



N-Channel Enhancement Mode MOSFET

GENERAL DESCRIPTION

The PW8205A8TS is the highest performance trench N-ch MOSFETs with extreme high cell density, which provide excellent RDSON and gate charge for most of the small power switching and load switch applications. They meet the RoHS and Product requirement with full function reliability approved.

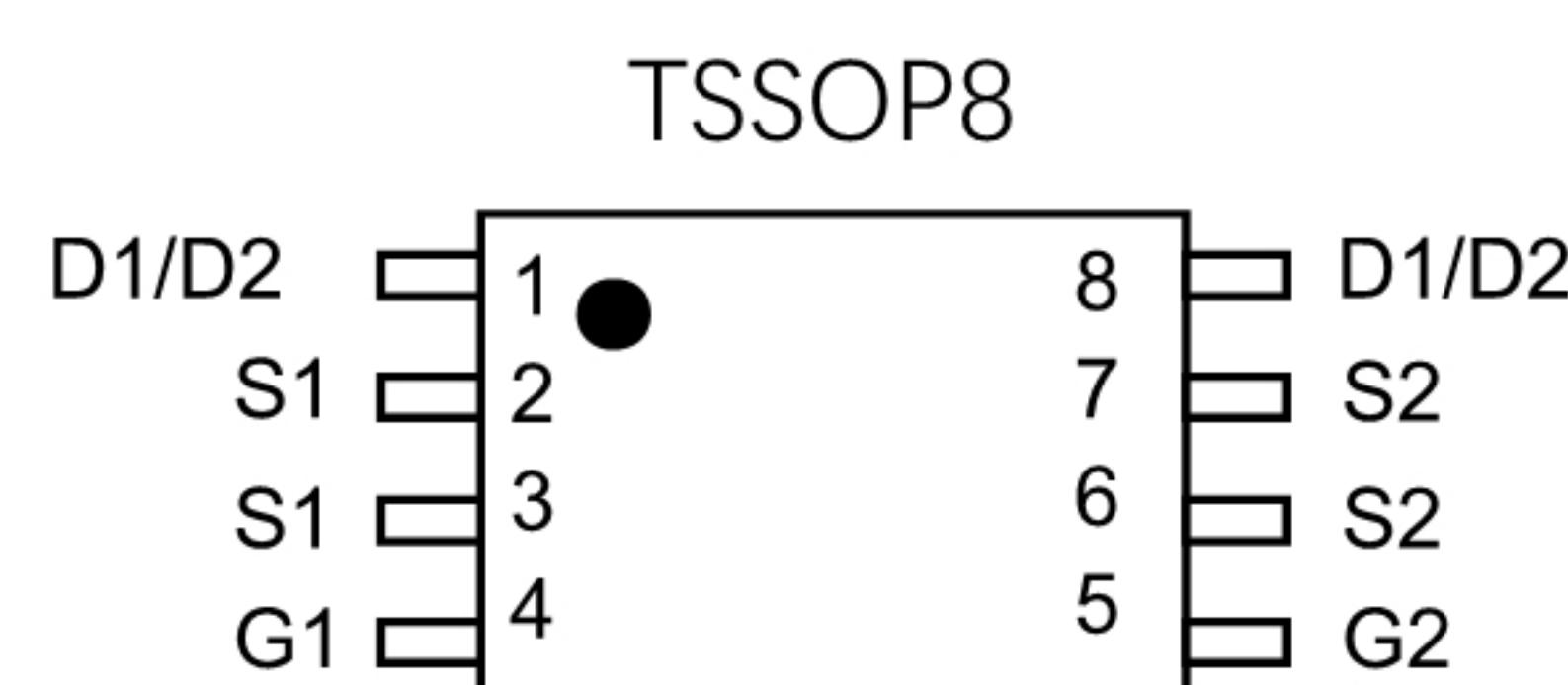
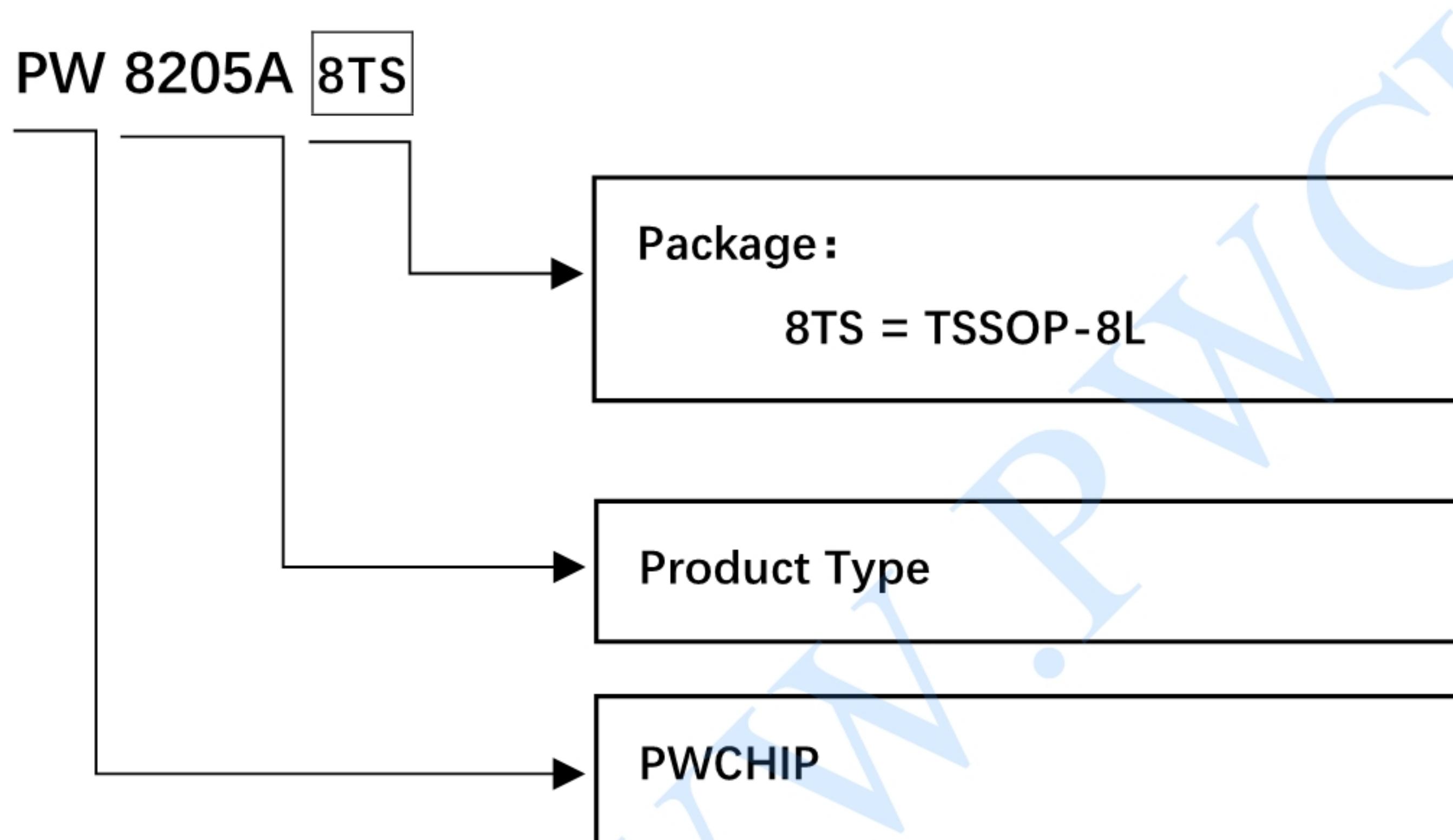
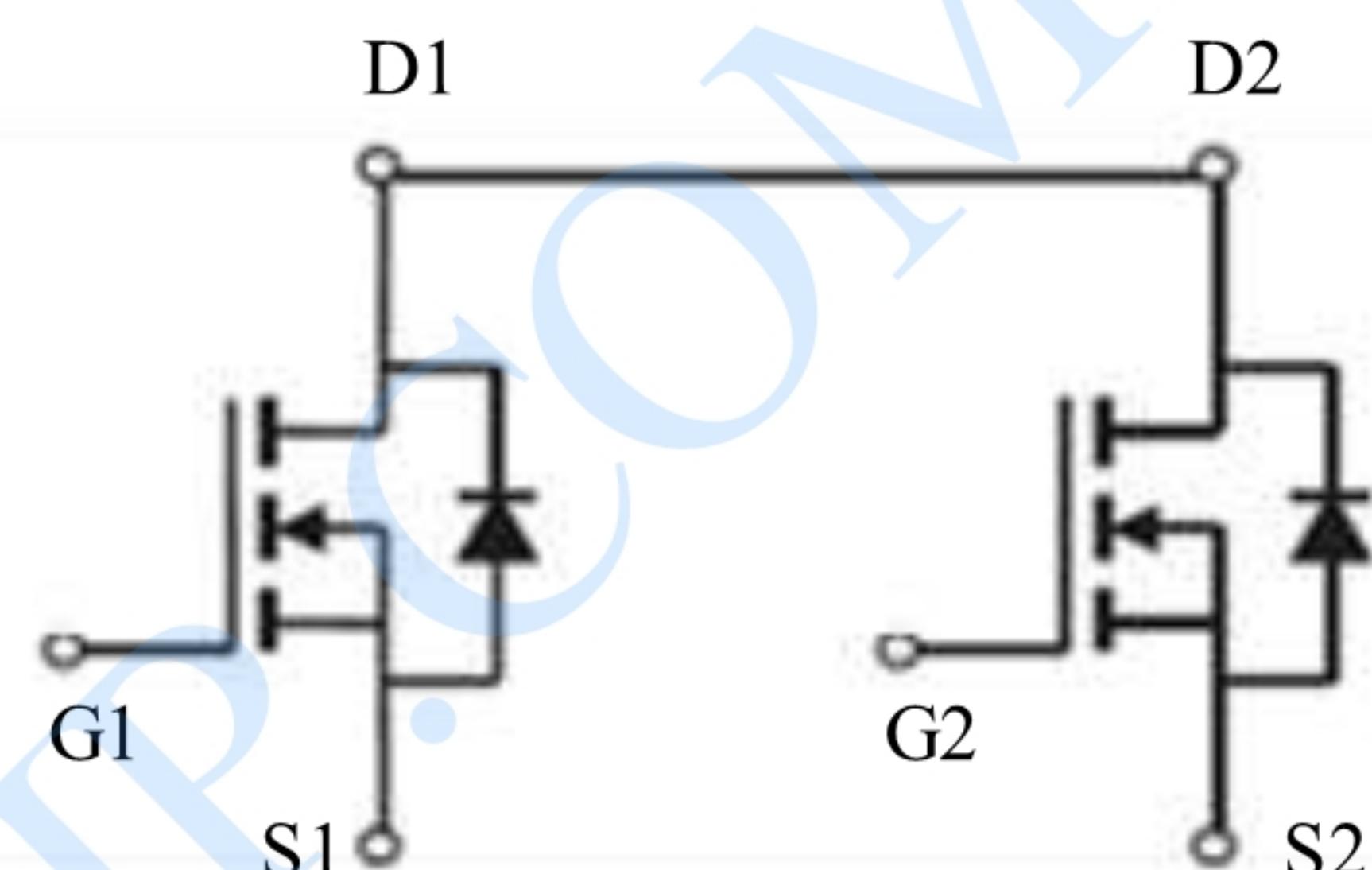
FEATURES

VDS = 20V, ID = 6A

RDS(ON) < 27 mΩ @ VGS=4.5V

RDS(ON) < 37 mΩ @ VGS=2.5V

Available in a 8-Pin TSSOP8 Package



Absolute Maximum Ratings (TA=25°C unless otherwise specified)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V _{DS}	20	V
Gate-Source Voltage	V _{GS}	±12	V
Drain Current-Continuous	I _D	6	A
Drain Current Pulsed ^(Note1)	I _{DM}	25	A
Maximum Power Dissipation	P _D	1.5	W
Storage Temperature Range	T _{STG}	-55 To 150	°C
Operating Junction Temperature Range	T _J	-55 To 150	°C
Thermal Resistance, Junction-to-Ambient ^(Note2)	R _{θJA}	83	°C/W



ELECTRICAL CHARACTERISTICS

(TA = 25°C, unless otherwise noted.)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V I _D =250μA	20	21	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =19.5V, V _{GS} =0V	-	-	1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±10V, V _{DS} =0V	-	-	±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.5	0.7	1.2	V
Drain-Source On-State Resistance	R _{D(S(ON))}	V _{GS} =4.5V, I _D =4.5A	-	21	27	mΩ
		V _{GS} =2.5V, I _D =3.5A	-	27	37	mΩ
Forward Transconductance	g _{FS}	V _{DS} =5V, I _D =4.5A	-	10	-	S
Input Capacitance	C _{iss}	V _{DS} =8V, V _{GS} =0V, F=1.0MHz	-	600	-	PF
Output Capacitance	C _{oss}		-	330	-	PF
Reverse Transfer Capacitance	C _{rss}		-	140	-	PF
Turn-on Delay Time	t _{d(on)}	V _{DD} =10V, I _D =1A V _{GS} =4.5V, R _{GEN} =6Ω	-	10	20	nS
Turn-on Rise Time	t _r		-	11	25	nS
Turn-Off Delay Time	t _{d(off)}		-	35	70	nS
Turn-Off Fall Time	t _f		-	30	60	nS
Total Gate Charge	Q _g	V _{DS} =10V, I _D =6A, V _{GS} =4.5V	-	10	15	nC
Gate-Source Charge	Q _{gs}		-	2.3	-	nC
Gate-Drain Charge	Q _{gd}		-	1.5	-	nC
Diode Forward Voltage ^(Note 3)	V _{SD}	V _{GS} =0V, I _s =1.7A	-	0.75	1.2	V
Diode Forward Current ^(Note 2)	I _s		-	-	1.7	A

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ≤ 10 sec.
3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production

Typical Characteristics

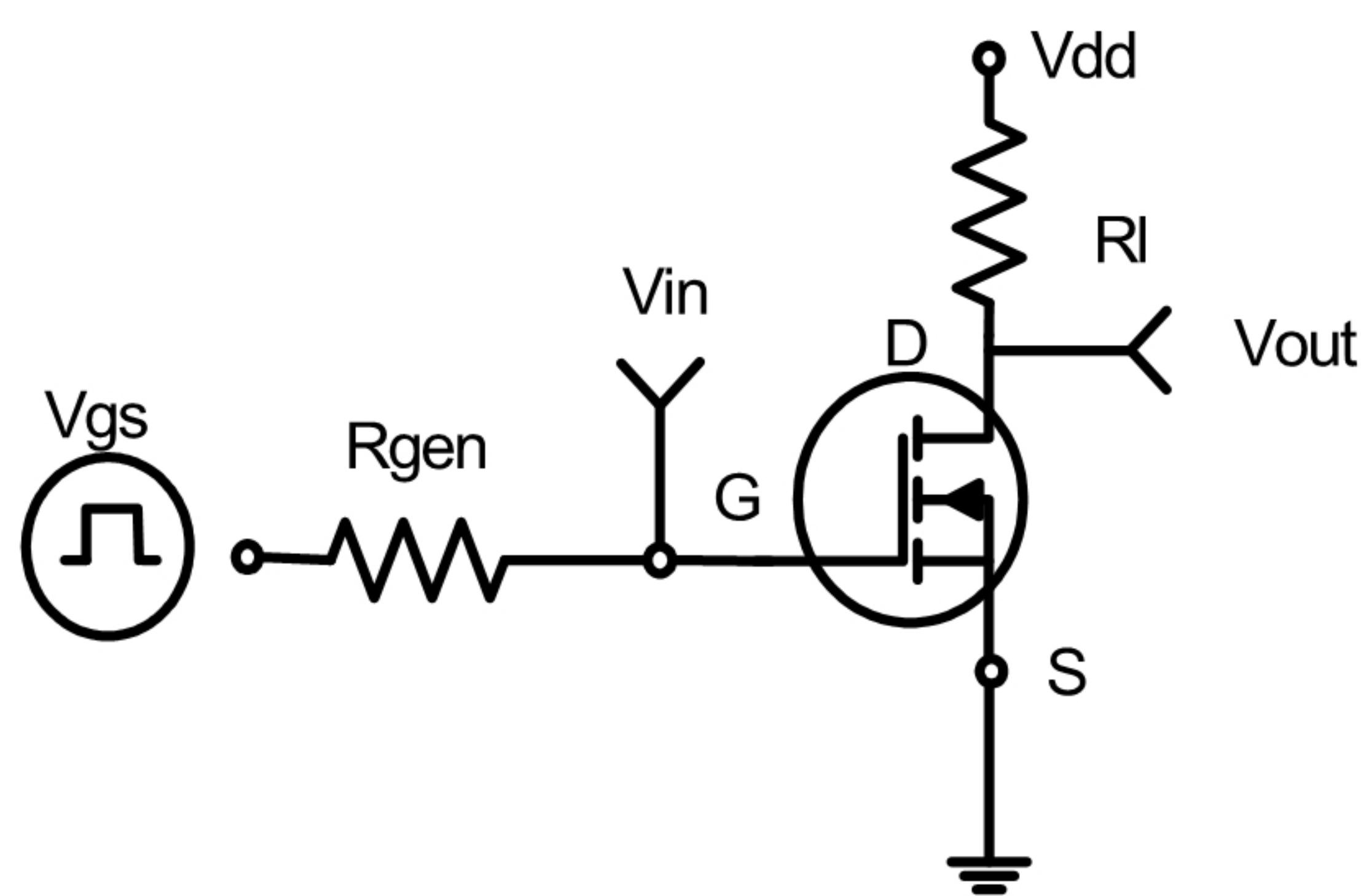


Fig.1 Switching Test Circuit

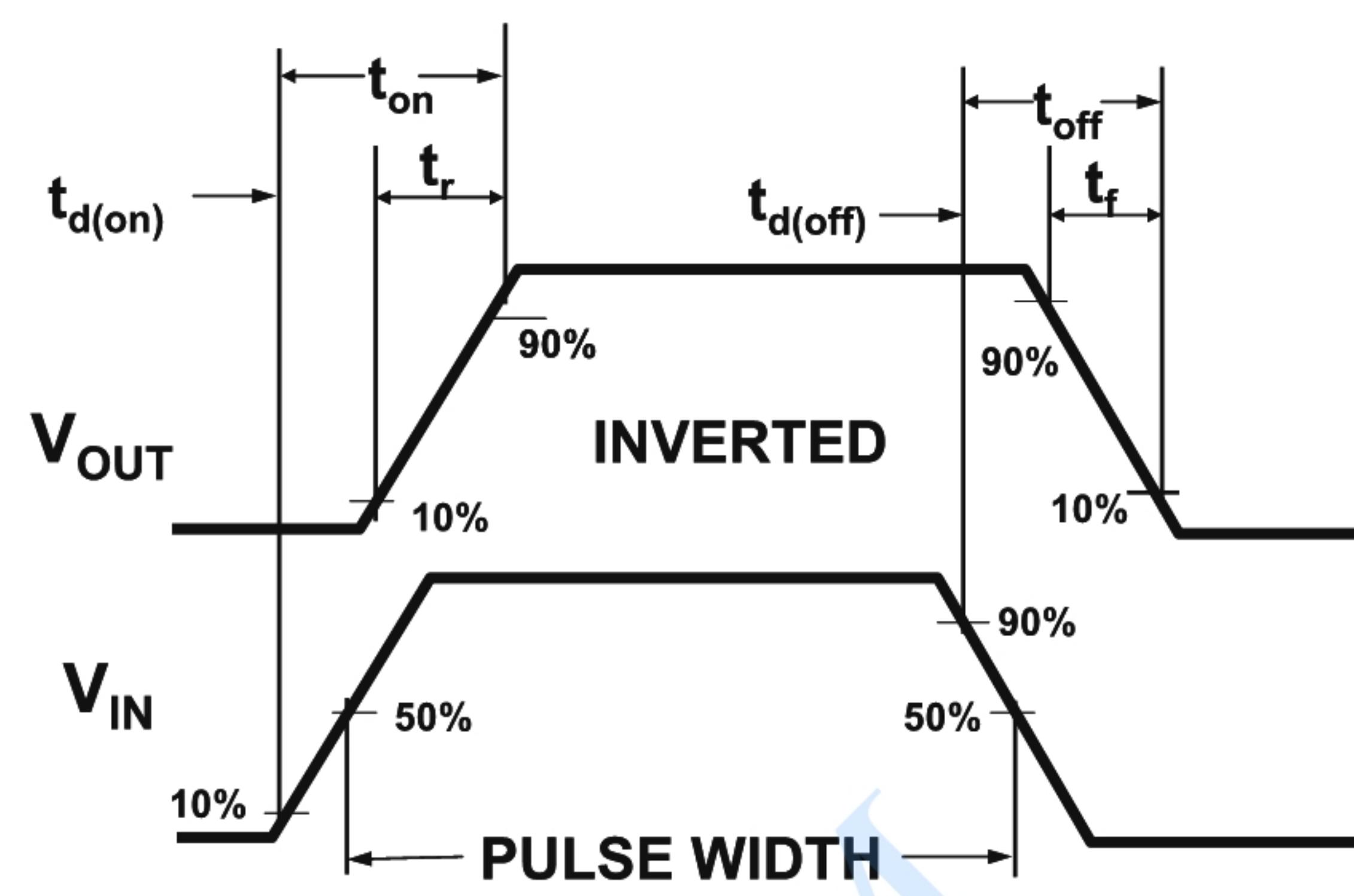


Fig.2 Switching Waveforms

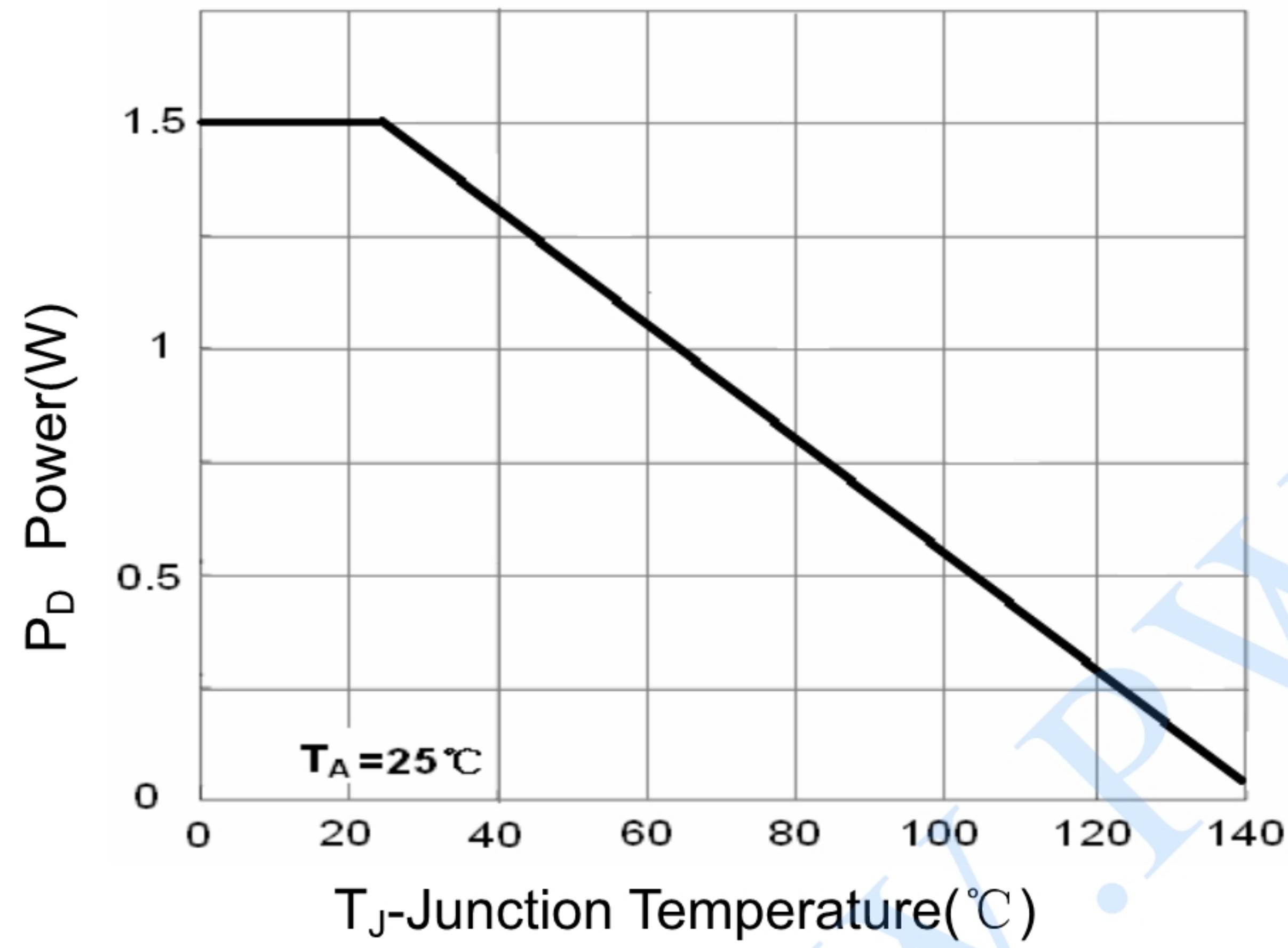


Fig.3 Power Dissipation

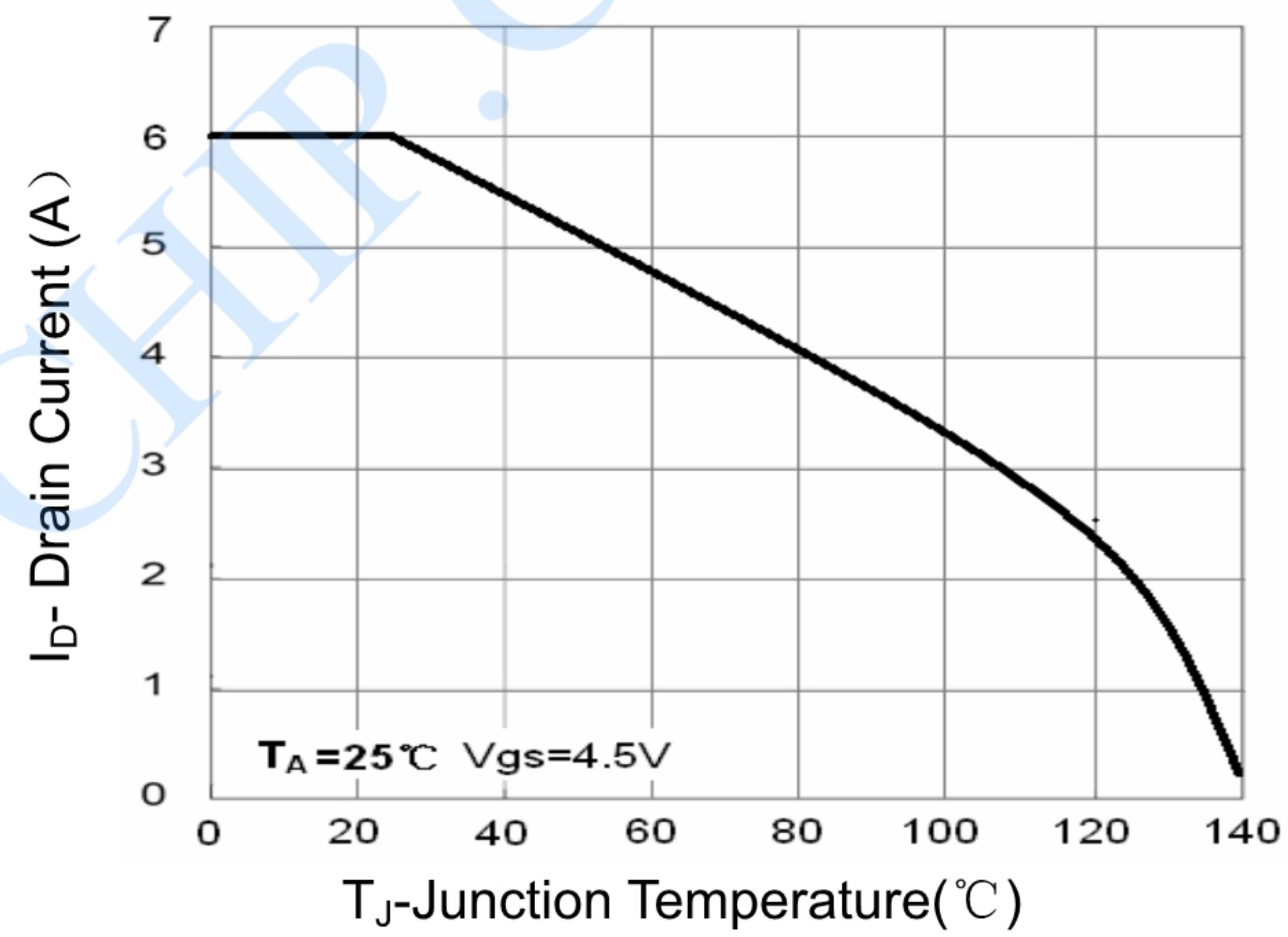


Fig.4 Drain Current

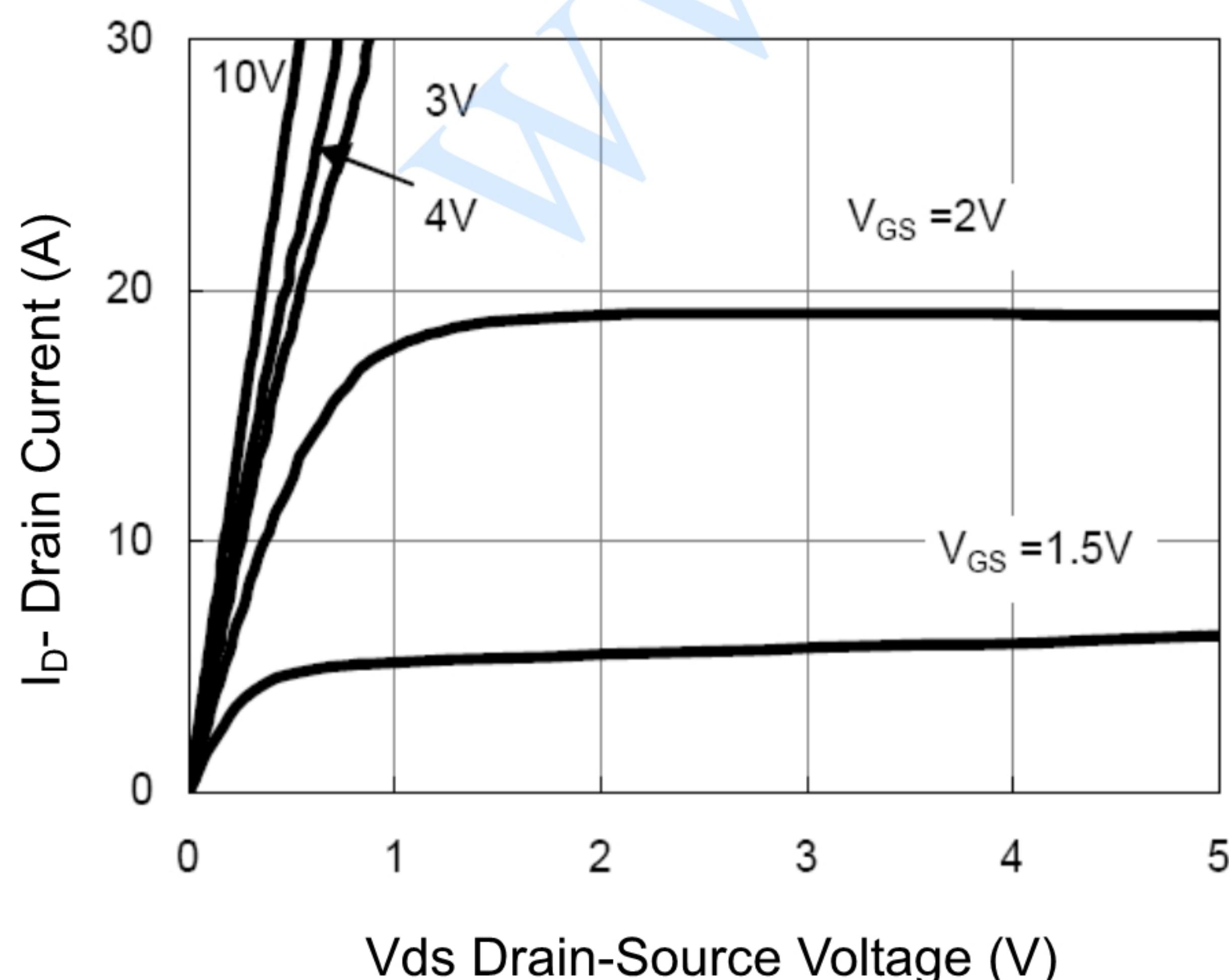


Fig.5 Output Characteristics

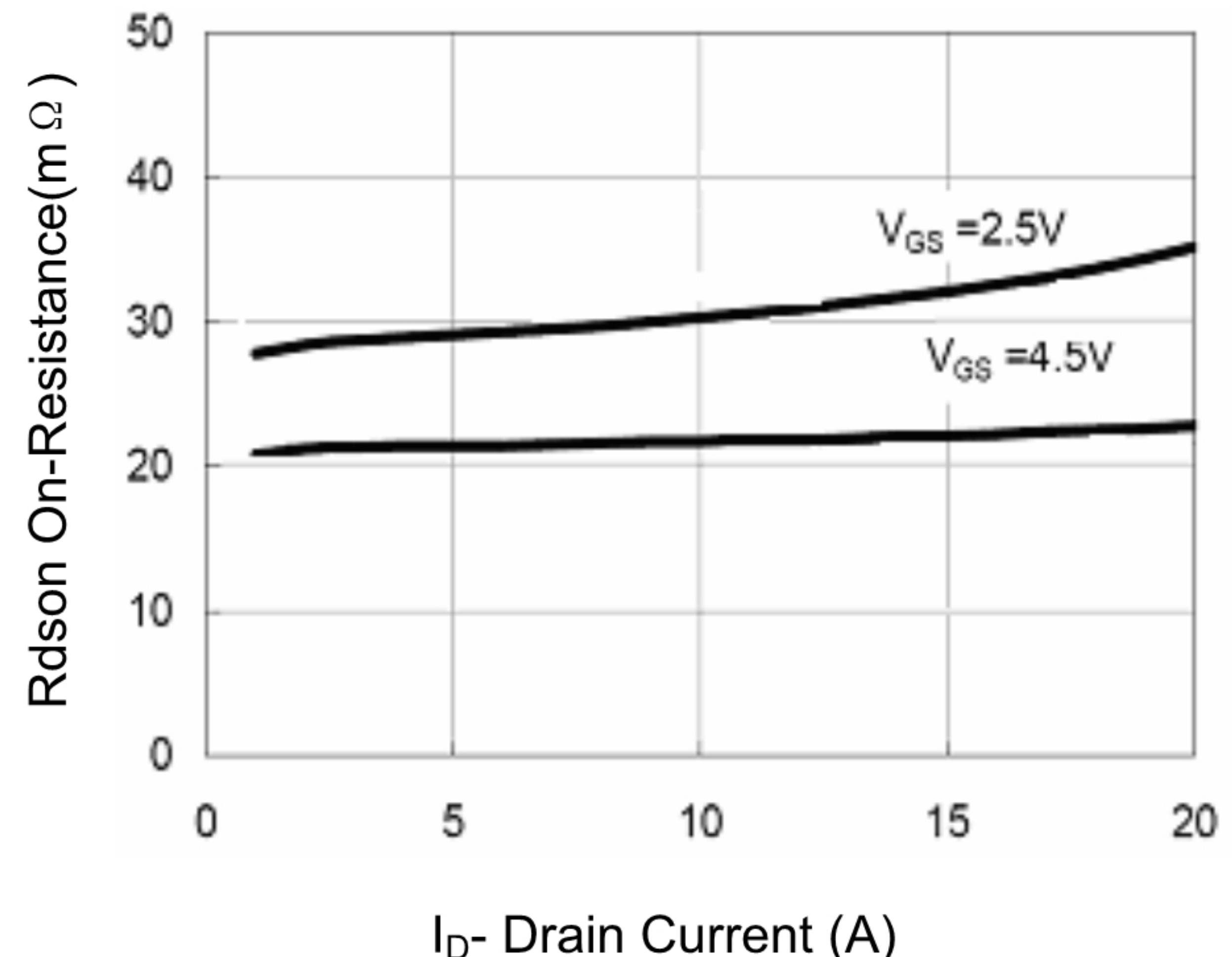
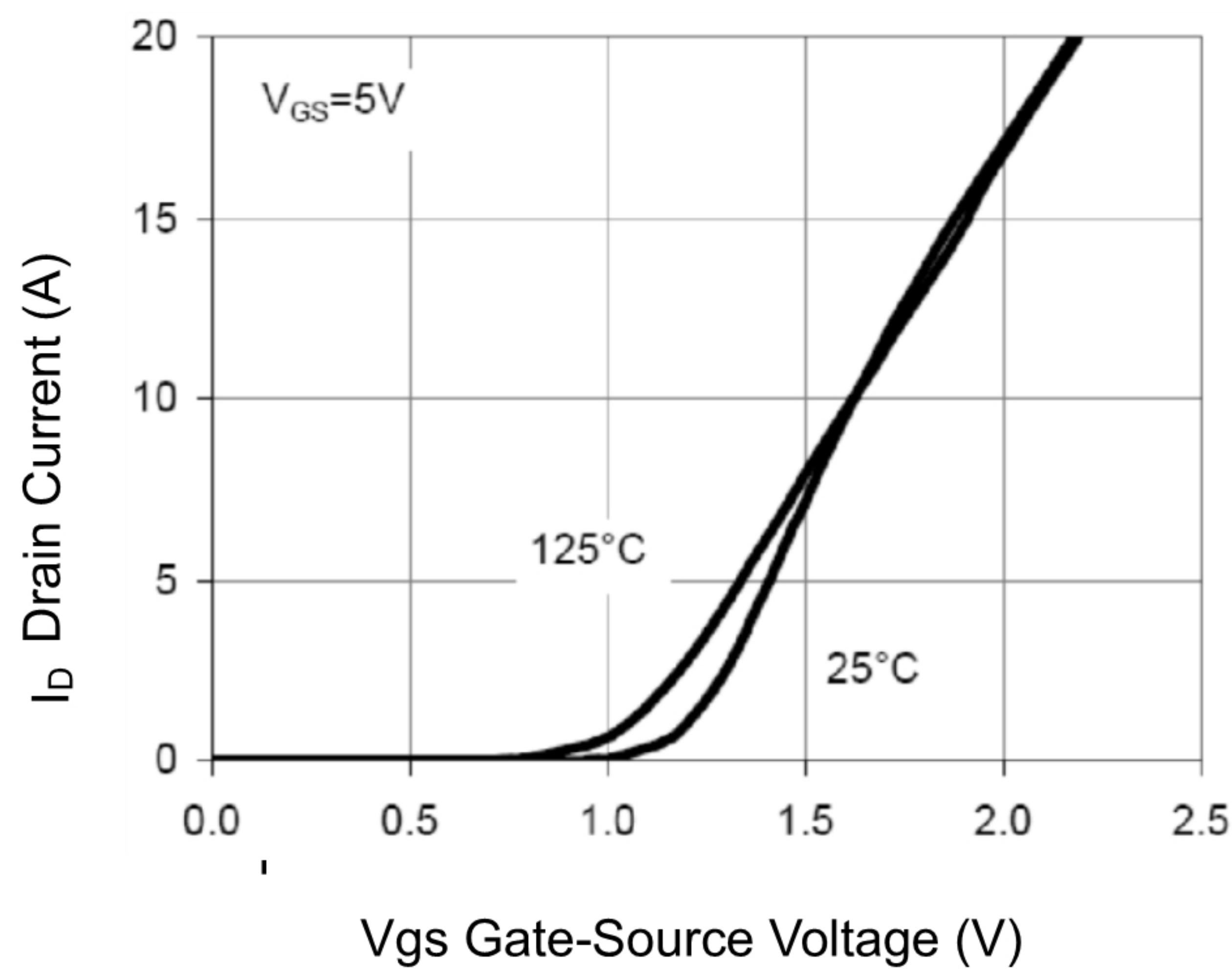
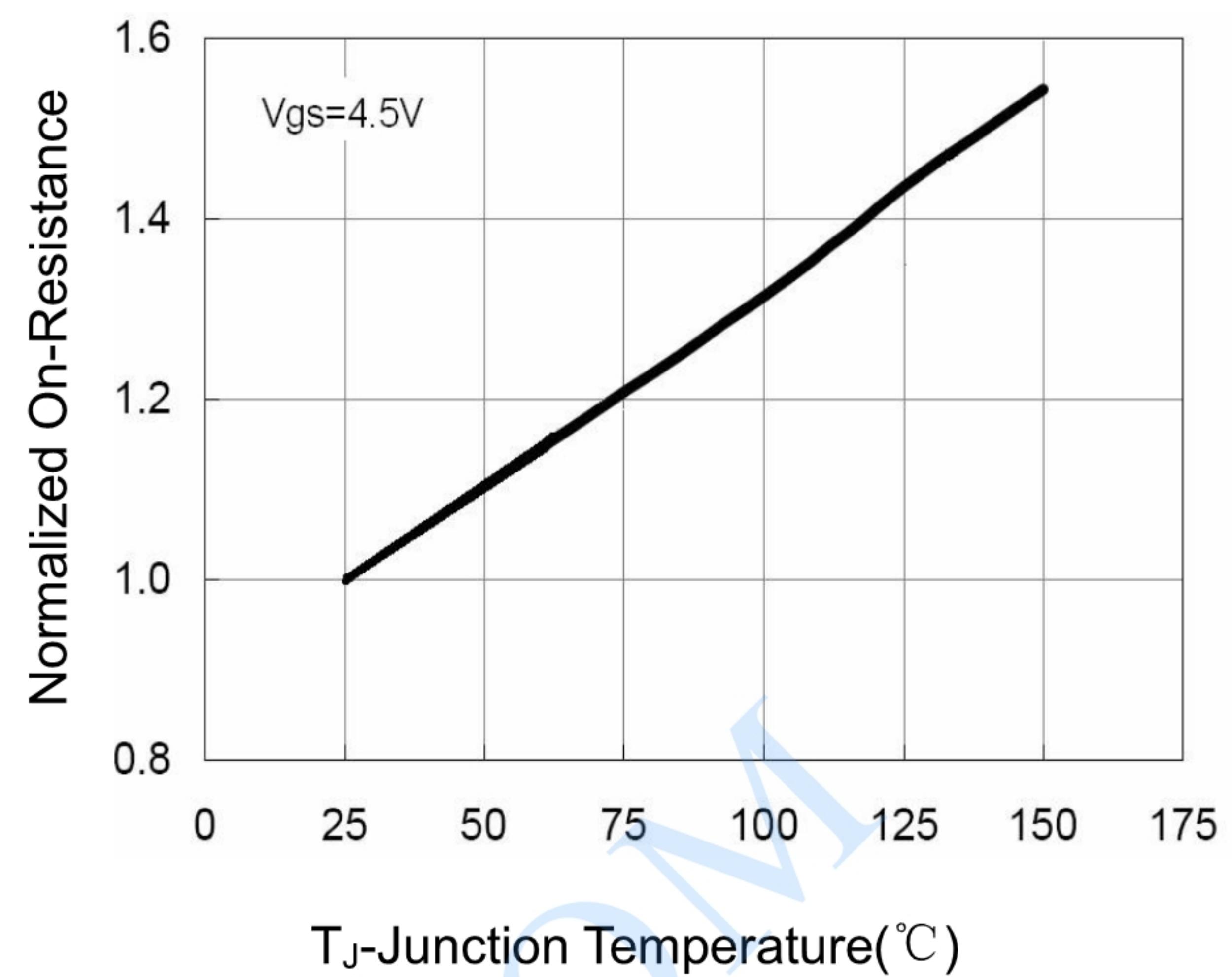
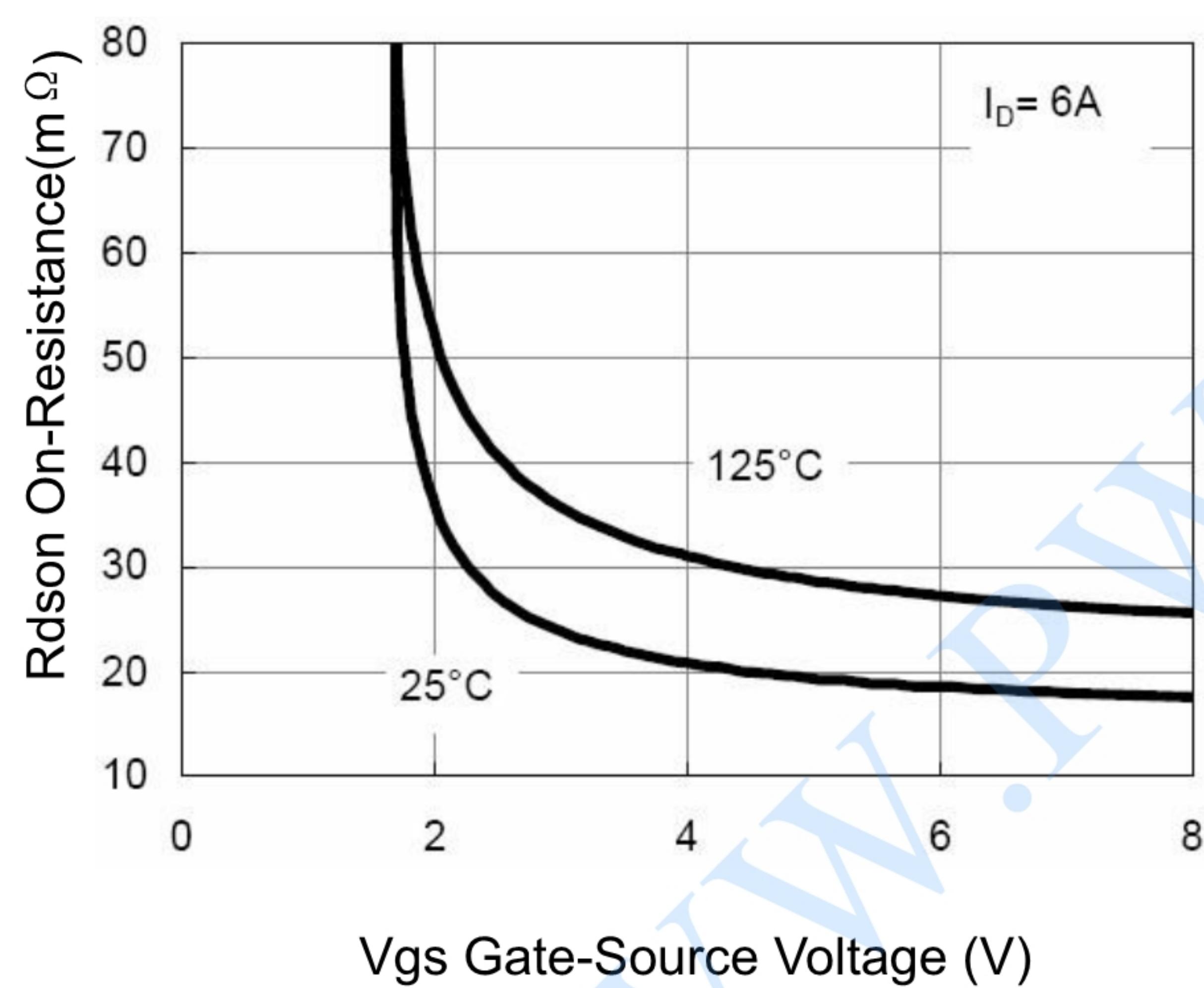
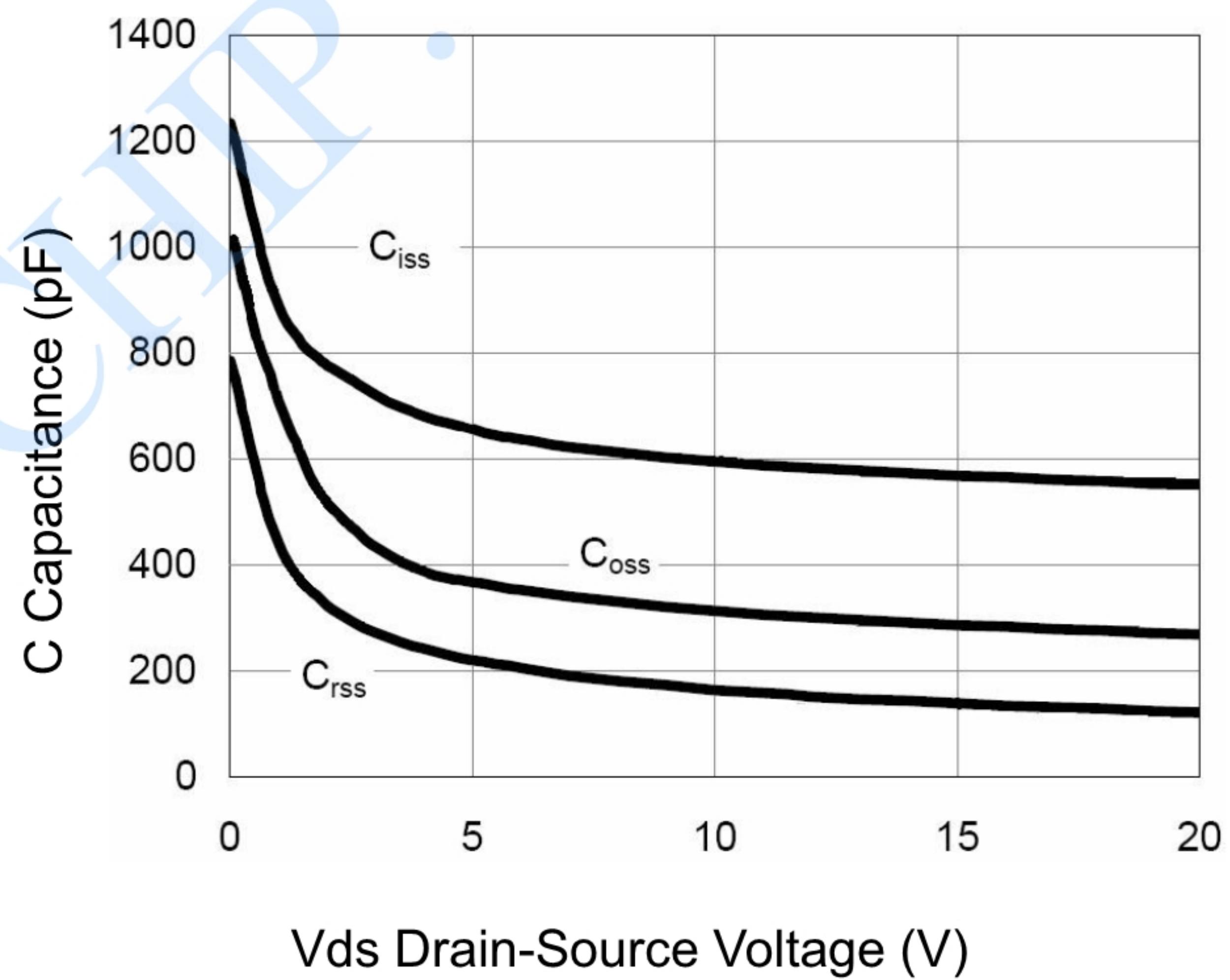
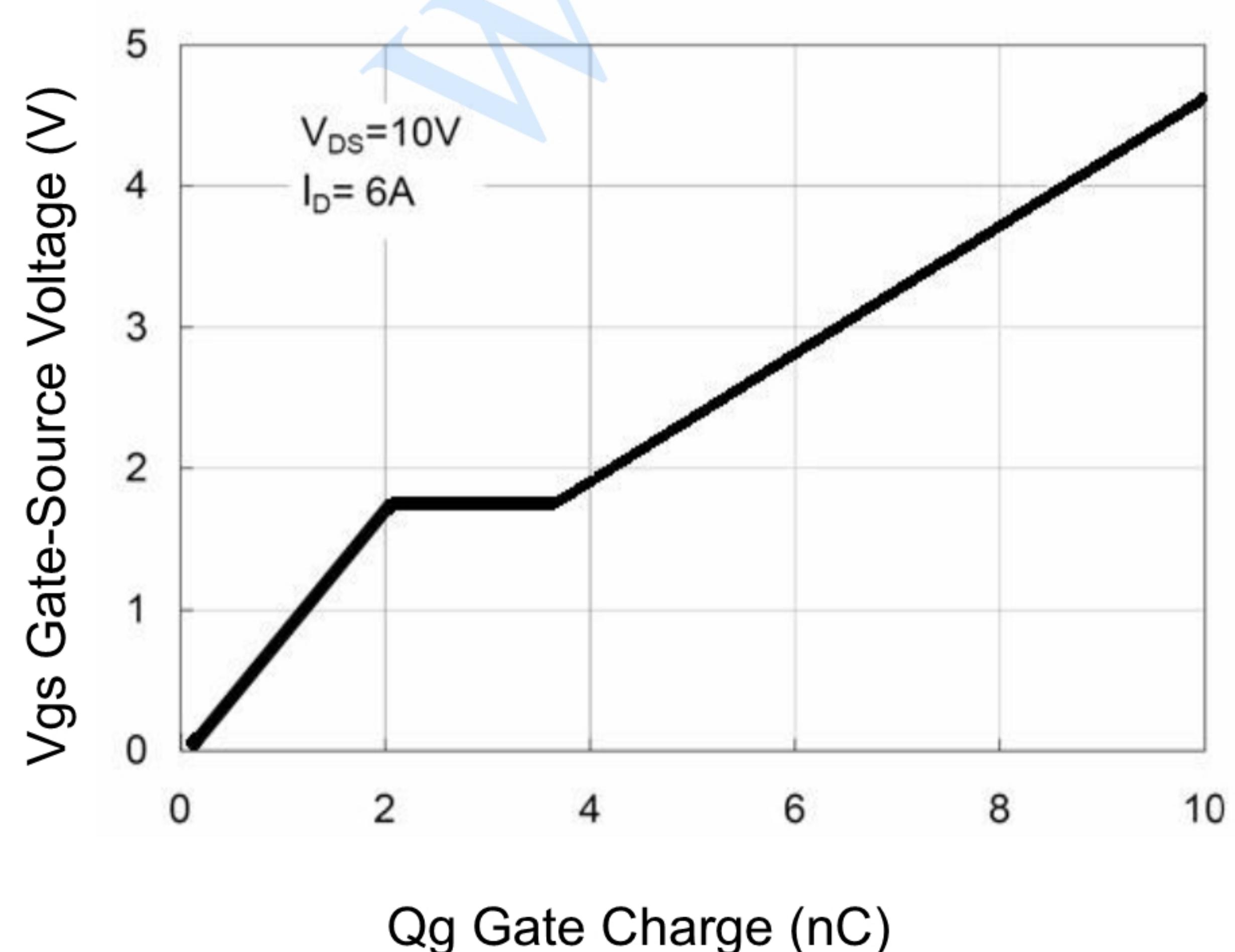
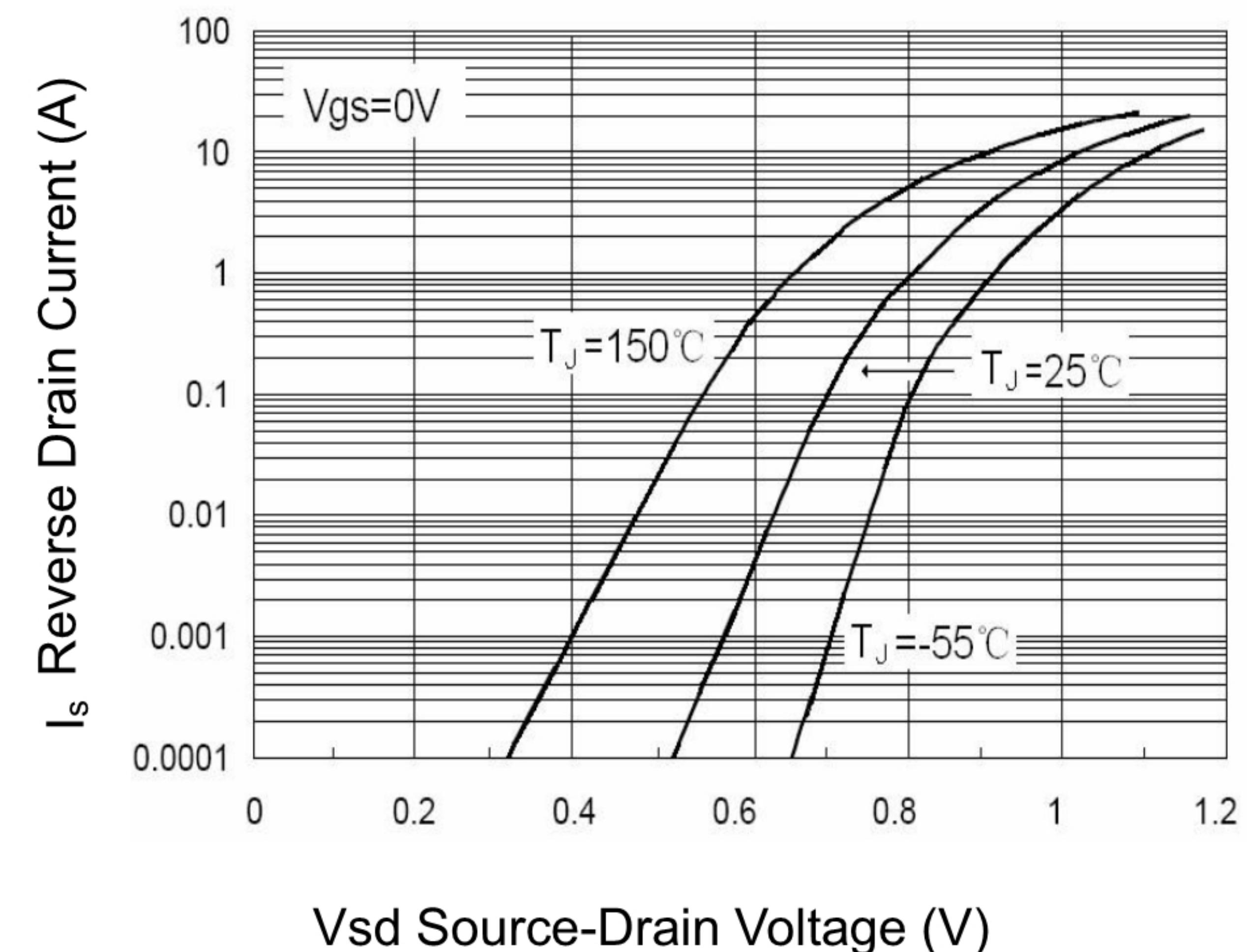


Fig.6 Drain-Source On-Resistance


Fig.7 Transfer Characteristics

Fig.8 Drain-Source On-Resistance

Figure 9 $R_{DS(on)}$ vs V_{GS}

Figure 10 Capacitance vs V_{DS}

Fig 11. Gate Charge

Fig 12. Source- Drain Diode Forward

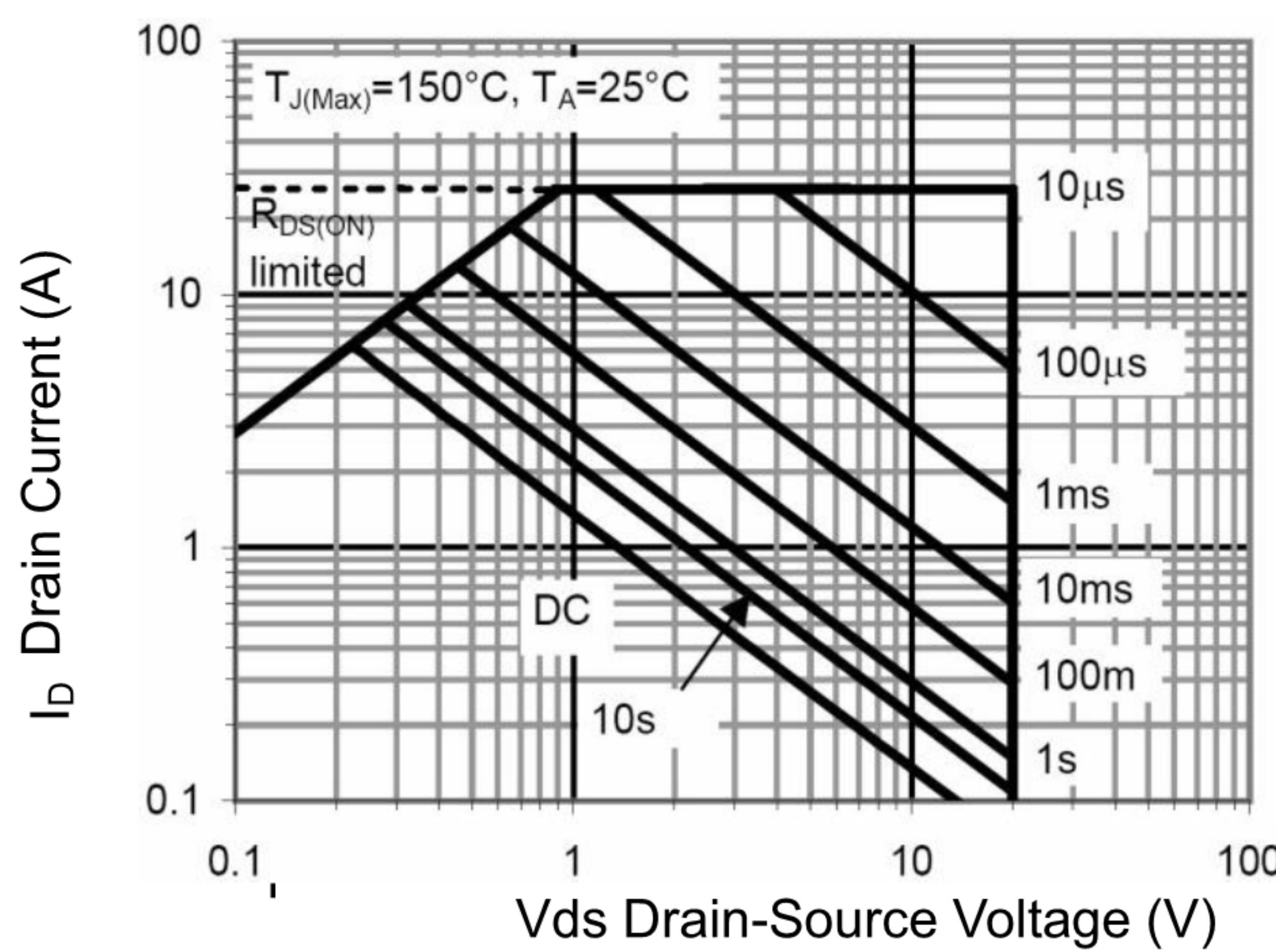


Figure 13 Safe Operation Area

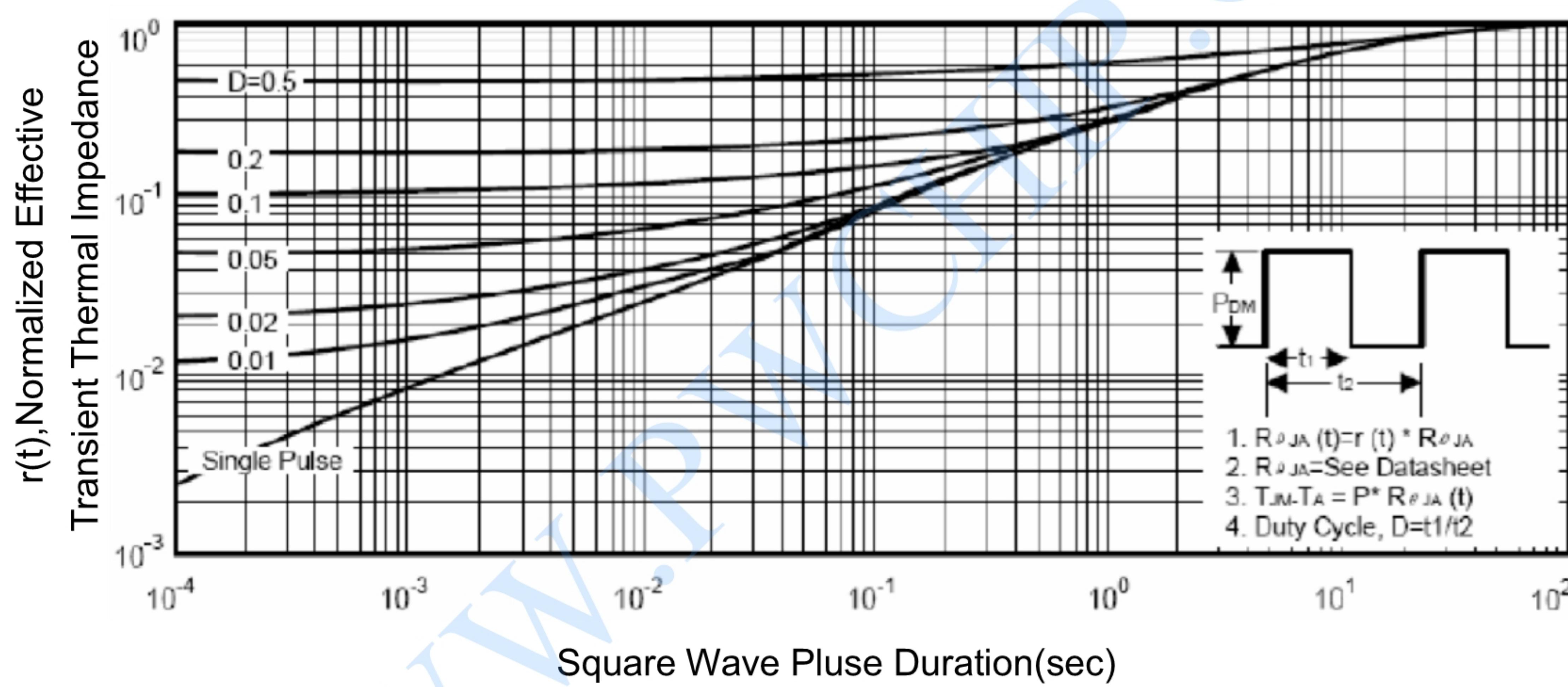
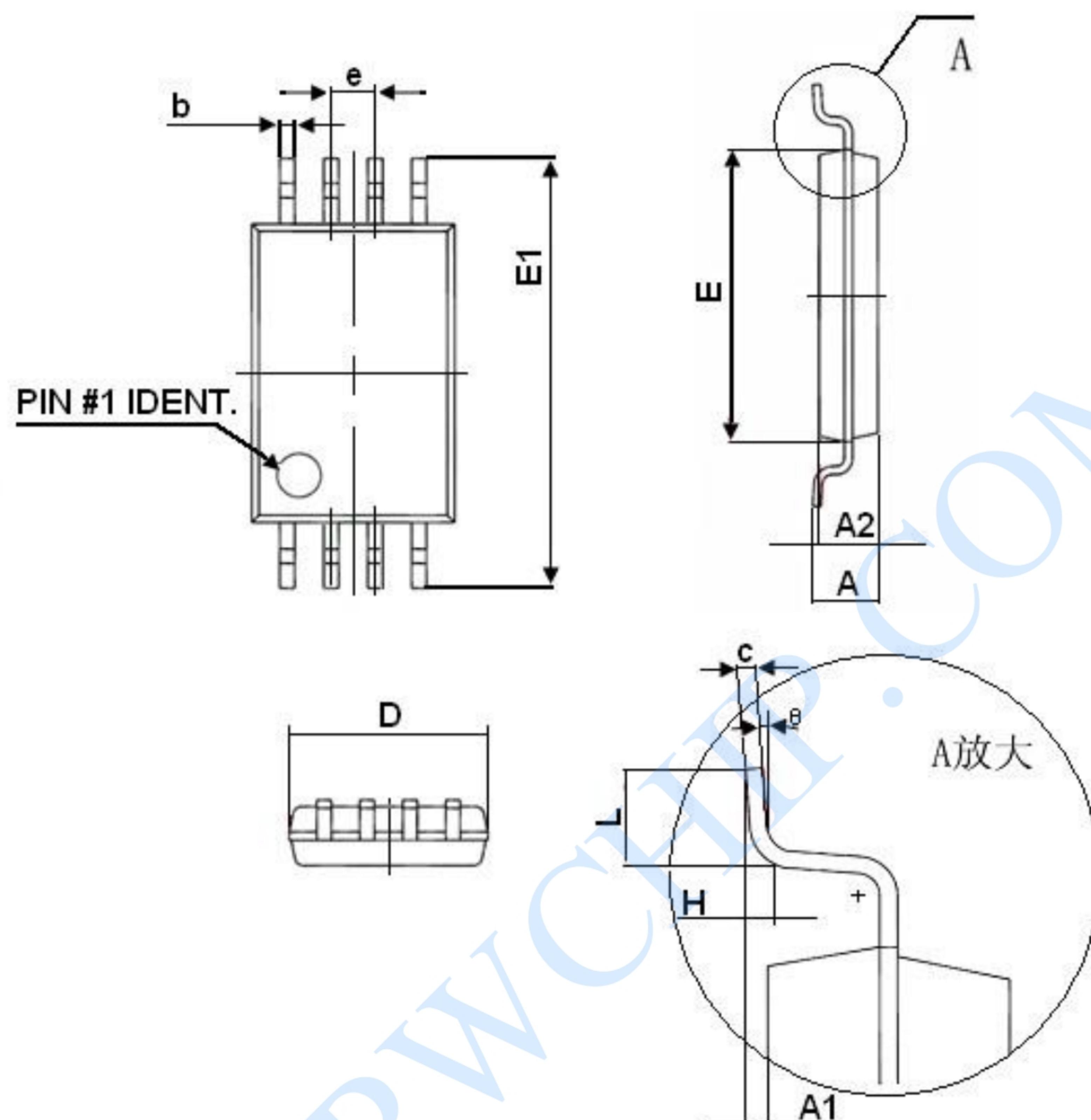


Figure 14 Normalized Maximum Transient Thermal Impedance

PACKAGE DESCRIPTION

TSSOP8



Symbol	Dimensions In Millimeters	
	Min	Max
D	2.900	3.100
E	4.300	4.500
b	0.190	0.300
c	0.090	0.200
E1	6.250	6.550
A		1.100
A2	0.800	1.000
A1	0.020	0.150
e	0.65(BSC)	
L	0.500	0.700
H	0.25(TYP)	
Θ	1°	7°



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