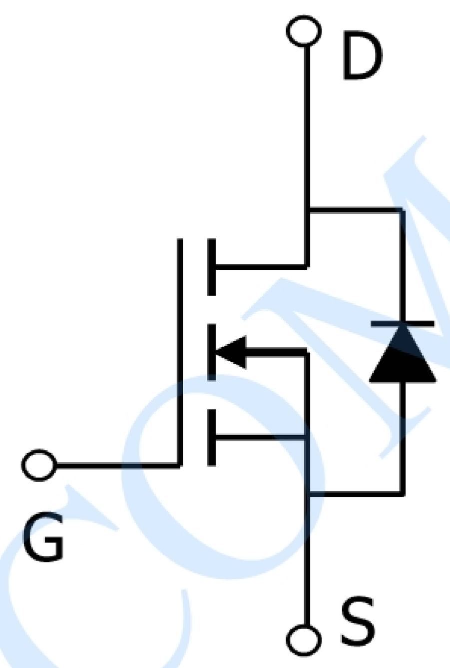
N-Channel Enhancement Mode MOSFET

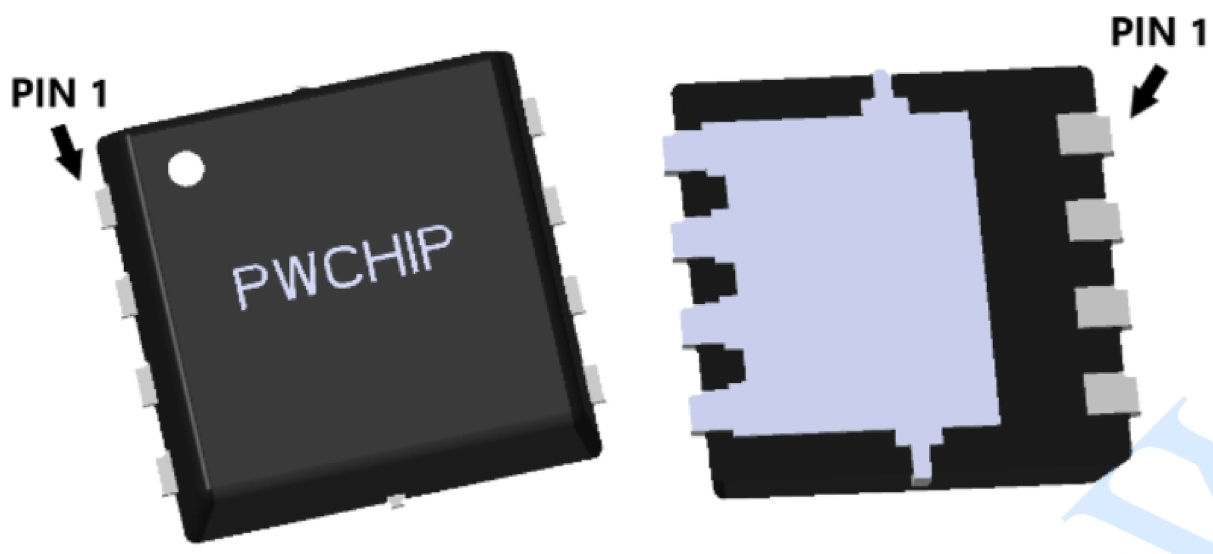
GENERAL DESCRIPTION

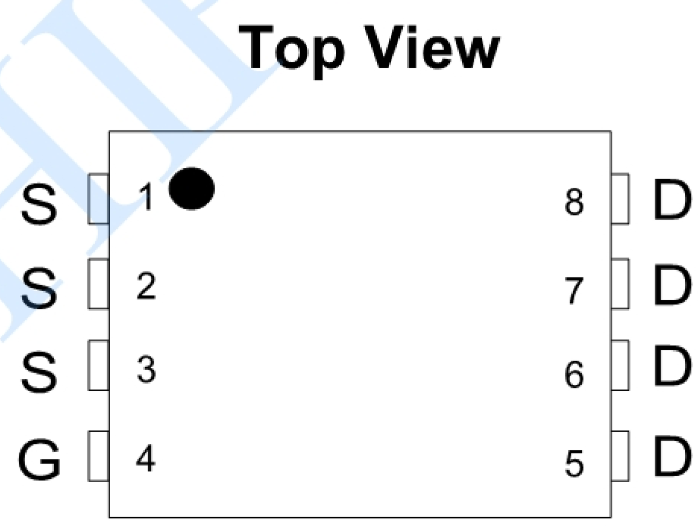
The PW3467 uses advanced trench technology to provide excellent RDS(ON), low gate charge and operation with gate voltages as low as 4.5V. This device is suitable for use as a Battery protection or in other Switching application.

FEATURES

VDS = 30V ID =67A
RDS(ON) < 5.5mΩ @ VGS=10V
Available in a 8-Pin DFN3*3 Package







DFN3*3-8L

Absolute Maximum Ratings (TC=25℃ unless otherwise noted)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current, V_{GS} @ 10V (NOTE1)	ID@TC=25℃	70	A
Continuous Drain Current, V_{GS} @ 10V (NOTE1)	ID@TC=100℃	51	A
Continuous Drain Current, V_{GS} @ 10V (NOTE1)	ID@TA=25℃	15	A
Continuous Drain Current, V_{GS} @ 10V (NOTE1)	ID@TA=70℃	12	A
Pulsed Drain Current (NOTE2)	I_{DM}	160	A
Total Power Dissipation (NOTE3)	P_D@TC=25℃	59	W
Total Power Dissipation (NOTE3)	P_D@TA=25℃	2	W
Storage Temperature Range	T_{STG}	-55 To 150	℃
Operating Junction Temperature Range	T_J	-55 To 155	℃
Single pulse avalanche energy (NOTE4)	EAS	115.2	mJ
Avalanche Current	IAS	48	A
Thermal Resistance Junction-Case (NOTE1)	$R_{\theta JC}$	2.1	℃/W
Thermal Resistance Junction-ambient (NOTE1)	$R_{\theta JA}$	62	℃/W

ELECTRICAL CHARACTERISTICS(TJ = 25°C, unless otherwise noted.)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	VGS=0V ID=250μA	30			V
BVDSS Temperature Coefficient	$\triangle BV_{DSS}/\triangle T_J$	Reference to 25℃ , ID=1mA		0.028		V/℃
Drain-Source Leakage Current	I_{DSS}	VDS=24V,VGS=0V TJ=25℃			1	μA
Drain-Source Leakage Current	I_{DSS}	VDS=24V,VGS=0V TJ=55℃			5	μA
Gate- Source Leakage Current	I_{GSS}	VGS=±20V,VDS=0V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	VDS=VGS,ID=250μA	1.0	1.6	2.5	V
$V_{GS(th)}$ Temperature Coefficient	$\triangle V_{GS(th)}$	VDS=VGS,ID=250μA		-6.16		mV/℃
Static Drain-Source On-Resistance	$R_{DS(ON)}$	VGS=4.5V, ID=15A		6.5	8.5	mΩ
Static Drain-Source On-Resistance	$R_{DS(ON)}$	VGS=10V, ID=30A		3.5	5.5	mΩ
Forward Transconductance	g_{FS}	VDS=5V,ID=30A		22		S
Gate Resistance	Rg	VDS=0V , VGS=0V , f=1MHz		1.7	3.4	Ω
Total Gate Charge (4.5V)	Qg	VGS=4.5V,VDS=15V,ID=15A		20		nC
Gate-Source Charge	Qgs			7.6		nC
Gate-Drain Charge	Qgd			7.2		nC
Turn-on Delay Time	td(on)	VGS=10V,VDD=15V RG=3. 3Ω,ID=15A		7.8		nS
Turn-on Rise Time	tr			15		nS
Turn-Off Delay Time	td(off)			37.3		nS
Turn-Off Fall Time	tf			10.6		nS
Diode Forward Voltage (Note 2)	VSD	VGS=0V,IS=1A TJ=25℃			1	V
Continuous Source Current(NOTE1,5)	IS	VG=VD=0V , Force Current			80	A
Pulsed Source Current(NOTE2,5)	ISM	VG=VD=0V , Force Current			160	A
Reverse Recovery Time	trr	TJ = 25°C, IF = 30A di/dt = 100A/μs		14		nS
Reverse Recovery Charge	Qrr			5		nC
Input Capacitance	Ciss	VDS=15V,VGS=0V, F=1.0MHz		2295		PF
Output Capacitance	Coss			267		PF
Reverse Transfer Capacitance	Crss			210		PF

Note :

1、 The data tested by surface mounted on a 1 inch2 FR-4 board with 2OZ copper.

2、 The data tested by pulsed , pulse width .The EAS data shows Max. rating .

3、 The power dissipation is limited by 175℃ junction temperature

4、 The test condition is V≦ 300us , duty cycle DD=25≦ V,V 2%GS =10V,L=0.1mH,IAS=53.8A

5、 The data is theoretically the same as ID and IDM , in real applications , should be limited by total power dissipation

Typical Characteristics

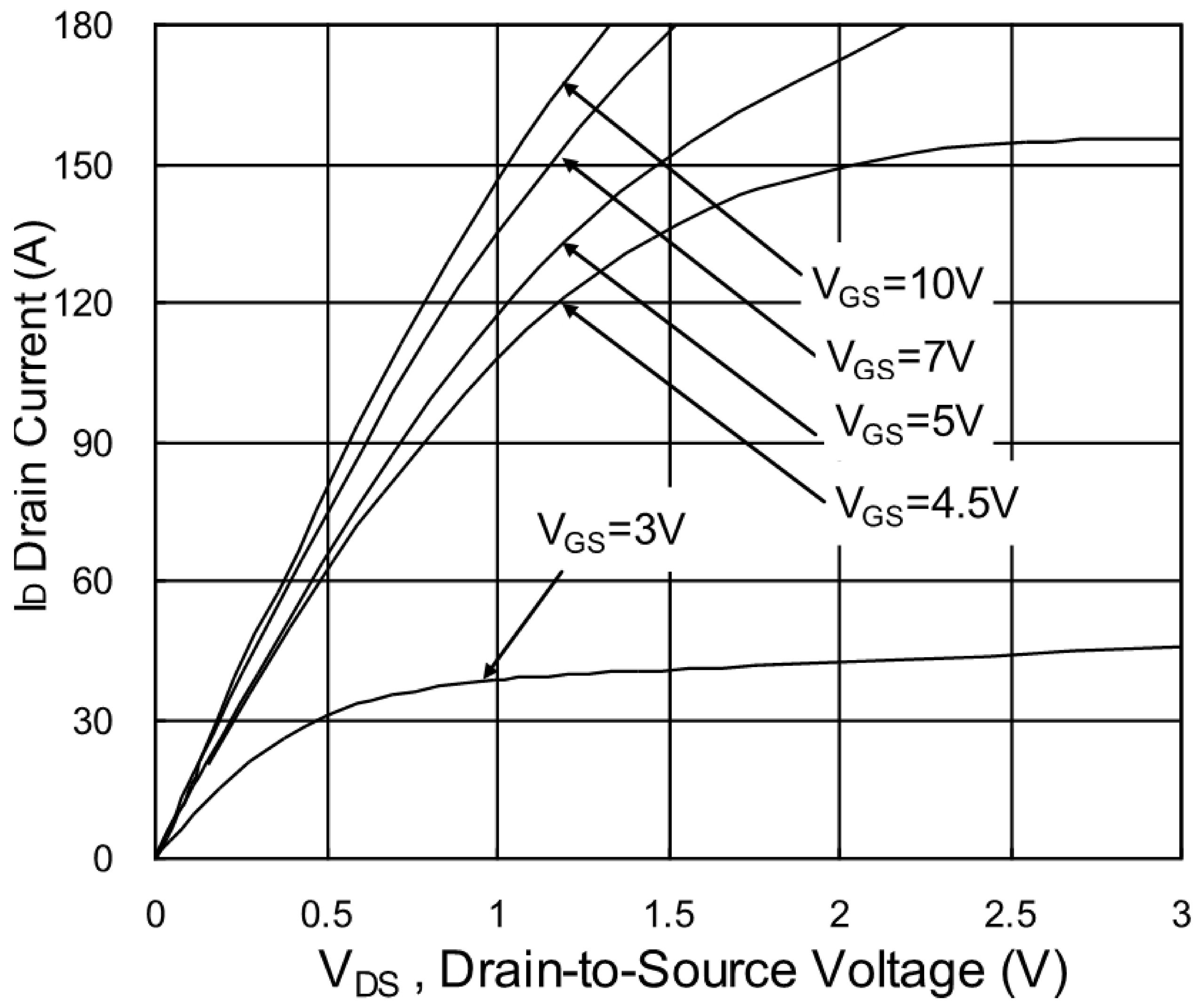


Fig.1 Typical Output Characteristics

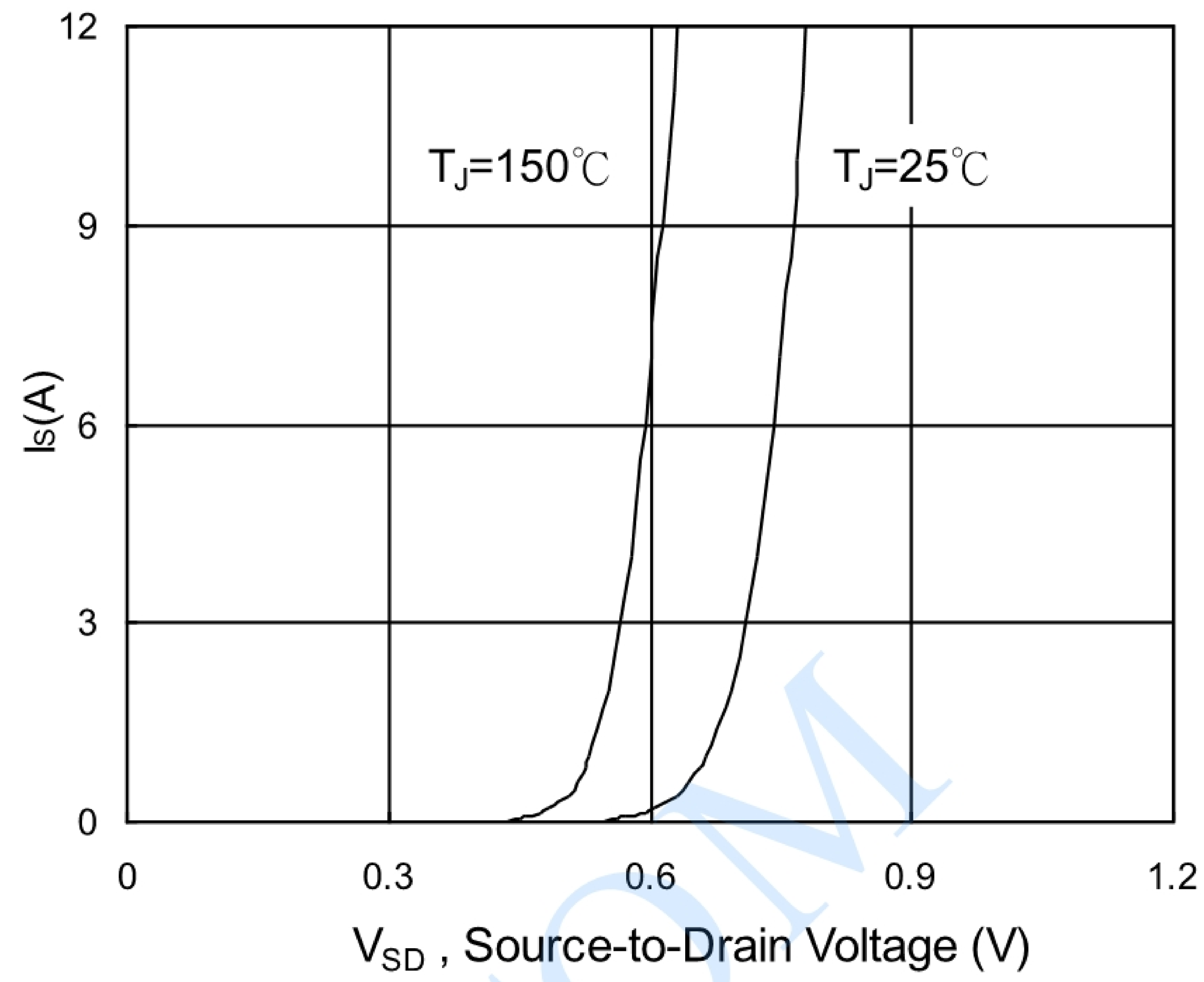


Fig.2 **Forward Characteristics Of Reverse**

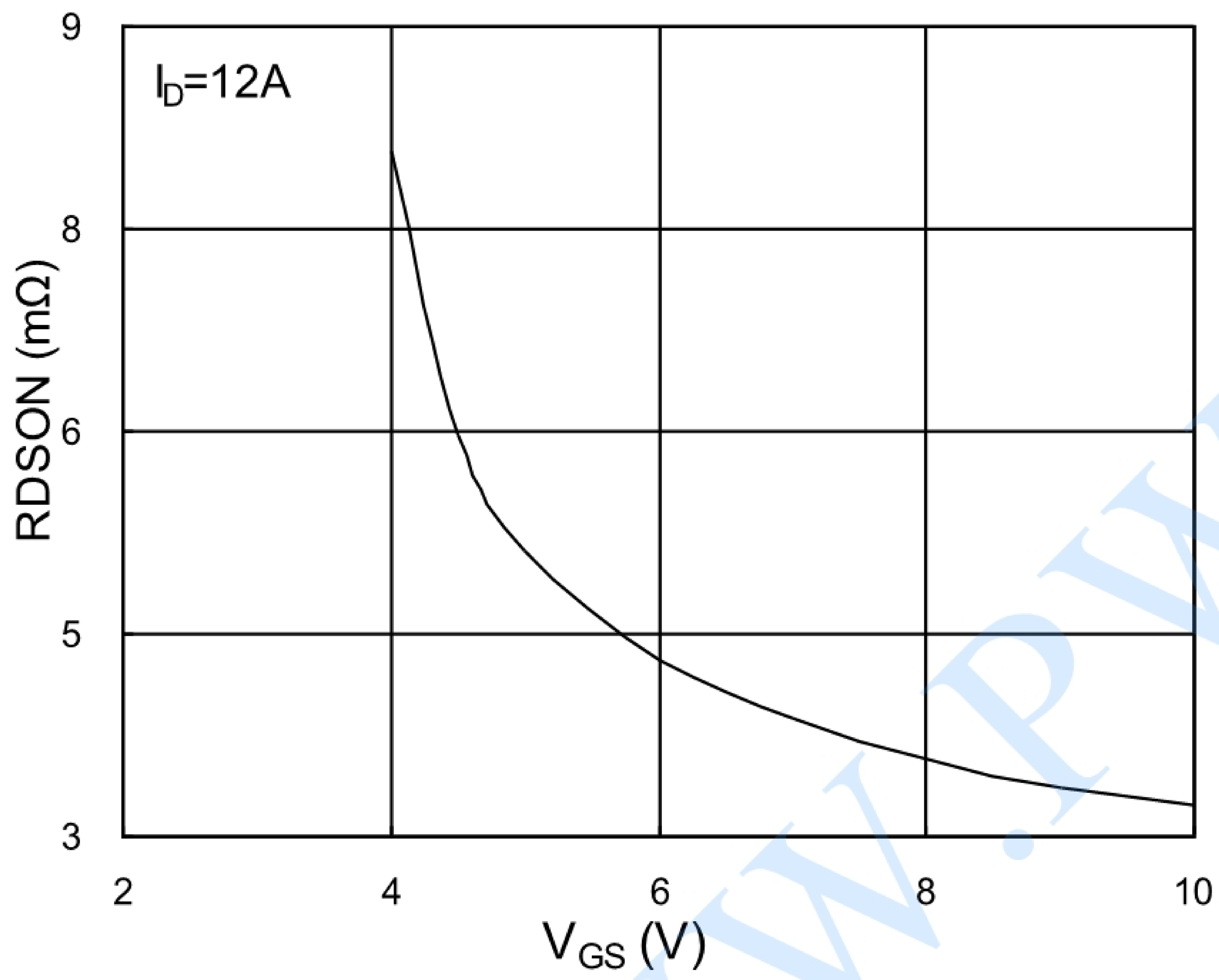


Fig.3 **On-Resistance vs. G-S Voltage**

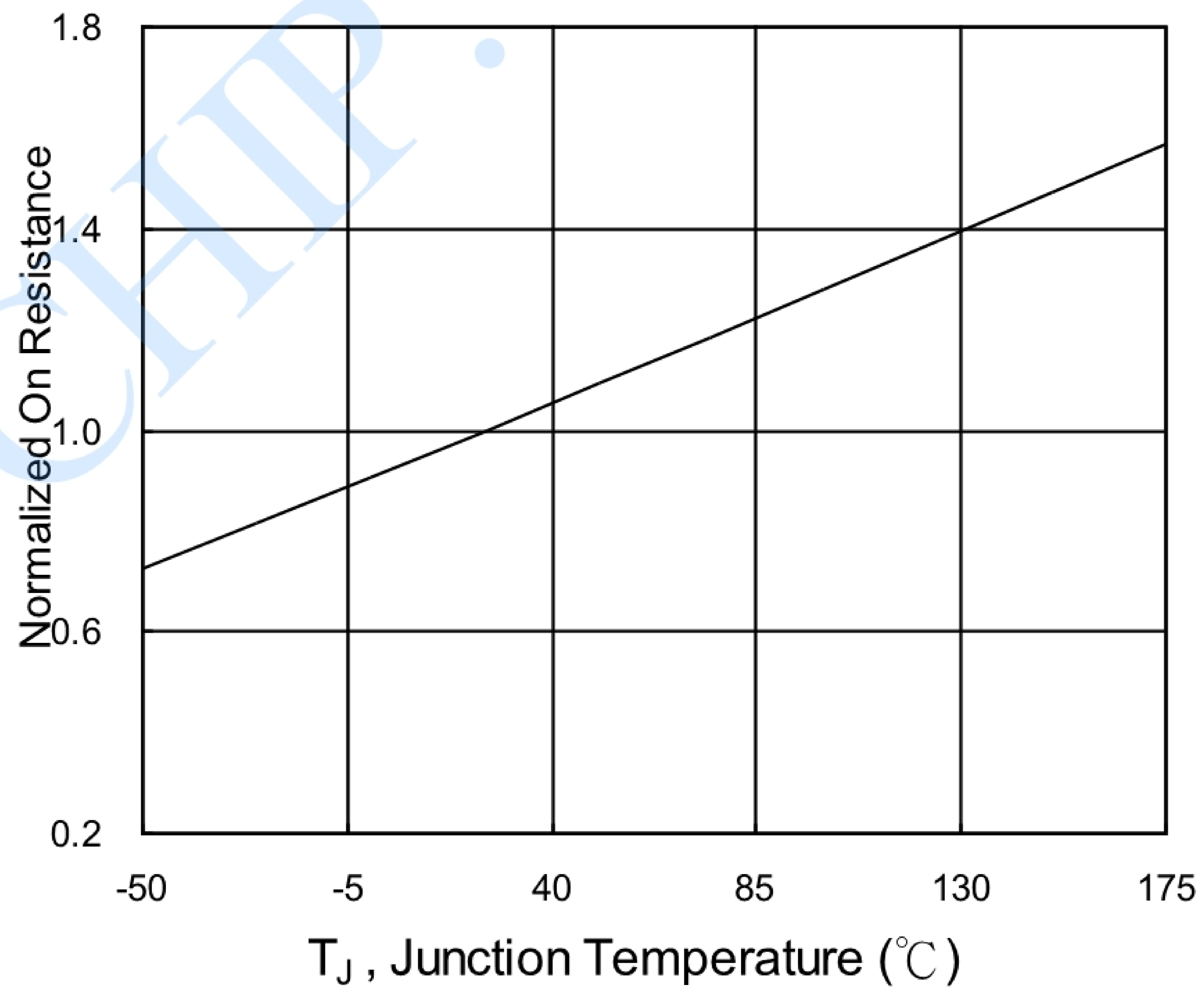


Fig.4 **Normalized RDSON vs. TJ**

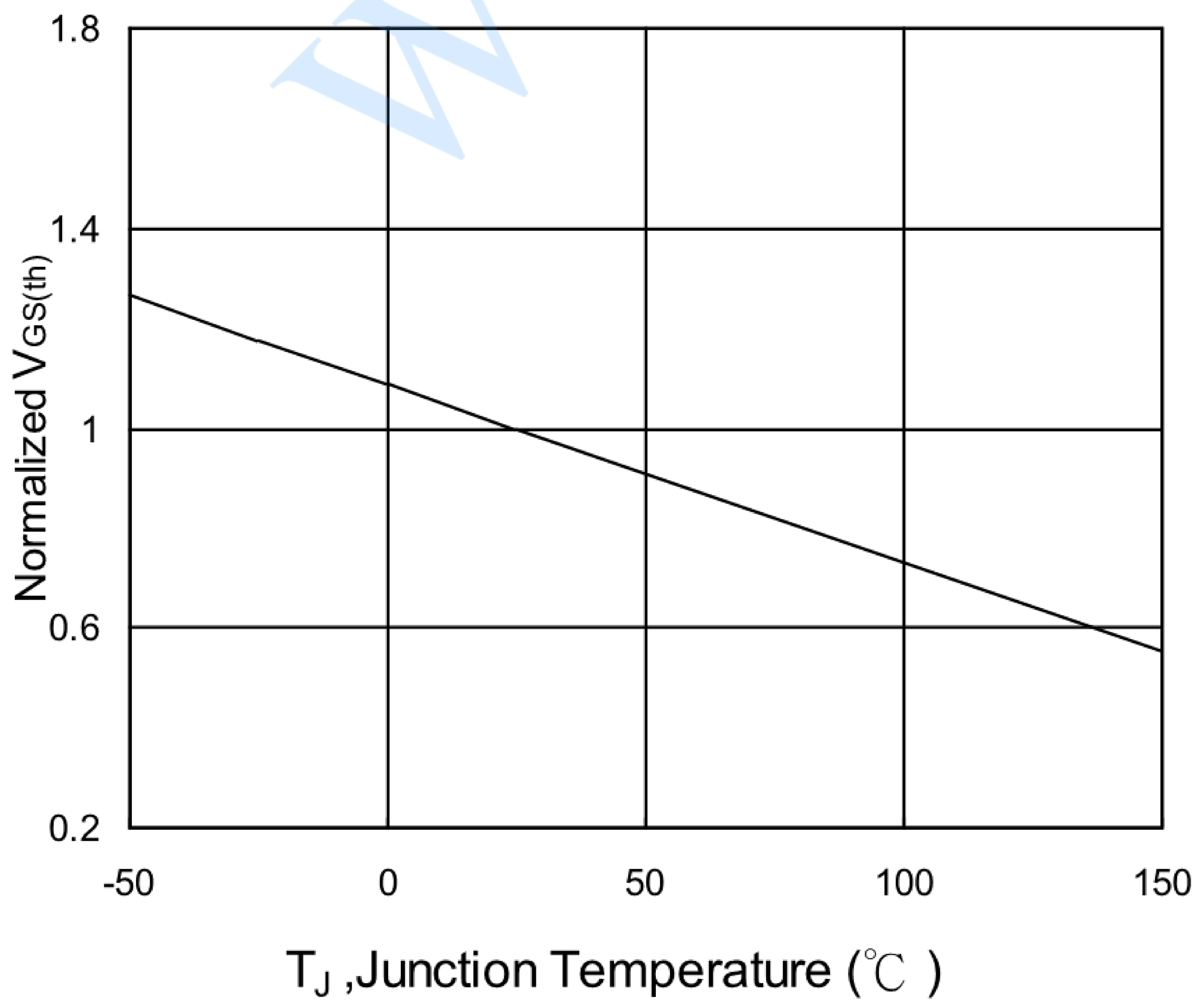


Fig.5 **Normalized VGS(th) vs. TJ**

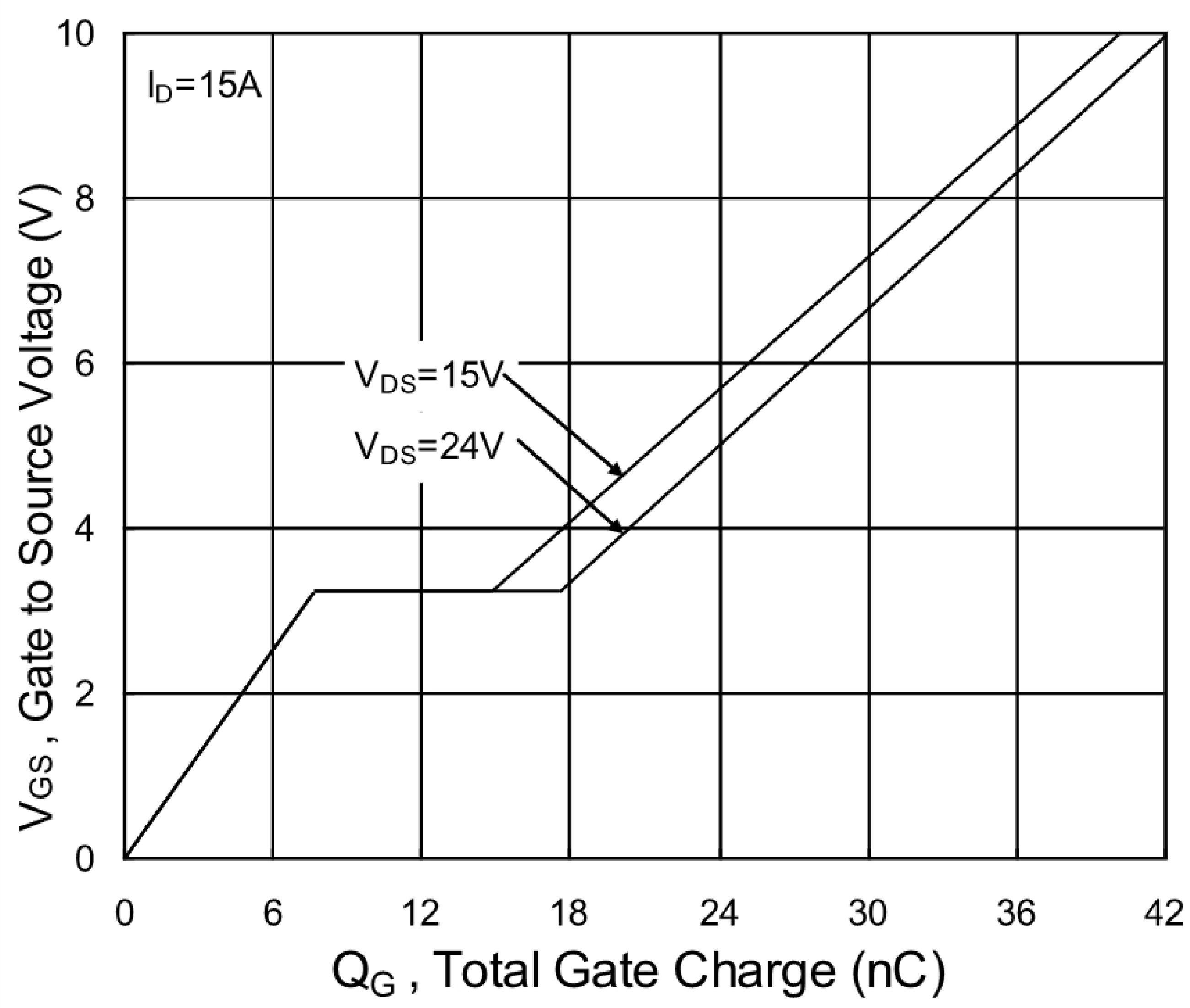


Fig.6 **Gate-Charge Characteristics**

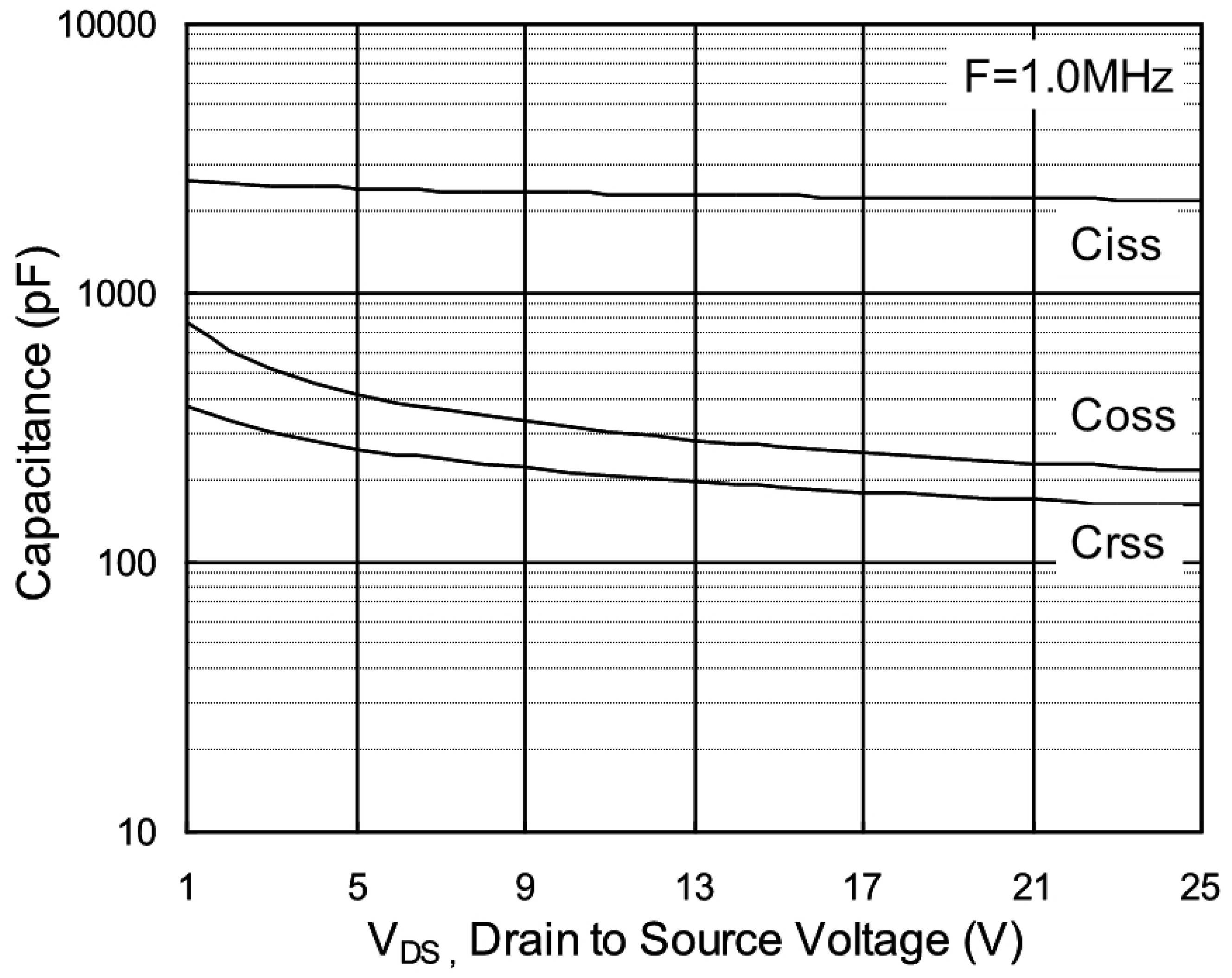


Fig.7 Capacitance

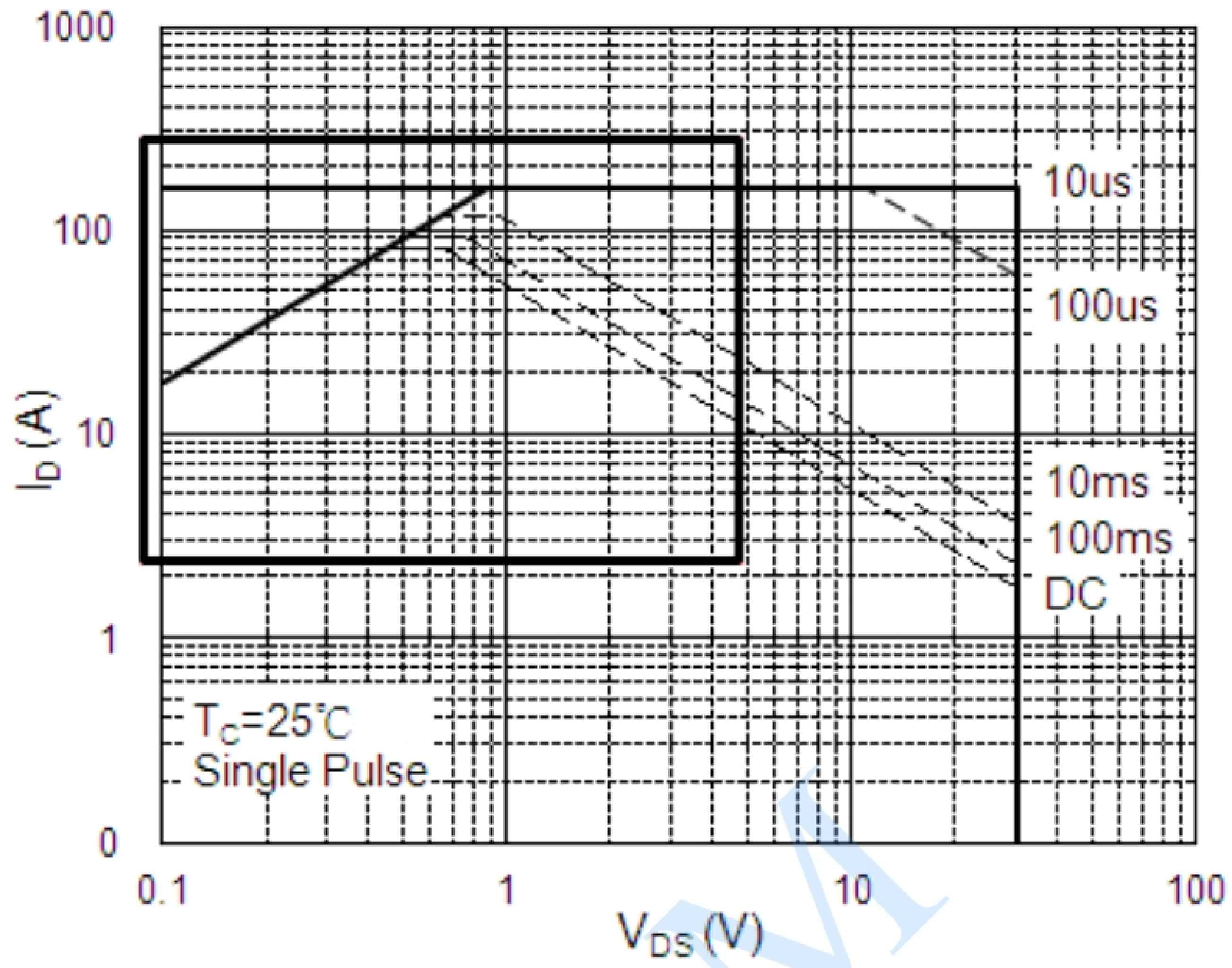


Fig.8 Safe Operating Area

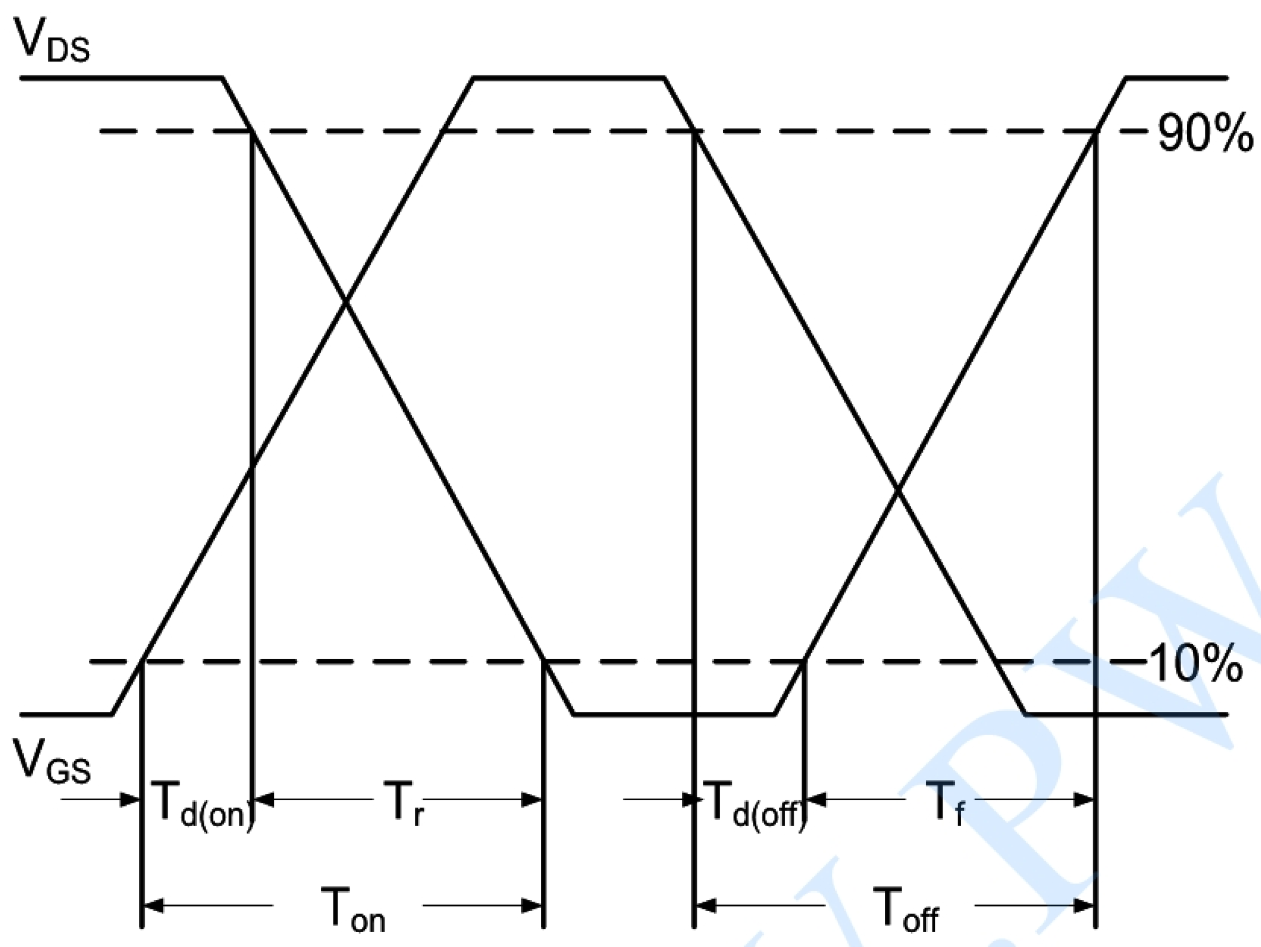


Fig.9 Switching Time Waveform

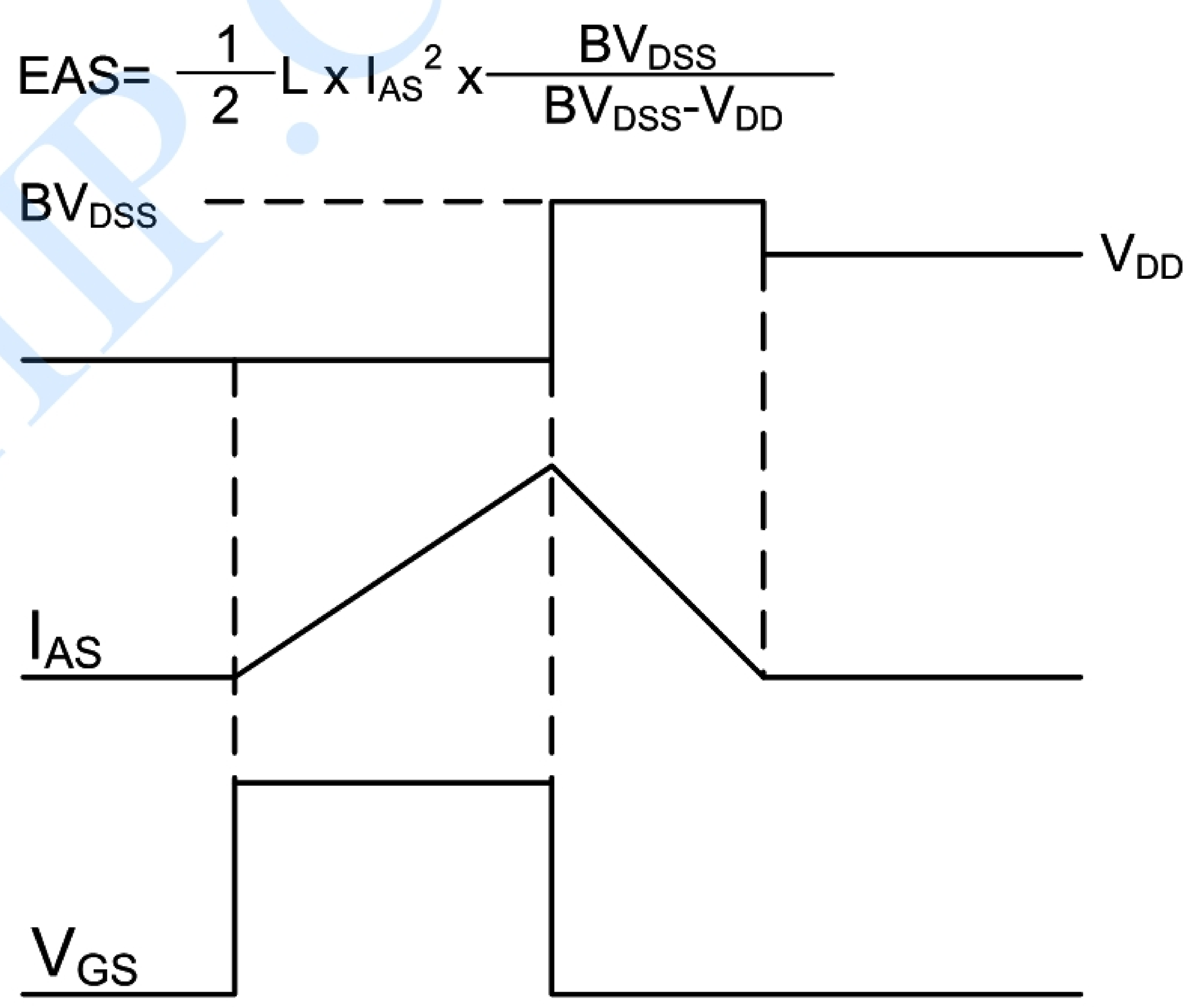


Fig.10 Unclamped Inductive Switching Waveform

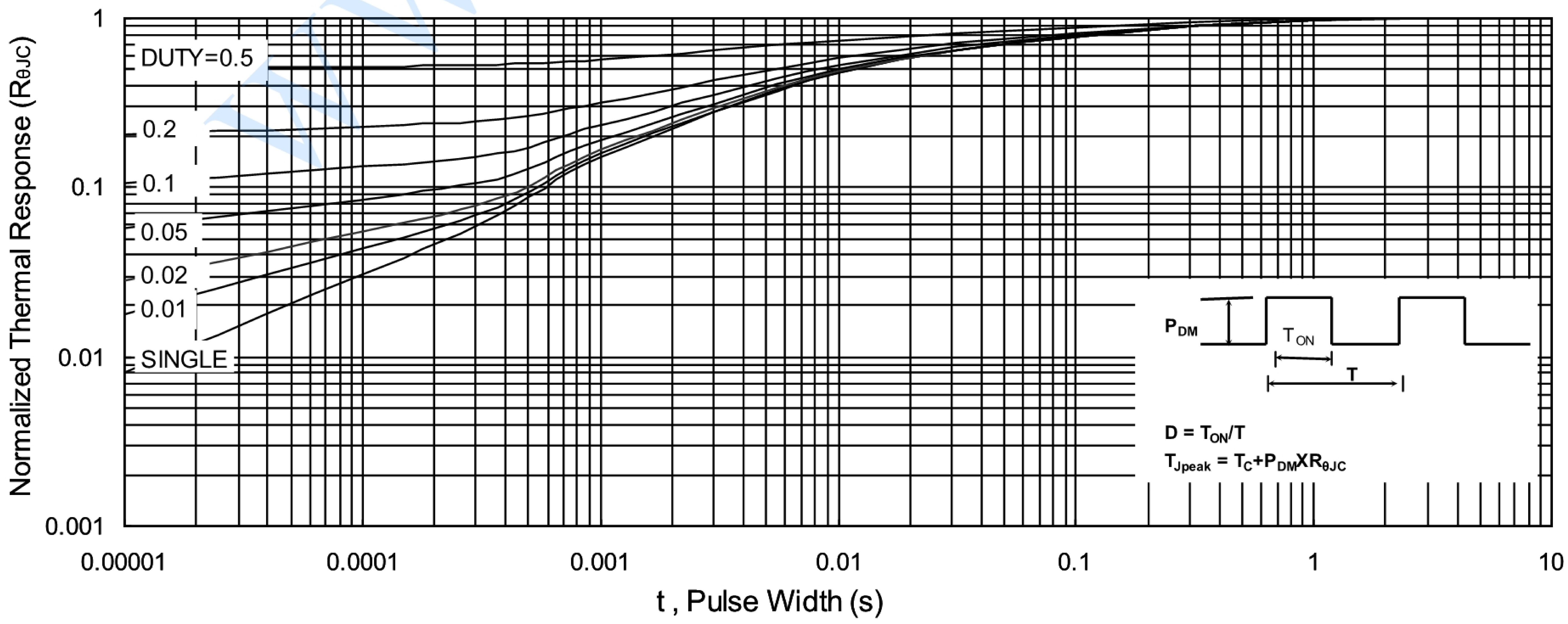
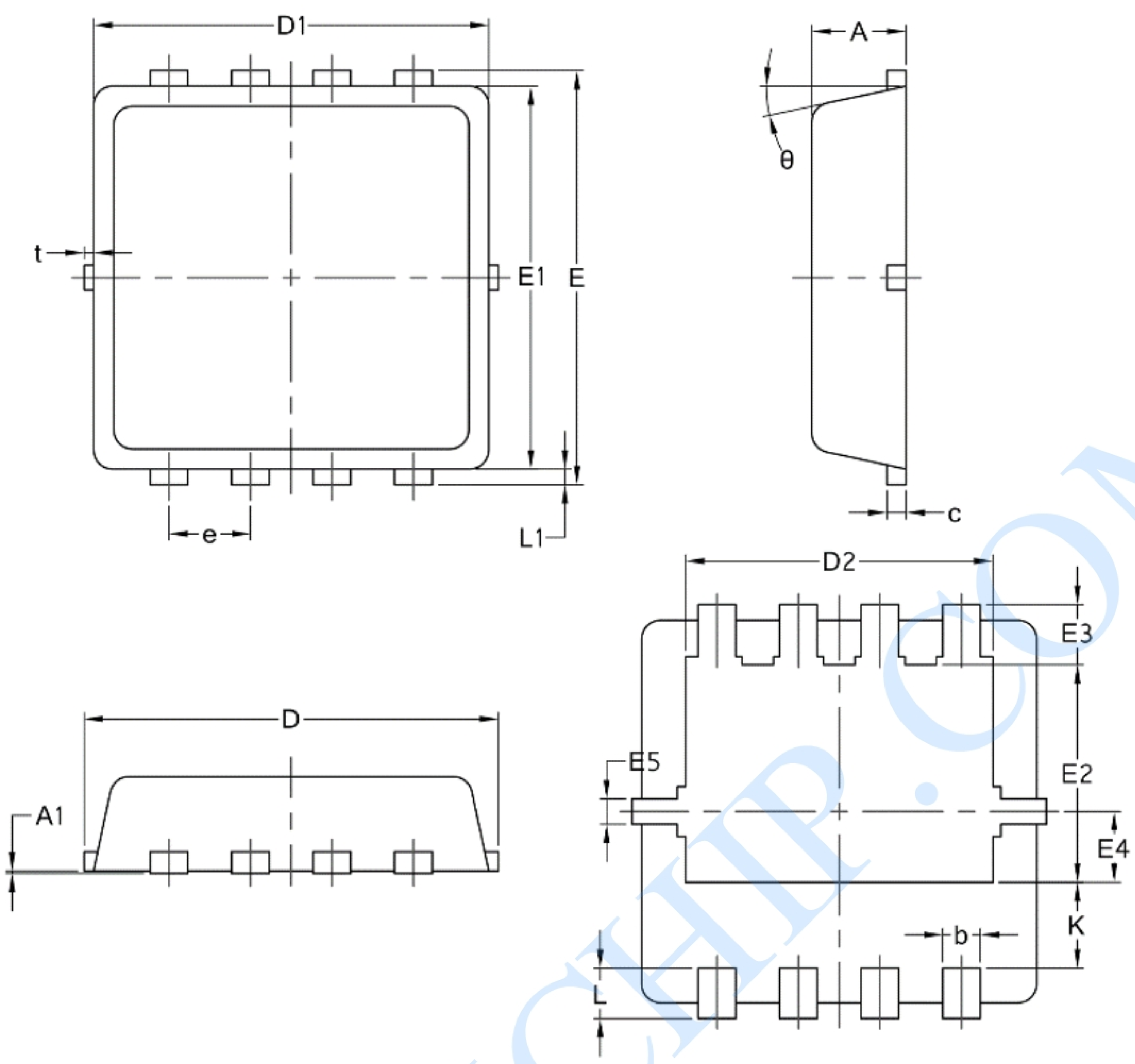


Fig.11 Normalized Maximum Transient Thermal Impedance

PACKAGE DESCRIPTION

DFN3*3-8L



Symbol	Common		
	mm		
	Mim	Nom	Max
A	0.70	0.75	0.85
A1	/	/	0.05
b	0.20	0.30	0.40
c	0.10	0.152	0.25
D	3.15	3.30	3.45
D1	3.00	3.15	3.25
D2	2.29	2.45	2.65
E	3.15	3.30	3.45
E1	2.90	3.05	3.20
E2	1.54	1.74	1.94
E3	0.28	0.48	0.65
E4	0.37	0.57	0.77
E5	0.10	0.20	0.30
e	0.60	0.65	0.70
K	0.59	0.69	0.89
L	0.30	0.40	0.50
L1	0.06	0.125	0.20
t	0	0.075	0.13
Φ	10	12	14

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