	-1.6	-2.5	V
Static Drain-Source On-Resistance	RDS(on)	VGS =- 10V, ID = -12A		6.5	9.3	mΩ
		VGS =- 4.5V, ID = -8A		9.5	14.5	mΩ
Dynamic Parameters						
Input Capacitance	Ciss	VDS = -15V, VGS =0V, f =1MHz		4320		pF
Output Capacitance	Coss			529		pF
Reverse Transfer Capacitance	Crss			487		pF
Total Gate Charge	Qg	VGS = -10V, VDS = -15V, ID= -15A		45		nC
Gate Source Charge	Qgs			8.5		nC
Gate Drain Charge	Qgd			12.8		nC
Switching Parameters						
Turn-On DelayTime	td(on)	VGS = -10V, VDD = -15V, RG = 2.5Ω, ID= -15A		18.9		ns
Turn-On Rise Time	tr			15.7		ns
Turn-Off DelayTime	td(off)			64.8		ns
Turn-Off Fall Time	tf			36.5		ns
Drain-Source Diode Characteristics and Maximum Ratings						
Maximum Continuous Drain to Source Diode Forward Current		IS			-65	A
Drain to Source Diode Forward Voltage	VSD	VGS=0V , IS=-1A , TJ=25℃			-1	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

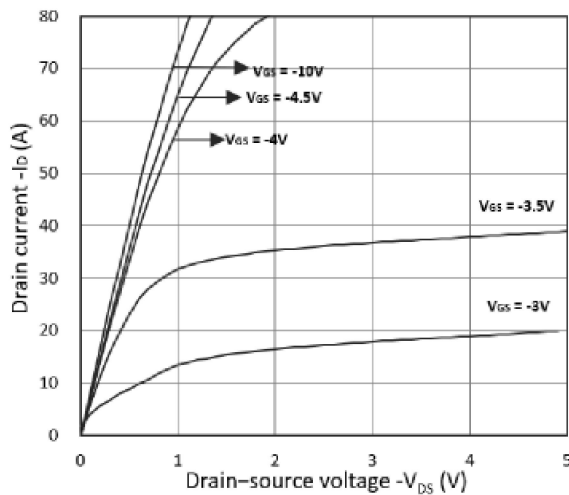


Figure 1. Output Characteristics

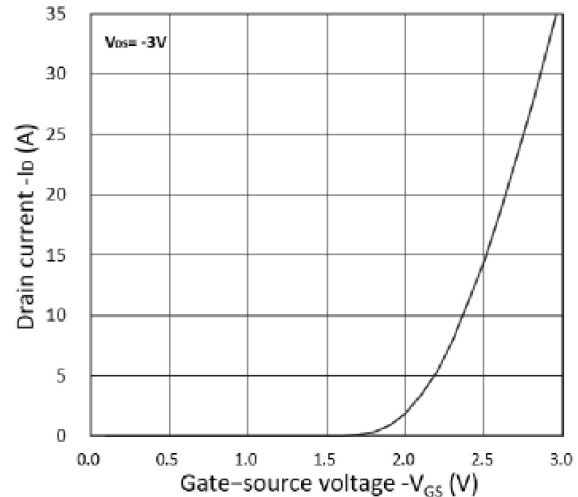


Figure 2. Transfer Characteristics

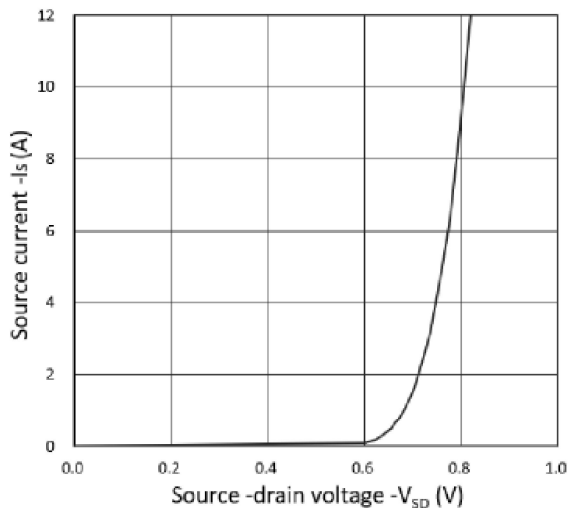


Figure 3. Forward Characteristics of Reverse

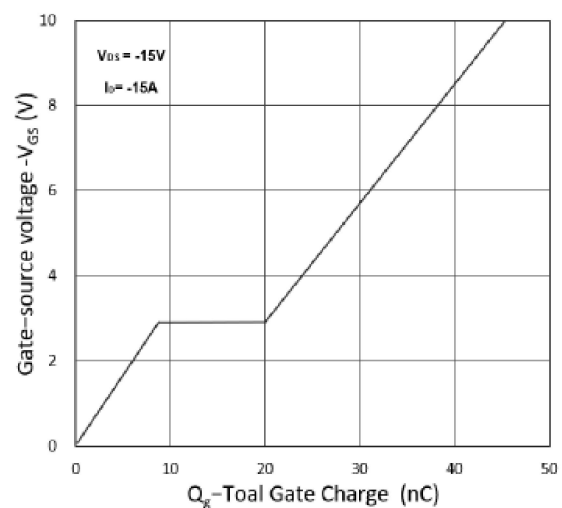


Figure 4. Gate Charge Characteristics

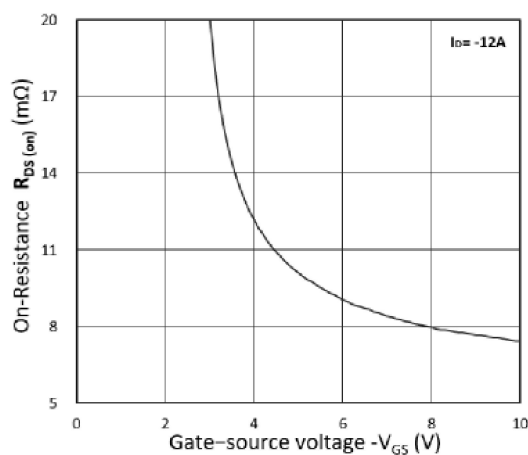


Figure 5. $R_{DS(on)}$ vs. V_{GS}

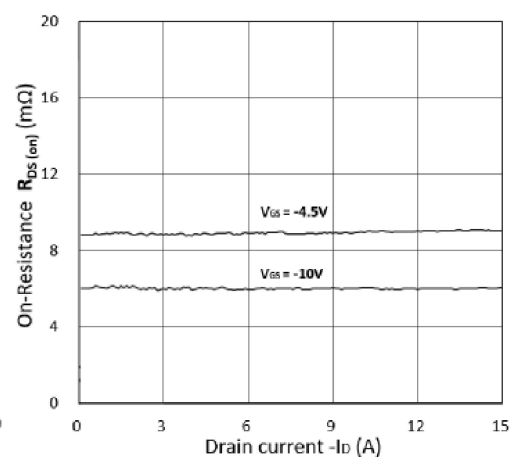


Figure 6. $R_{DS(on)}$ vs. I_D

Typical Electrical and Thermal Characteristics

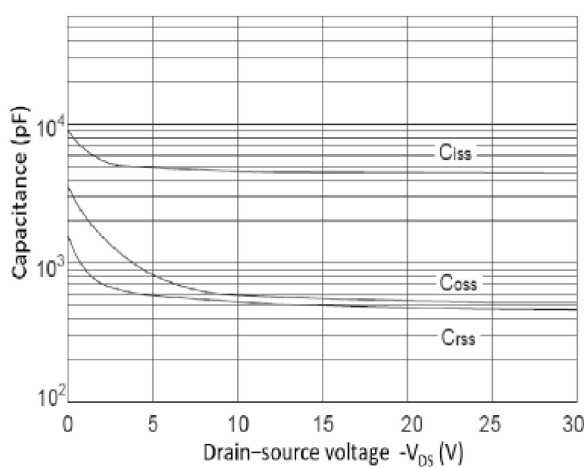


Figure 7. Capacitance Characteristics

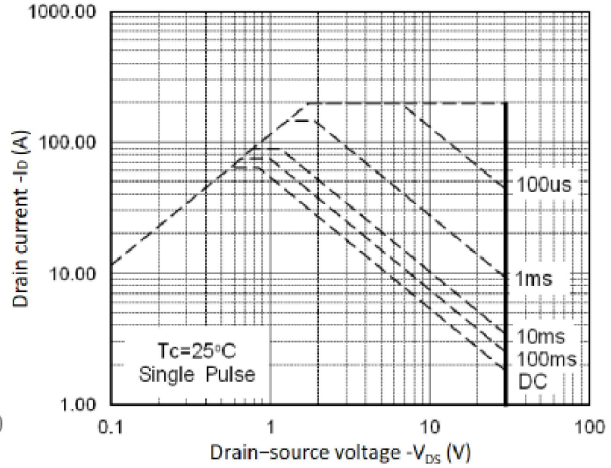


Figure 8. Safe Operating Area

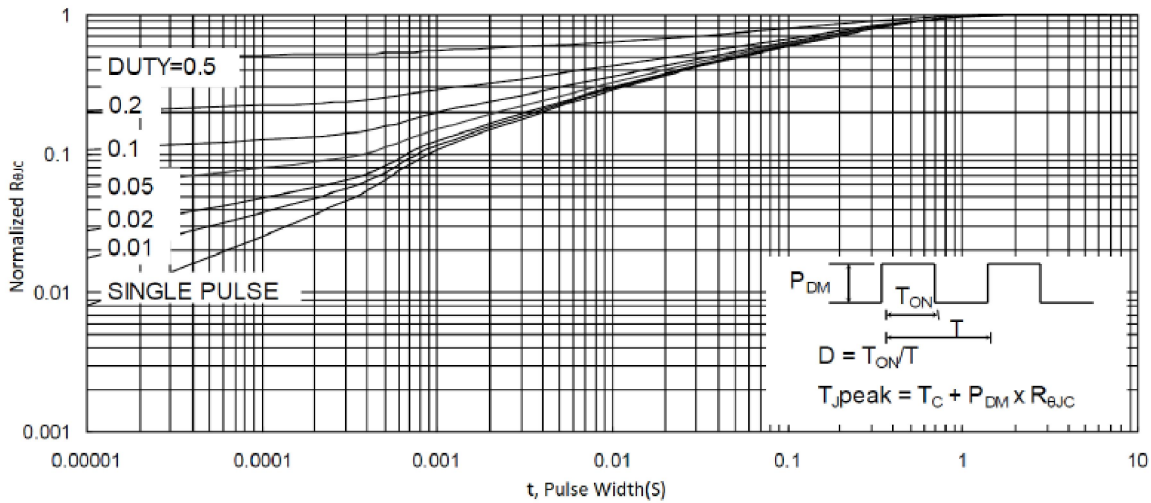


Figure 9. Normalized Maximum Transient Thermal Impedance

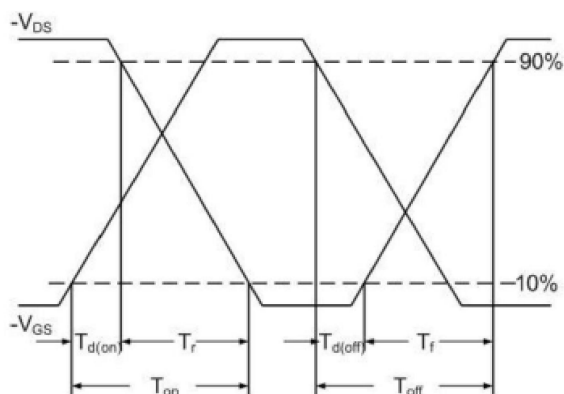


Figure 10. Switching Time Waveform

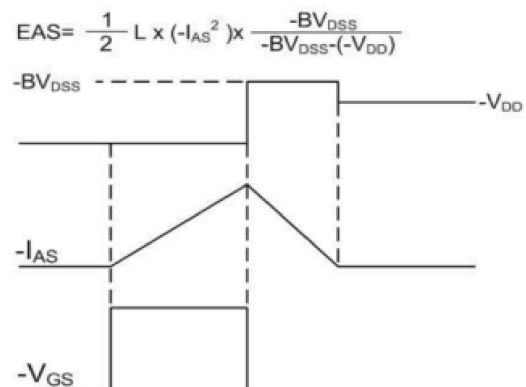


Figure 11. Unclamped Inductive Switching
Waveform

Package Information
