



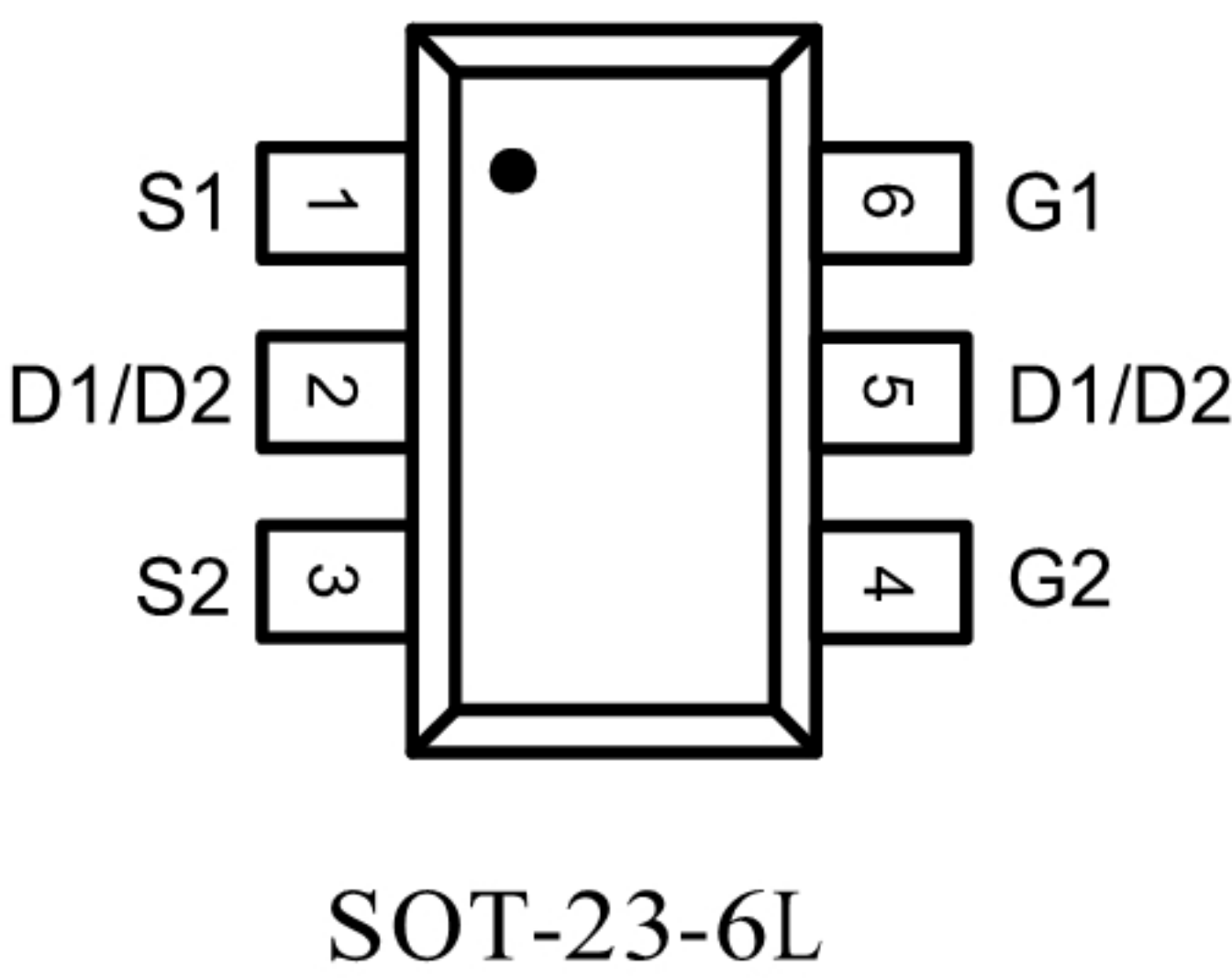
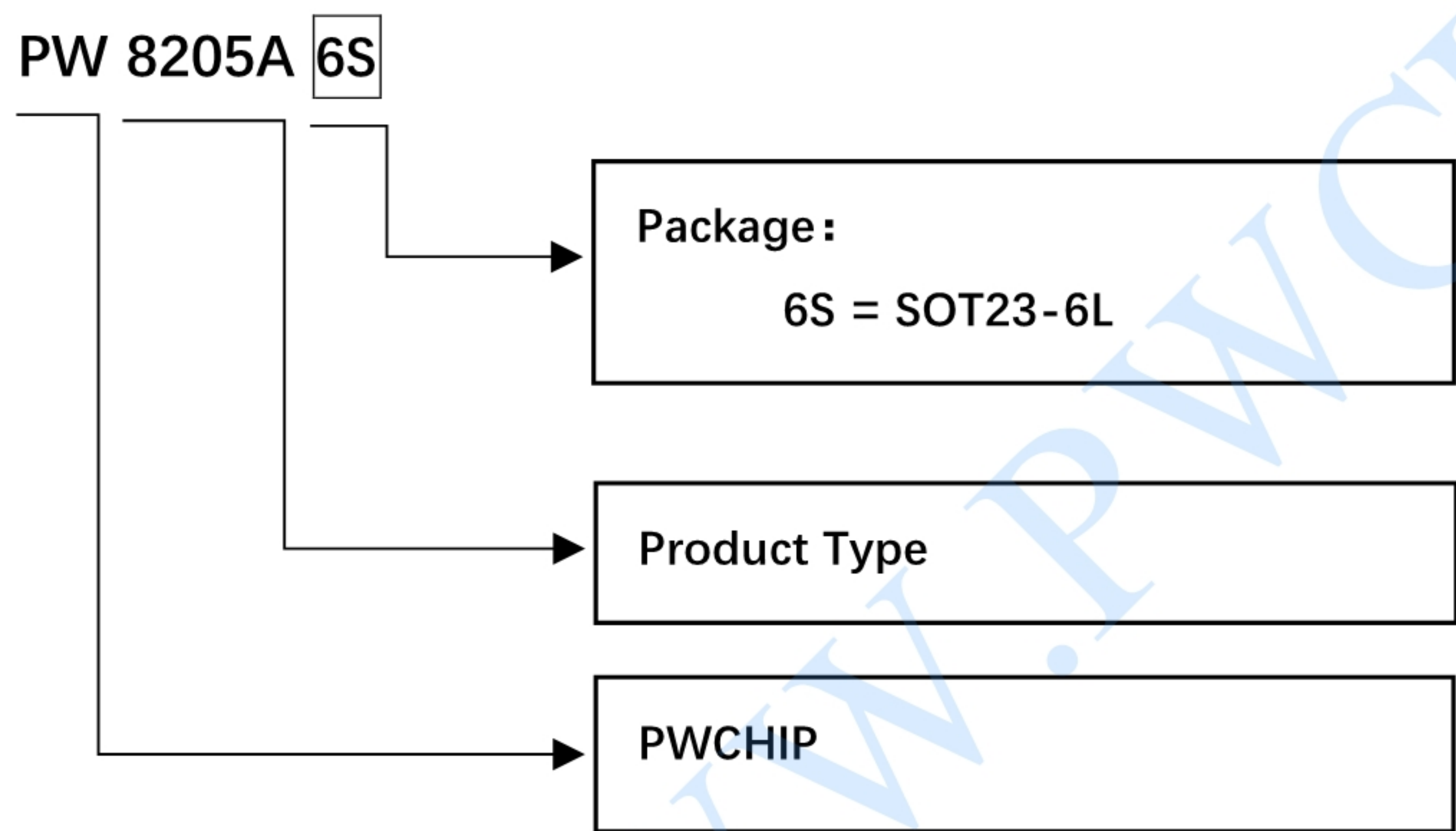
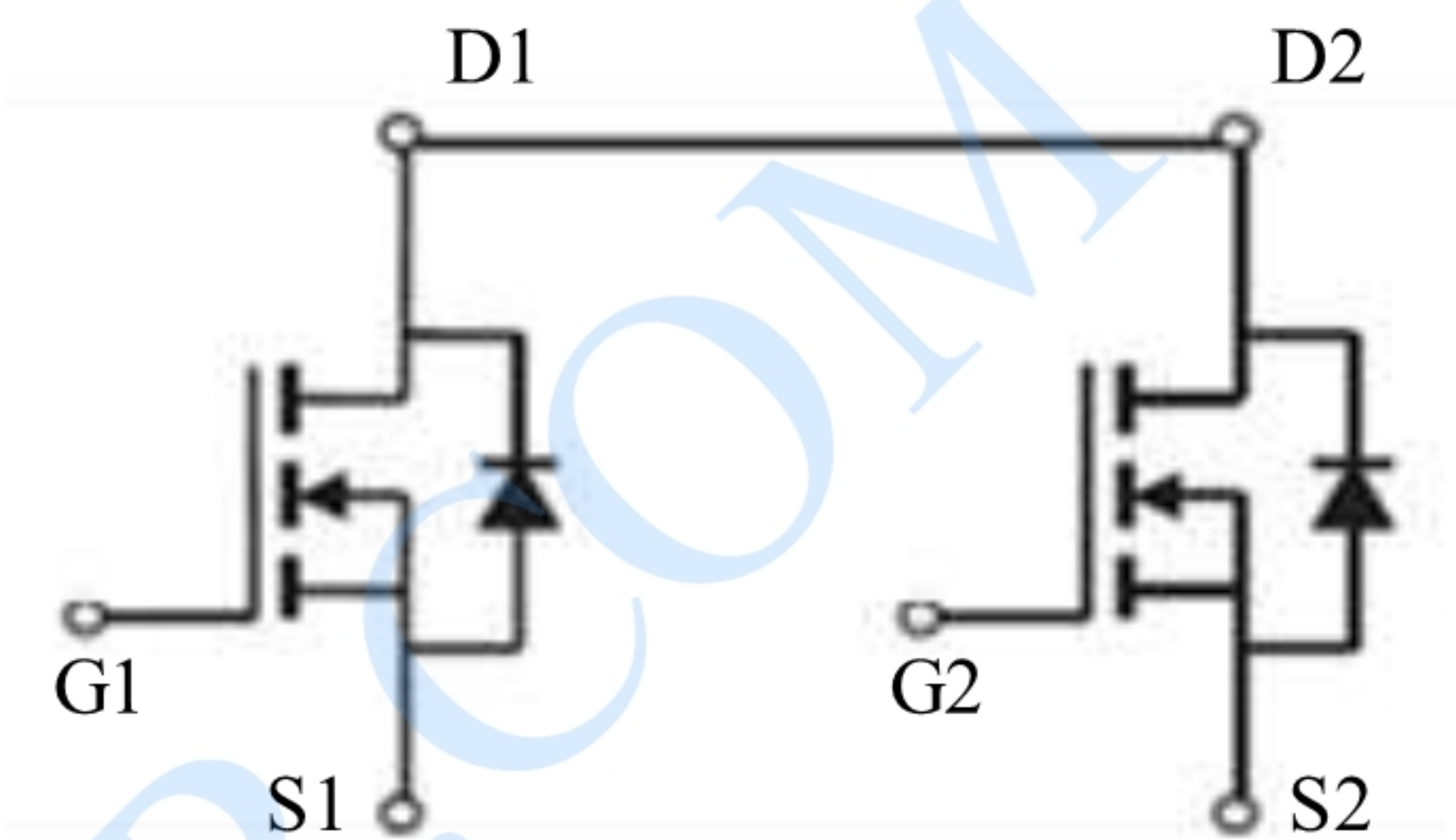
N-Channel Enhancement Mode MOSFET

GENERAL DESCRIPTION

The PW8205A6S uses advanced trench technology to provide excellent RDS(ON), low gate charge and operation with gate voltages as low as 2.5V. This device is suitable for use as a Battery protection or in other Switching application.

FEATURES

- VDS = 20V,ID = 6A
- RDS(ON) < 21 mΩ @ VGS=4.5V
- RDS(ON) < 27 mΩ @ VGS=2.5V
- Available in a 6-Pin SOT23-6 Package



Absolute Maximum Ratings (TA=25°C)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V <sub>DS</sub>	20	V
Gate-Source Voltage	V <sub>GS</sub>	±12	V
Drain Current, V <sub>GS</sub> @ 4.5V	I <sub>D</sub> @TA=25°C	6	A
Drain Current, V <sub>GS</sub> @ 4.5V	I <sub>D</sub> @TA=70°C	4.8	A
Pulsed Drain Current	I <sub>DM</sub>	26	A
MAx Power Dissipation	P <sub>D</sub> @TA=25°C	2	W
Storage Temperature Range	T <sub>STG</sub>	-55 To 150	°C
Junction Temperature	T <sub>J</sub>	150	°C
Thermal Resistance, Junction-to -ambient	RθJA	62.5	°C/W





ELECTRICAL CHARACTERISTICS

(TA = 25°C, unless otherwise specified.)

Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> =0V	I <sub>D</sub> =250μA	20			V
Drain-Source Leakage Current(T <sub>J</sub> =25°C)	I <sub>DSS</sub>	V <sub>DS</sub> =20V	V <sub>GS</sub> =0V			1	μA
Drain-Source Leakage Current(T <sub>J</sub> =70°C)	I <sub>DSS</sub>	V <sub>DS</sub> =20V	V <sub>GS</sub> =0V			25	μA
Gate-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±12V	V <sub>DS</sub> =0V			±100	nA
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub>	I <sub>D</sub> =250μA	0.5		1.2	V
Static Drain-Source On-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =4.5V	I <sub>D</sub> =6.0A		21	27	mΩ
		V <sub>GS</sub> =2.5V	I <sub>D</sub> =4.0A		27	37	mΩ
Forward Transconductance	g <sub>FS</sub>	V <sub>DS</sub> =10V	I <sub>D</sub> =6.0A		6		S
Forward On Voltage	V <sub>SD</sub>	V <sub>GS</sub> =0V	I <sub>S</sub> =1.7A			1.2	V
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =20V f=1.0MHz	V <sub>GS</sub> =0V		570	910	pF
Output Capacitance	C <sub>oss</sub>				90		pF
Reverse Transfer Capacitance	C <sub>rss</sub>				85		pF
Turn-on Delay Time	t <sub>d(on)</sub>	V <sub>DS</sub> =10V V <sub>GS</sub> =10V R <sub>D</sub> =10Ω	I <sub>D</sub> =1A R <sub>G</sub> =3.3Ω		4.2		ns
Rise Time	t <sub>r</sub>				09		ns
Turn-off Delay Time	t <sub>d(off)</sub>				23		ns
Fall Time	t <sub>f</sub>				3.5		ns

Notes:  
1 Surface Mounted on FR4 Board, t ≤ 10 sec.  
2 Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤2%.



## Typical Characteristics

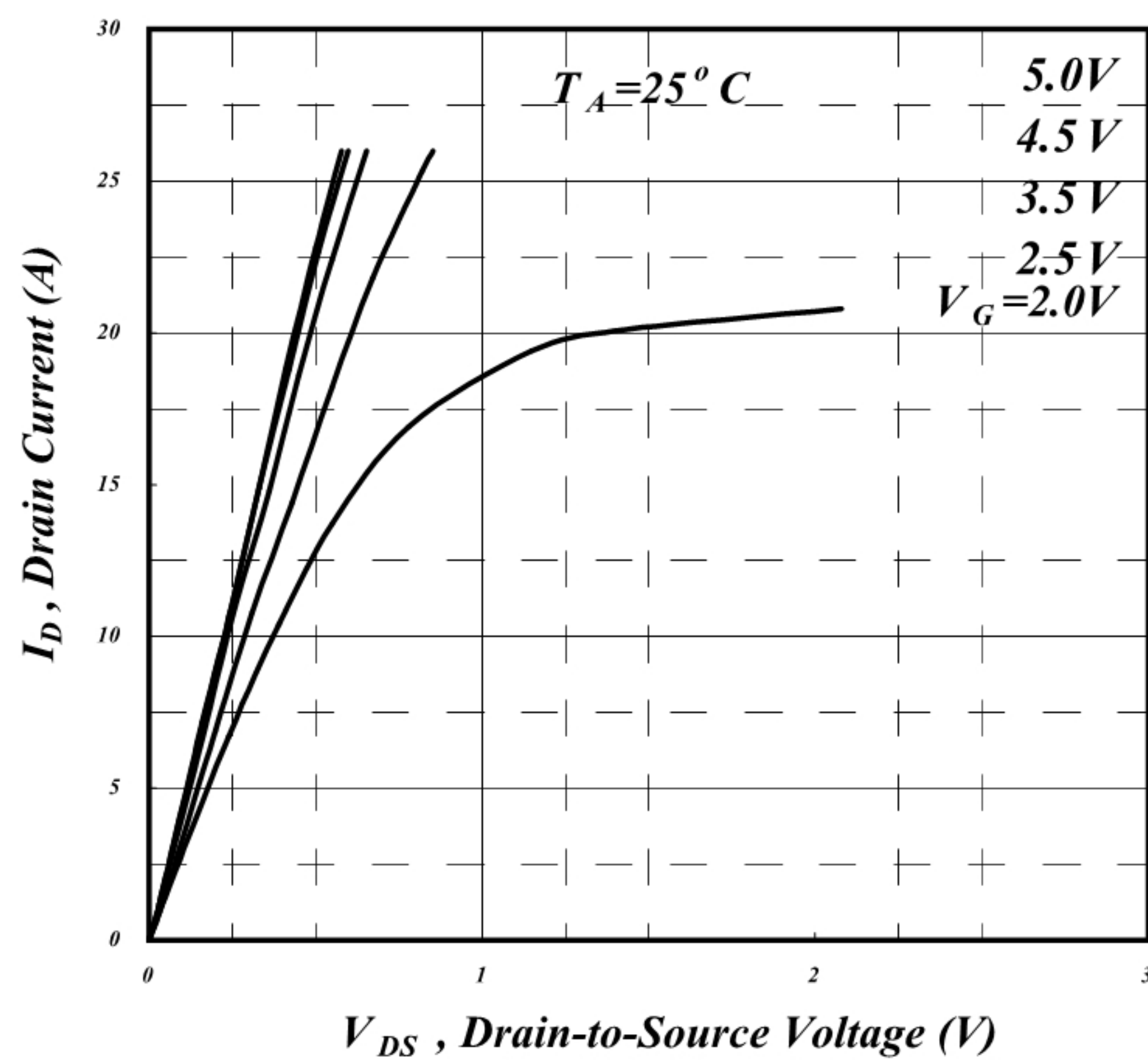


Fig.1 Typical Output Characteristics

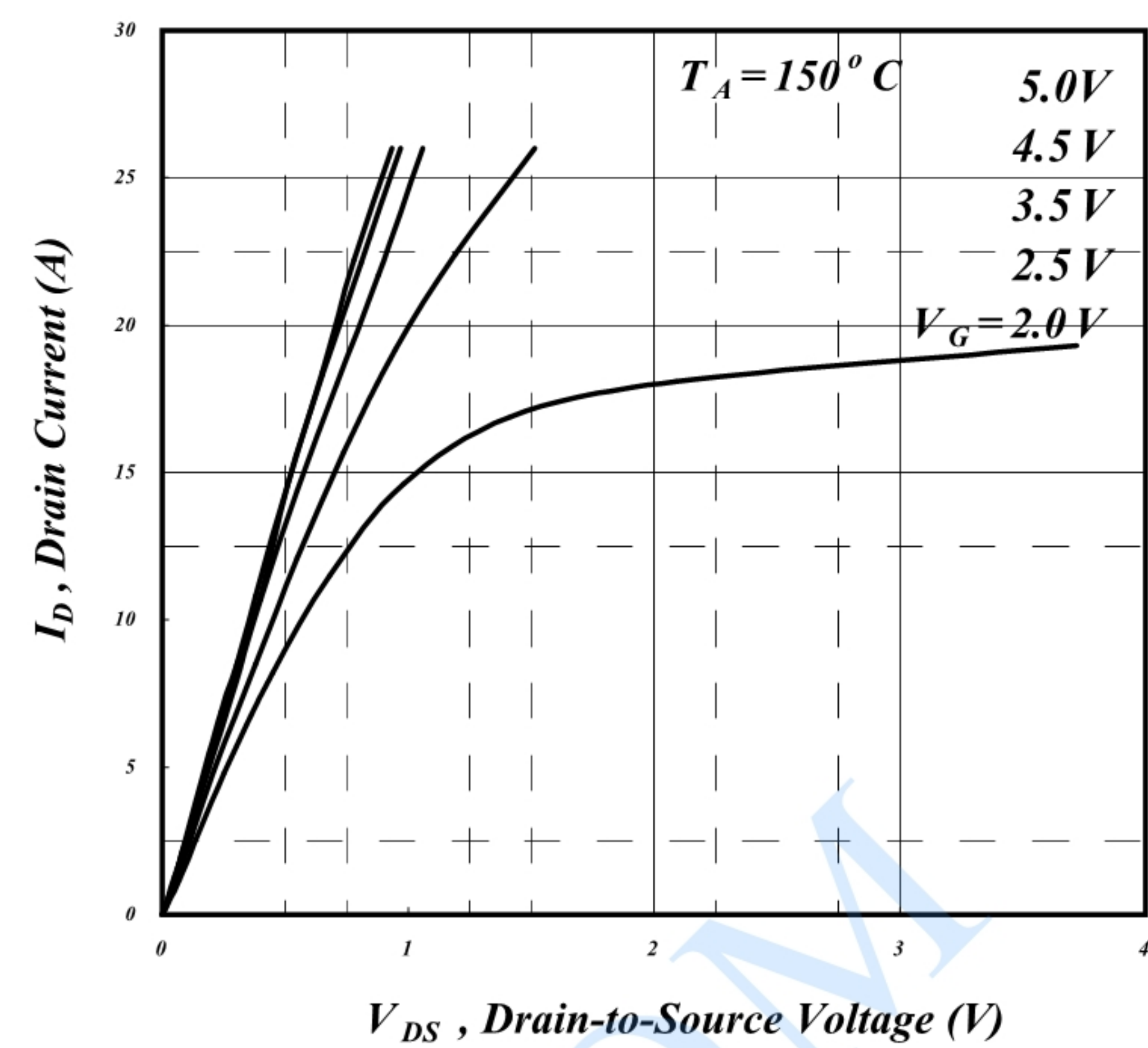


Fig.2 Typical Output Characteristics

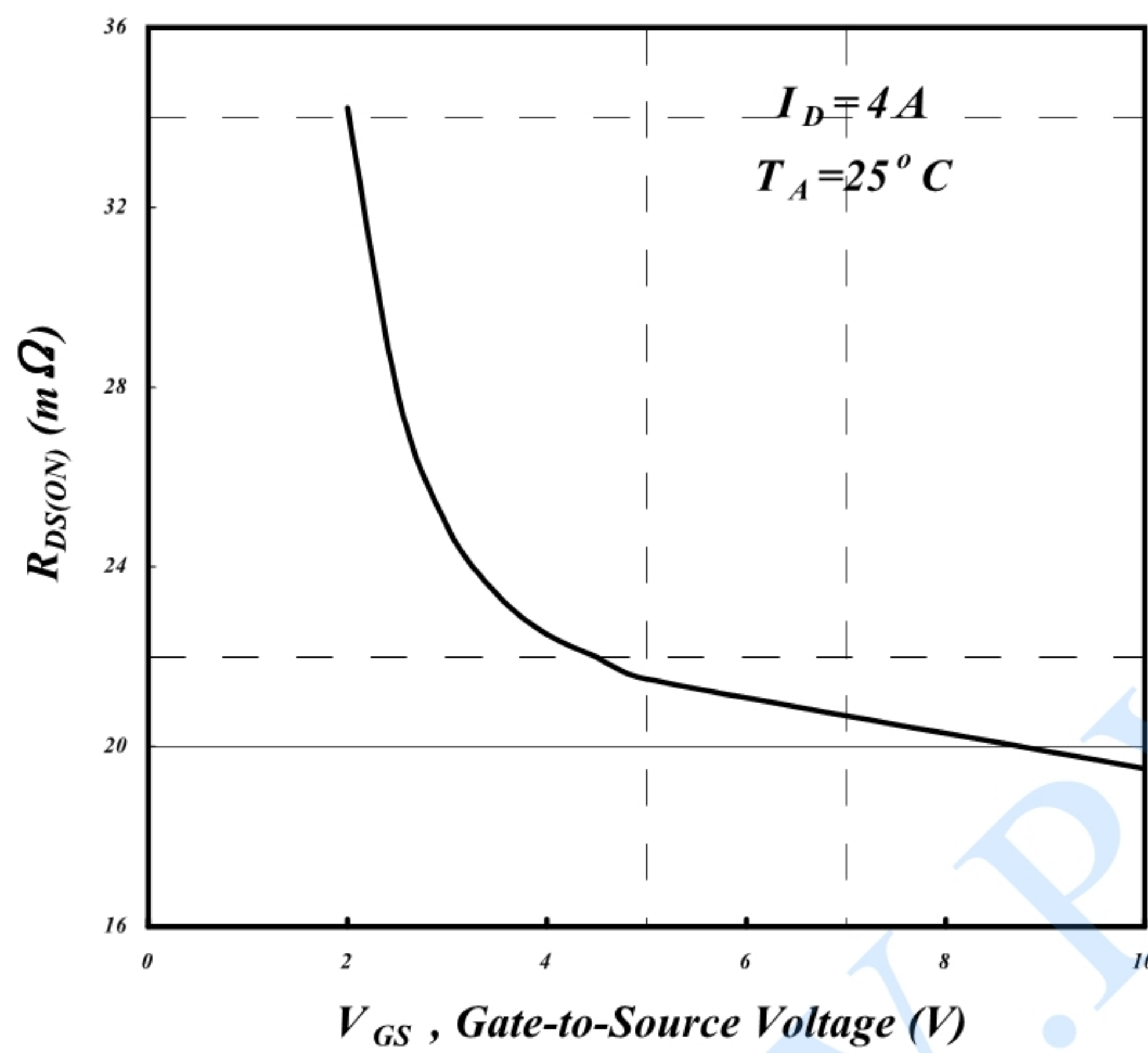


Fig.3 On-Resistance v.s. Gate Voltage

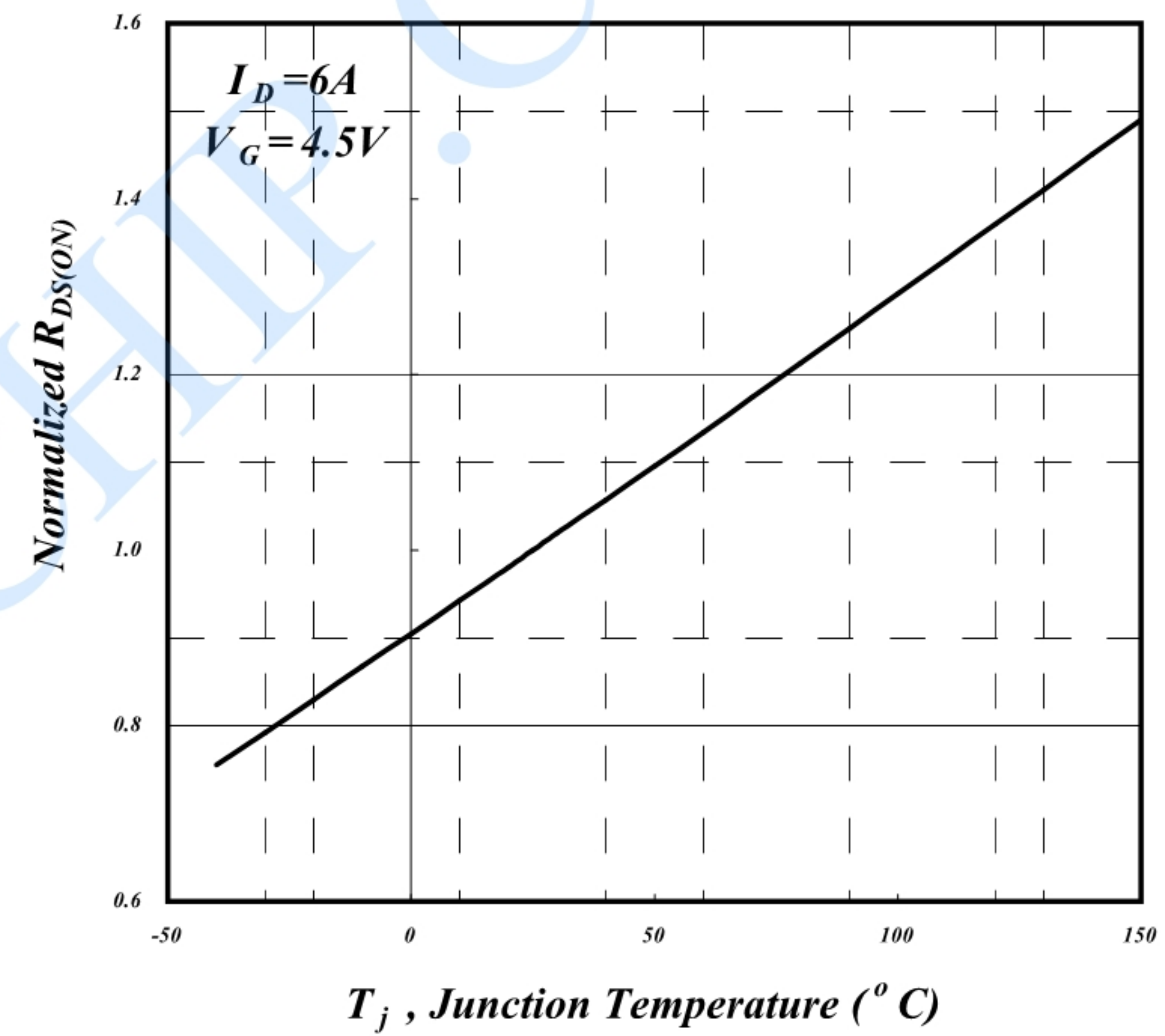


Fig.4 Normalized On-Resistance v.s. Temperature

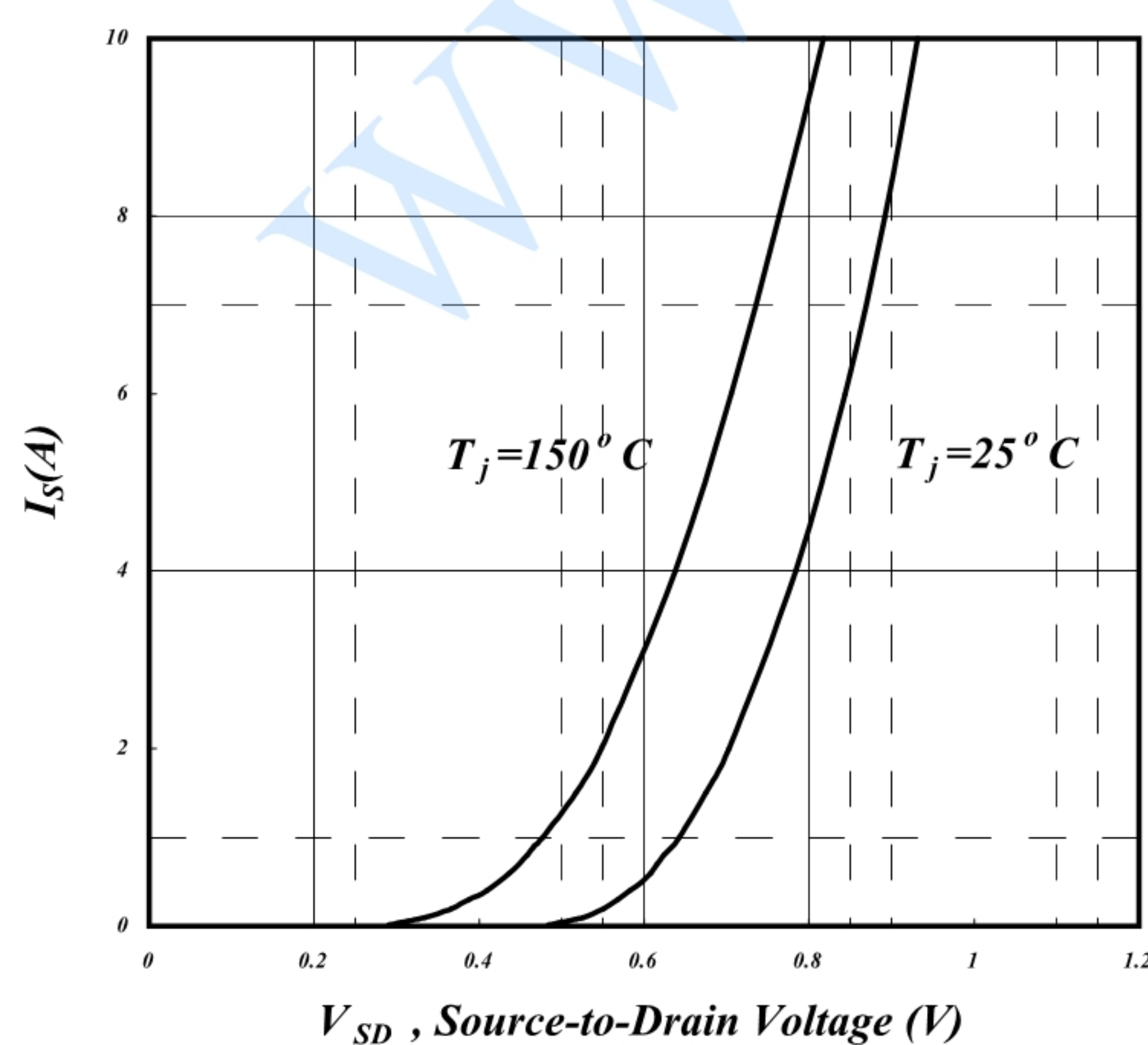


Fig.5 Forward Characteristic of Reverse Diode

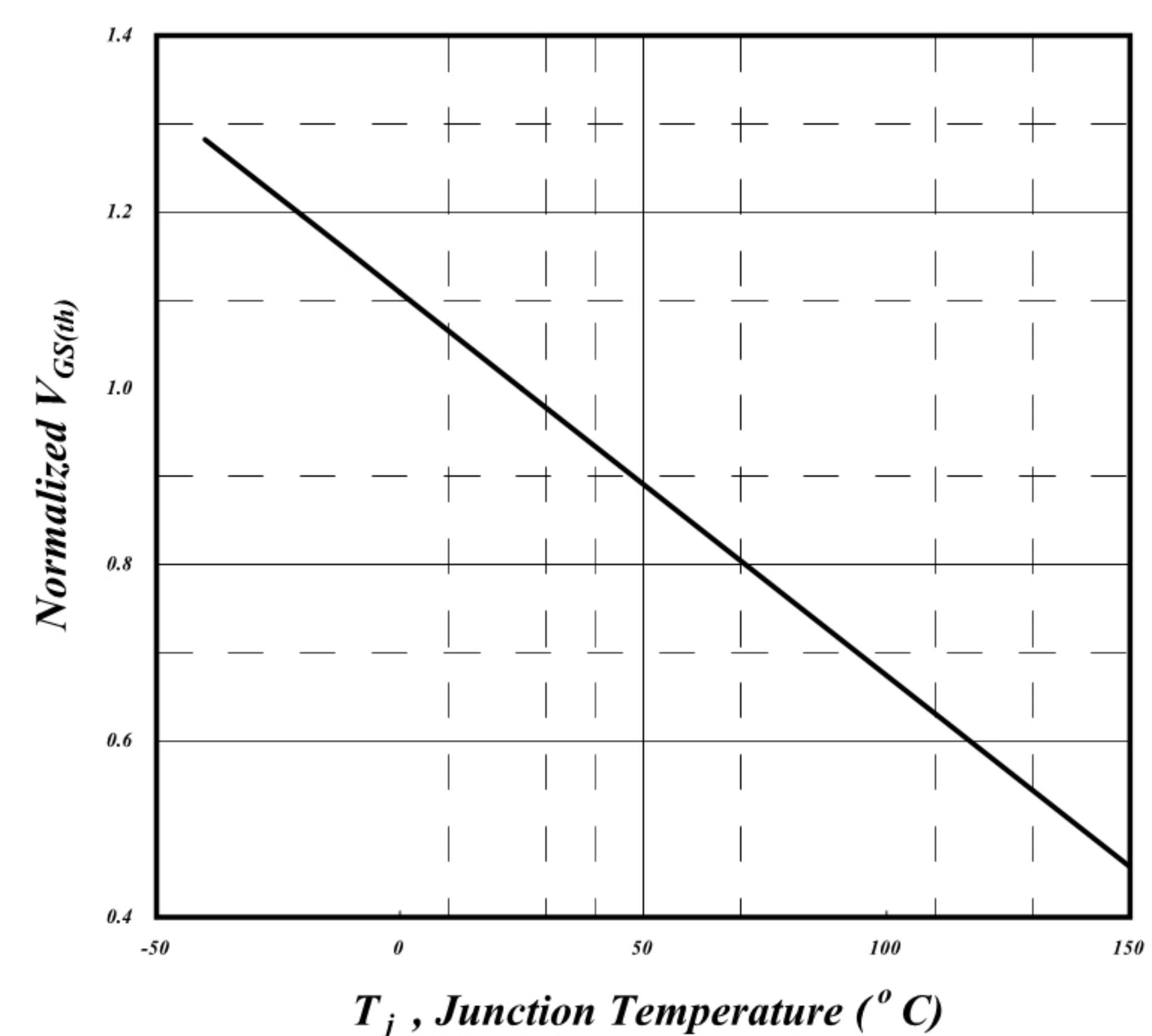


Fig.6 Gate Threshold Voltage v.s. Junction Temperature



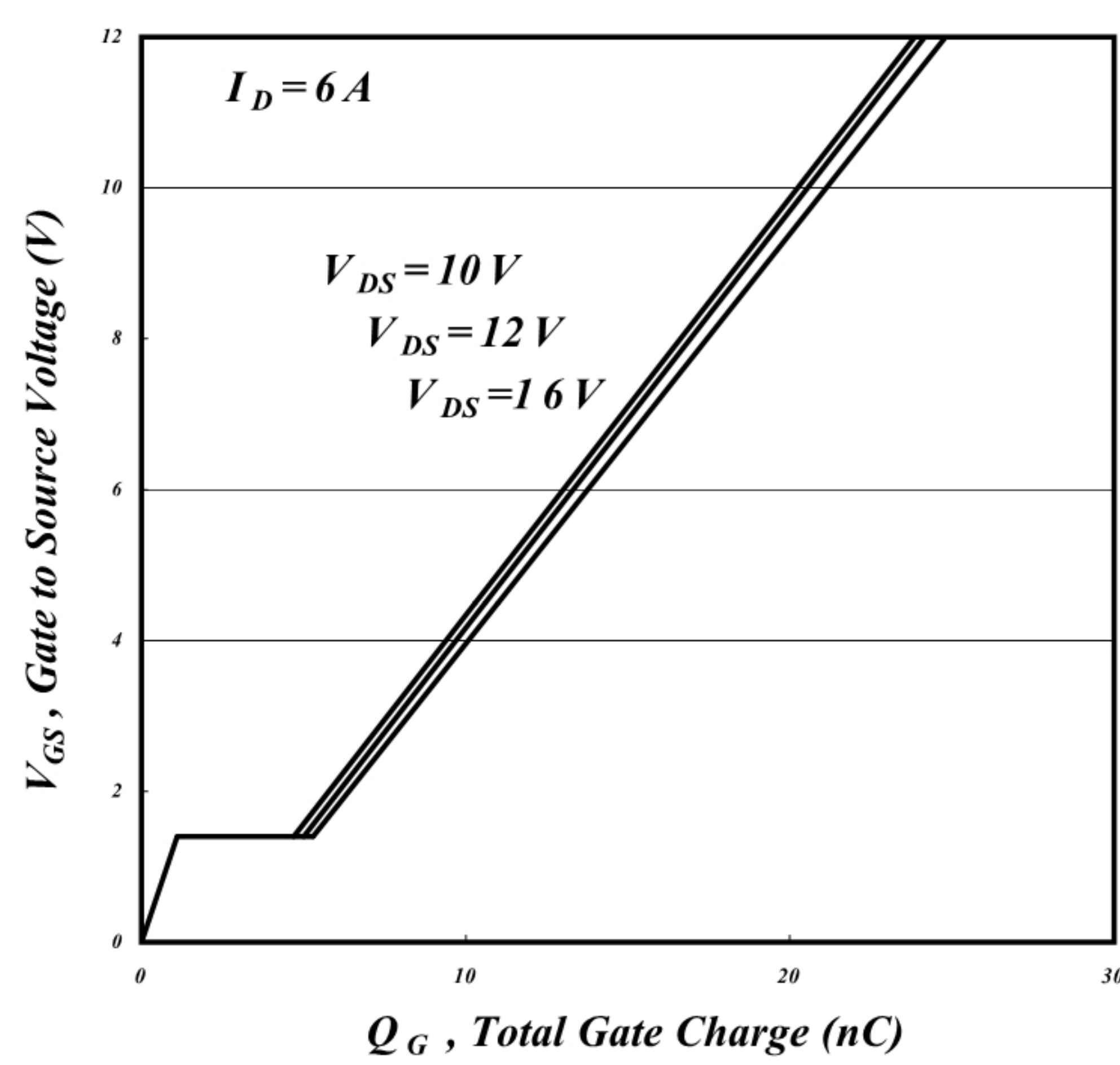


Fig.7 Junction Temperature

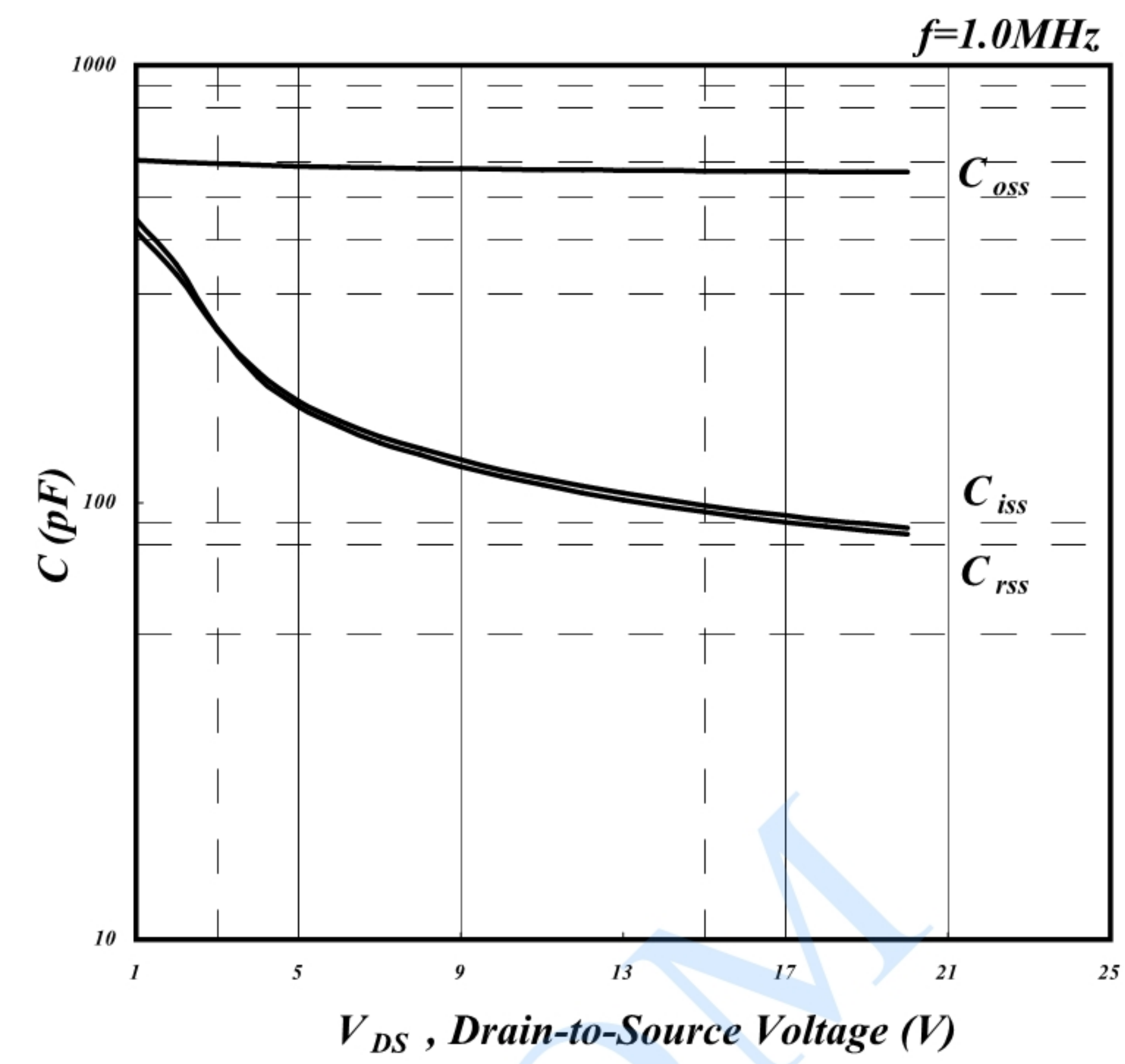


Fig.8 Typical Capacitance Characteristics

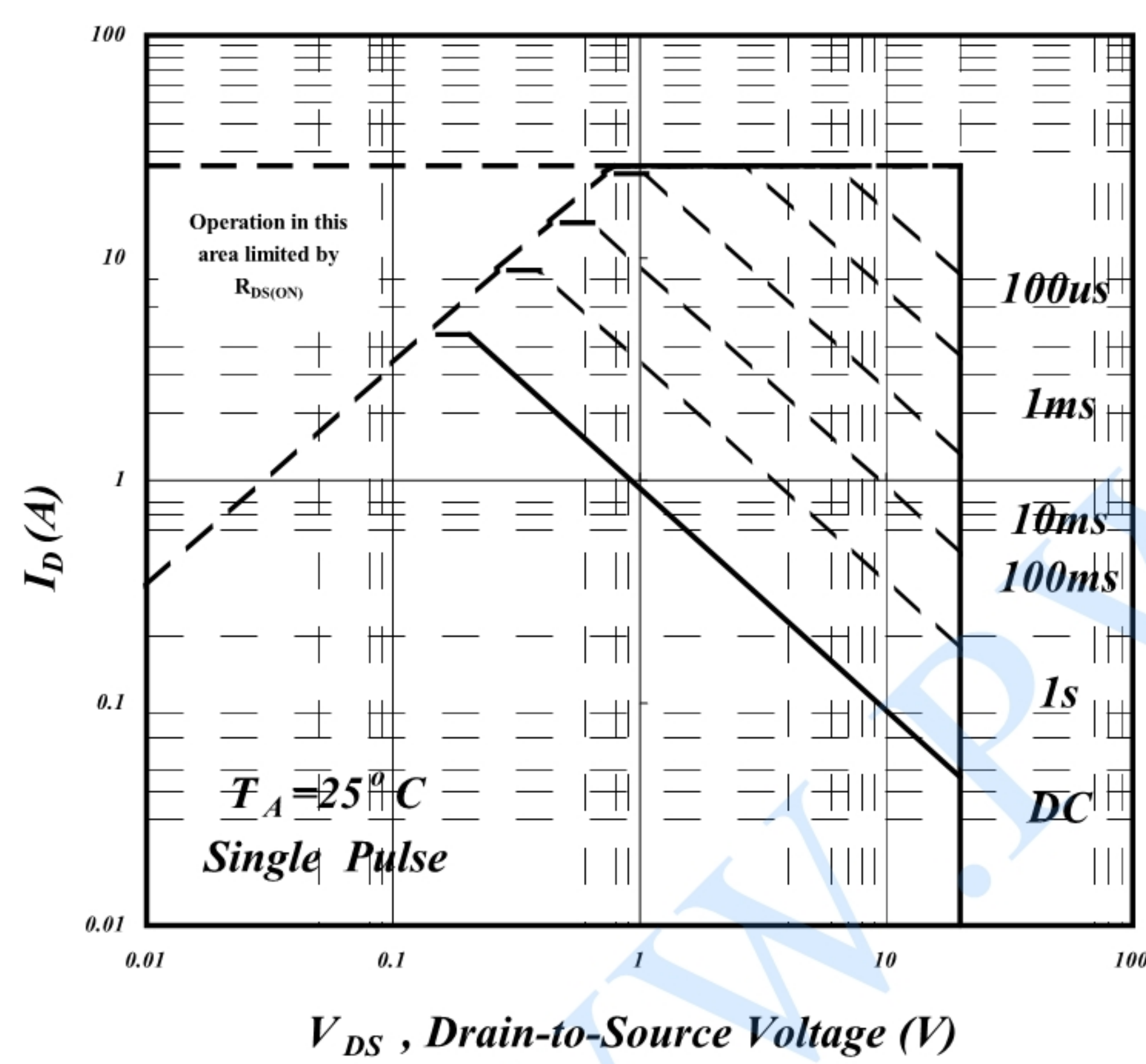


Figure 9 Maximum Safe Operating Area

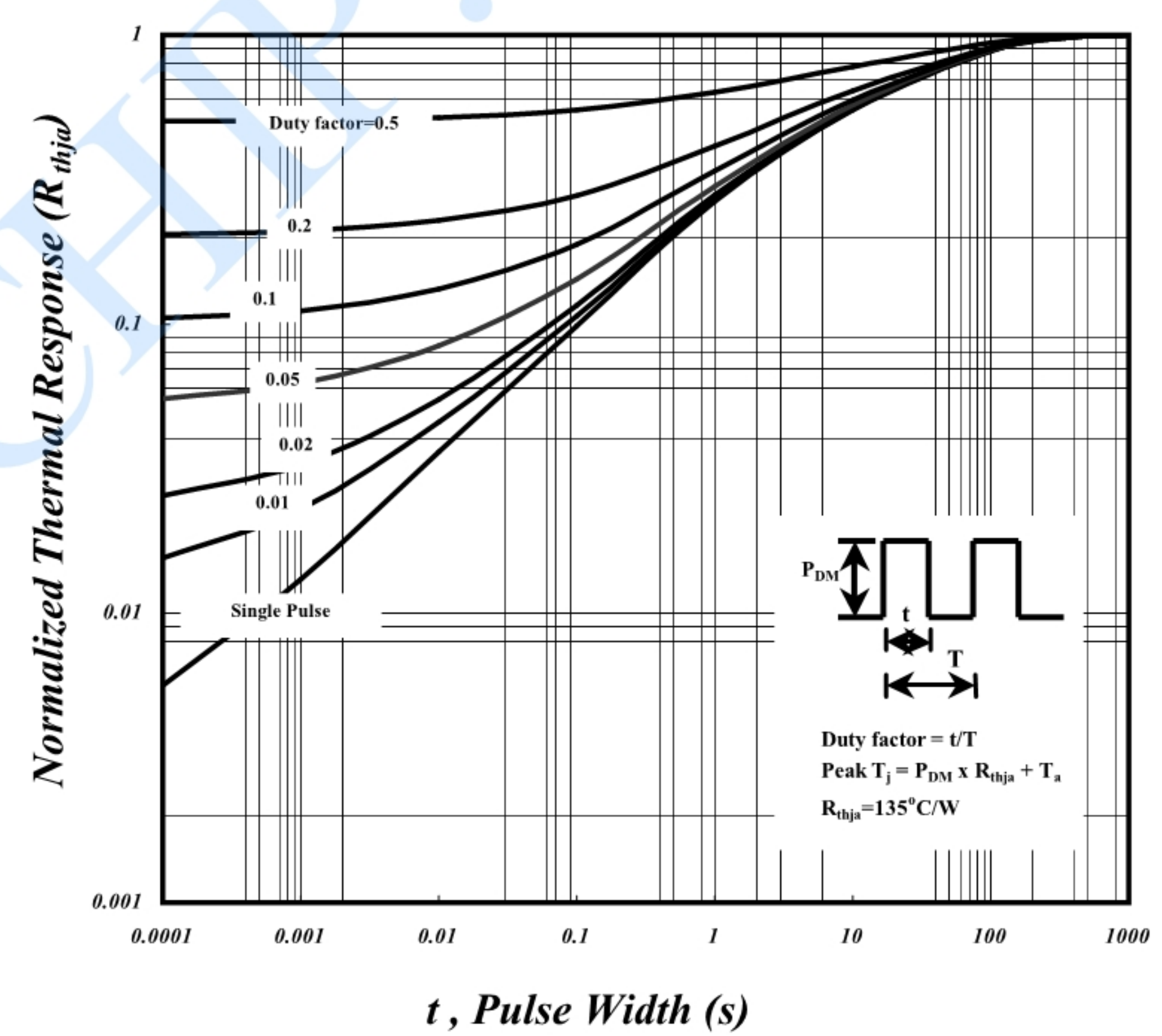


Figure 10 Effective Transient Thermal Impedance

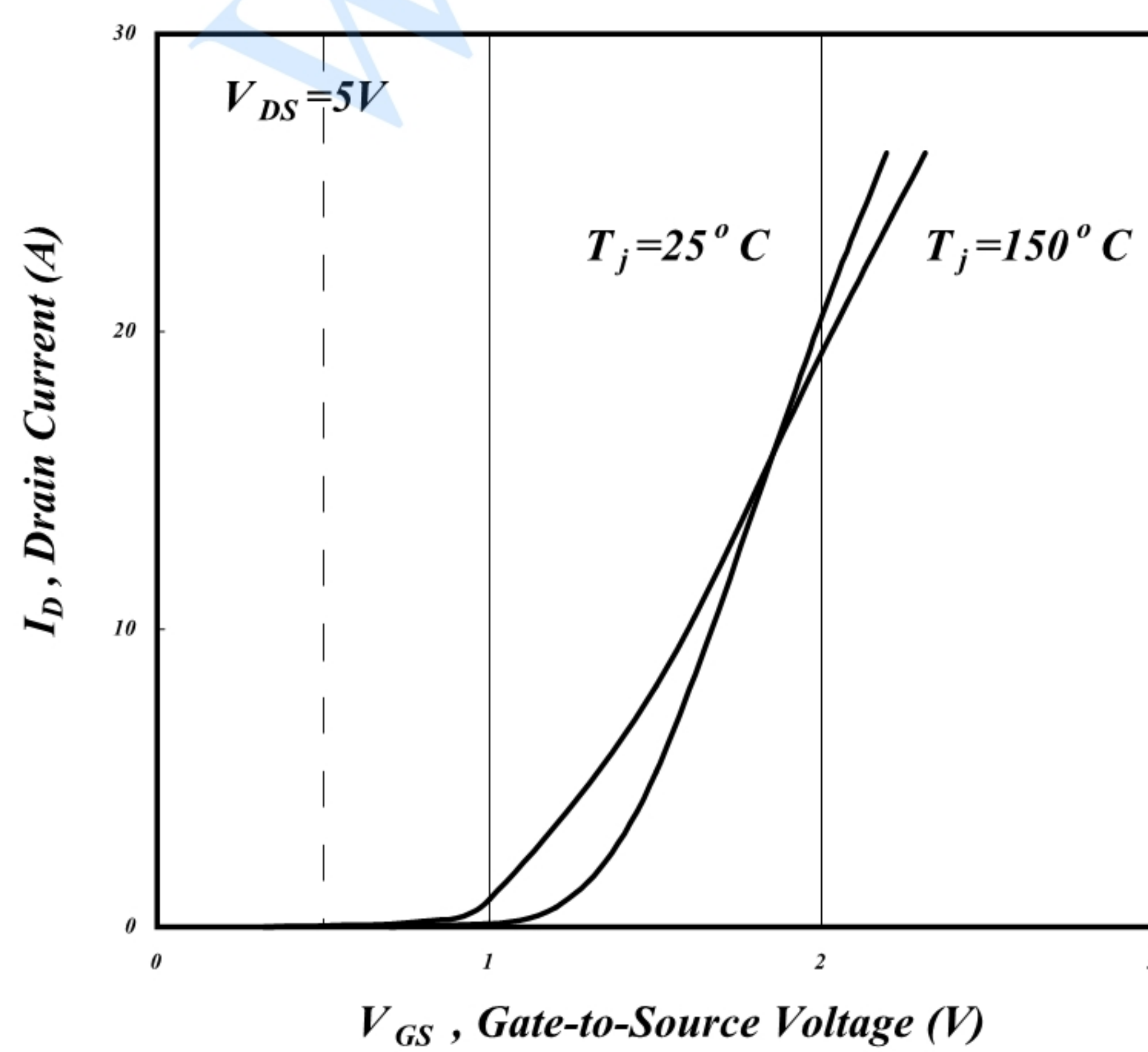


Fig 11. Transfer Characteristics

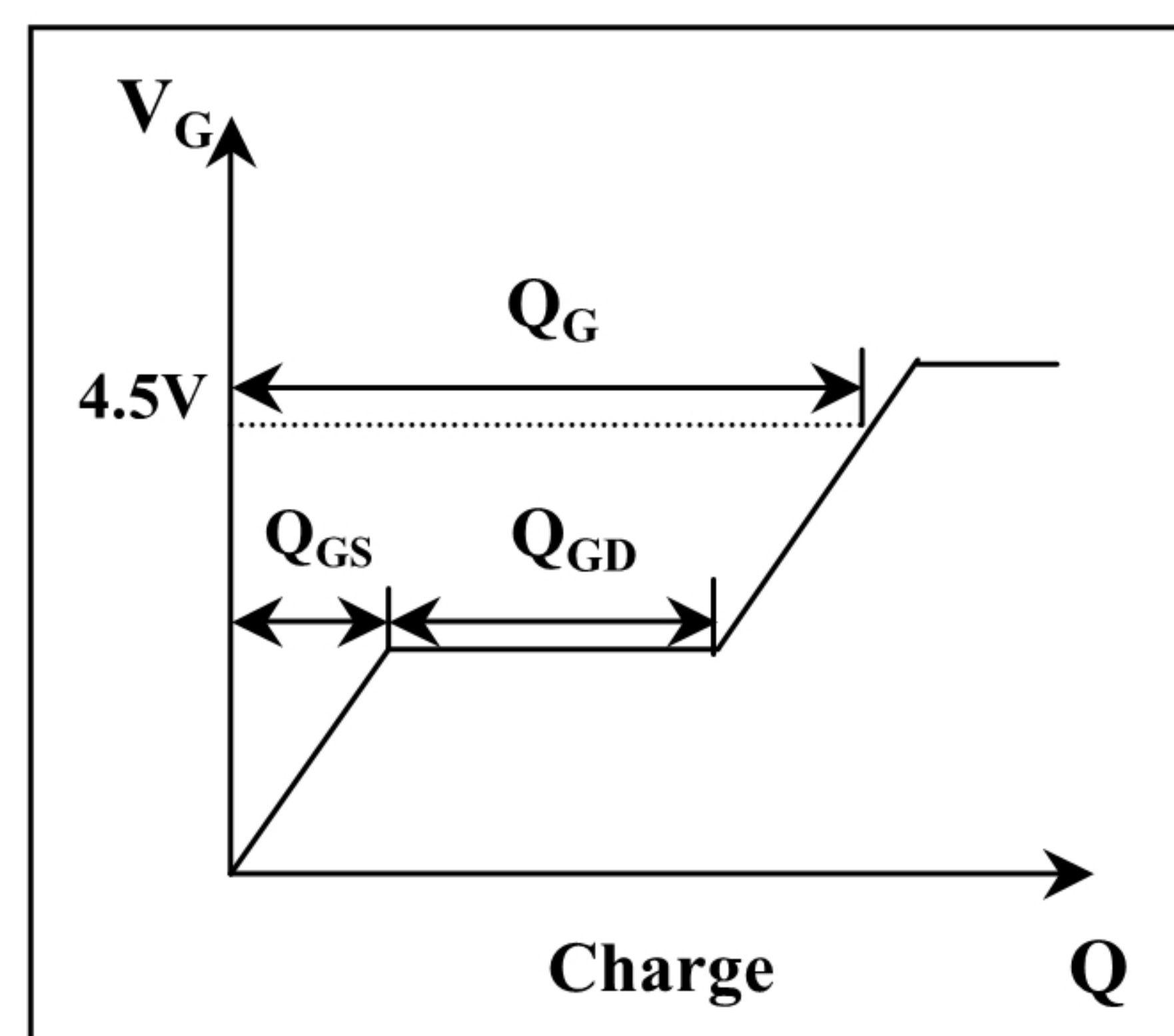


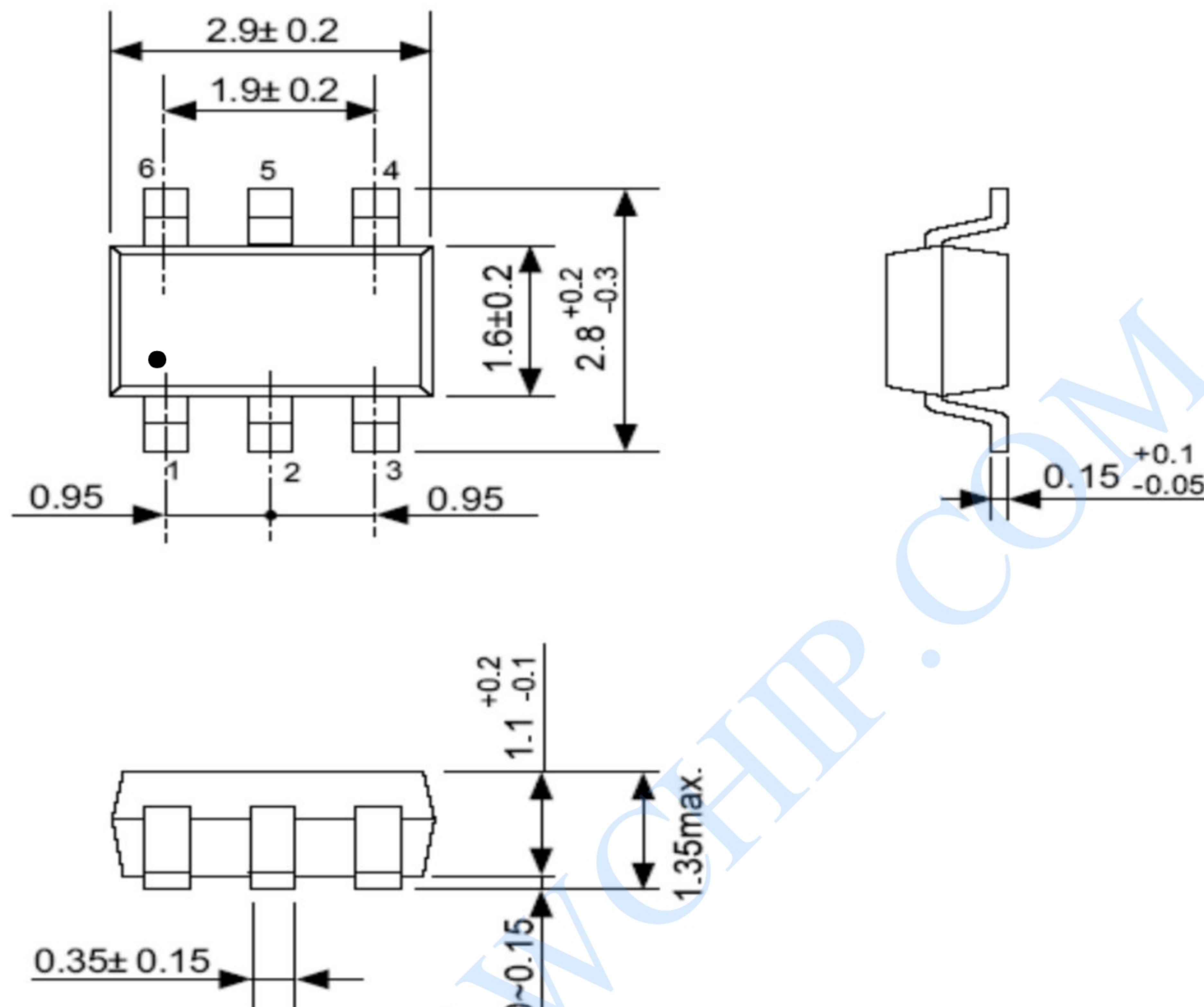
Fig 12. Gate Charge Waveform





## PACKAGE DESCRIPTION

SOT23-6



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