

N-Channel Enhancement Mode MOSFET

GENERAL DESCRIPTION

The PW2202 is silicon N-channel Enhanced VDMOSFETs, is obtained by the self-aligned planar Technology which reduce the conduction loss, improve switching performance and enhance the avalanche energy. The transistor can be used in various power switching circuit for system

FEATURES

$V_{DS} = 200V$, $I_D = 2A$

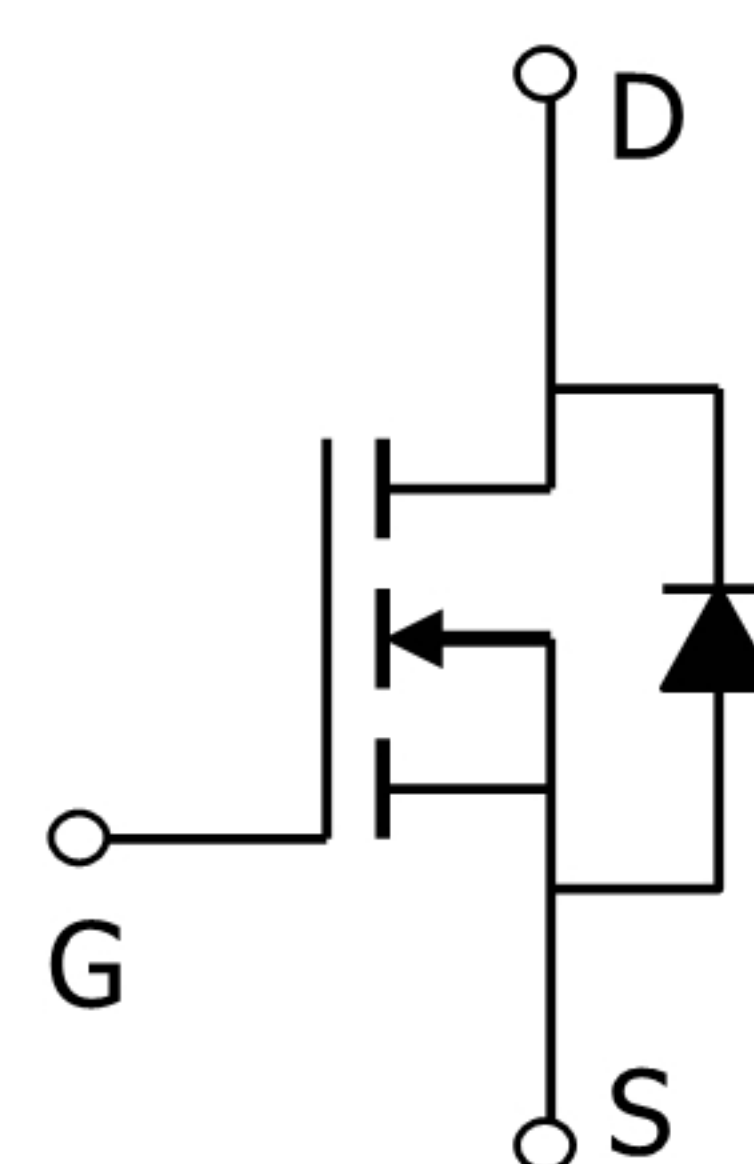
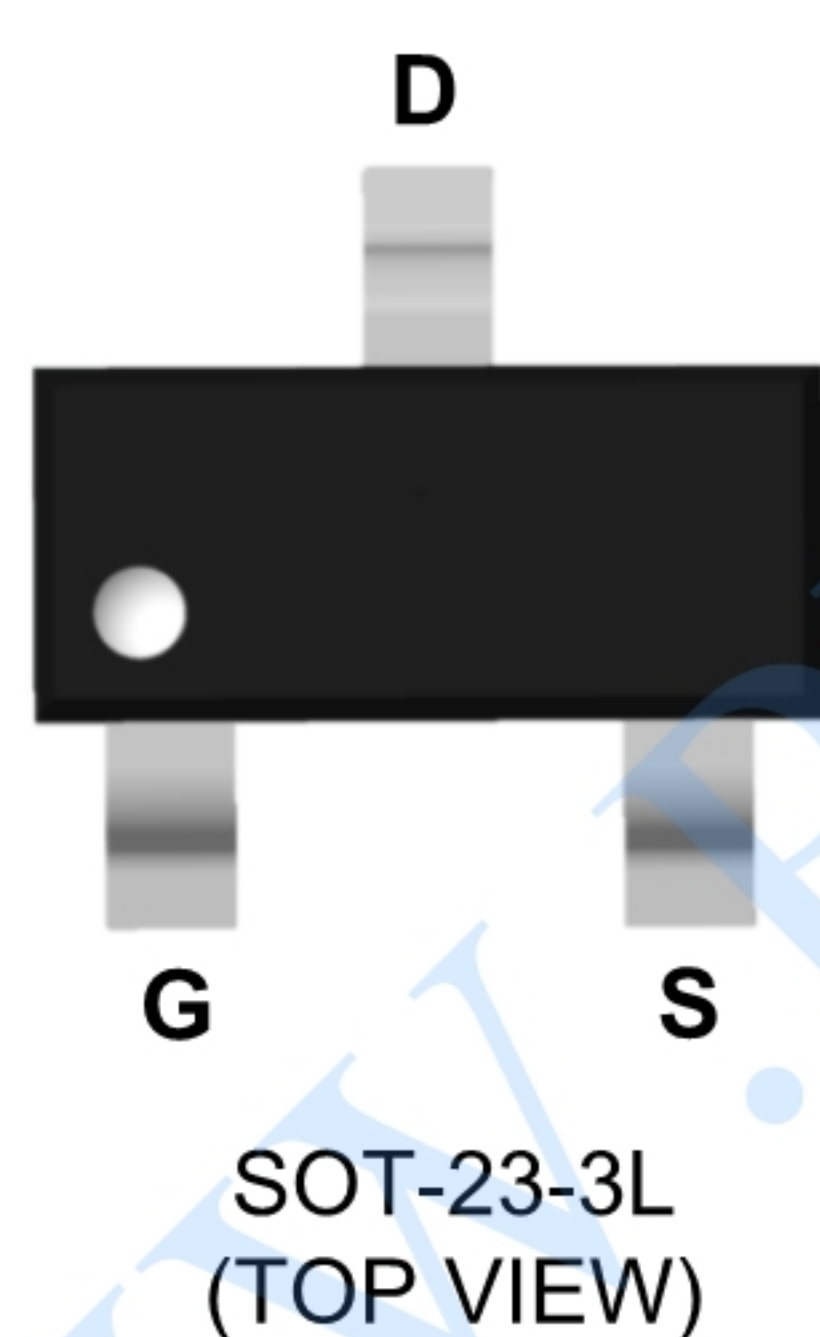
$R_{DS(ON)} < 1.8\Omega$ @ $V_{GS} = 10V$

Available in a 3-Pin SOT23-3 Package

Application

LED dimming

Emergency lamp



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

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	200	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	$I_D @ T_A = 25^\circ C$	2	A
Pulsed Drain Current (NOTE1)	I_{DM}	10	A
Maximum Power Dissipation	P_D	3	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 To 150	$^\circ C$
Thermal Resistance Junction-Ambient (NOTE2)	$R_{\theta JA}$	41.7	$^\circ C/W$

Note 1、 Repetitive Rating: Pulse width limited by maximum junction temperature.

Note 2、 Surface Mounted on FR4 Board, $t \leq 10$ sec.



ELECTRICAL CHARACTERISTICS

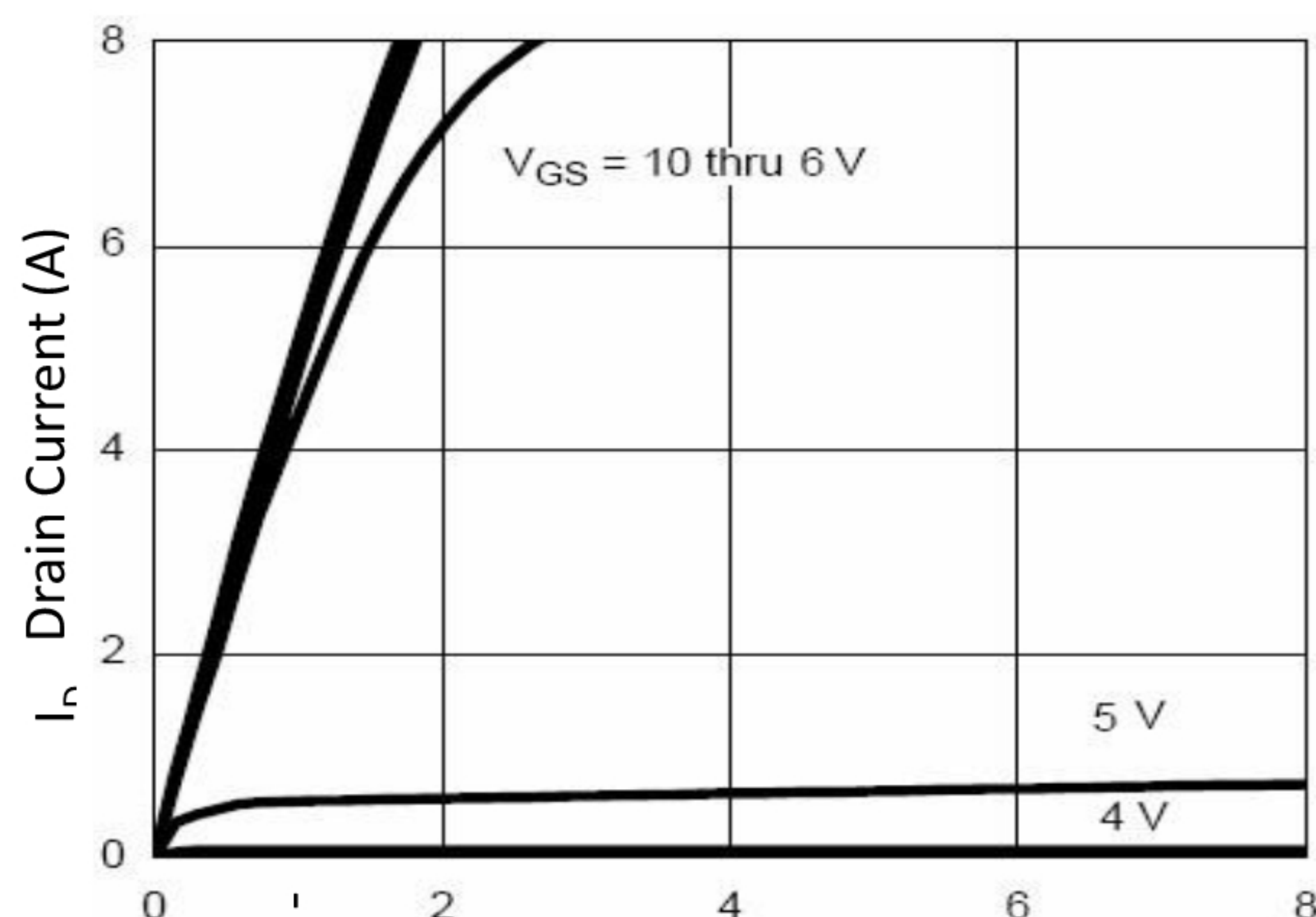
(TA = 25°C, unless otherwise noted.)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V , I _D =-250uA	200			V
R _{DS(ON)}	Drain-Source On- Static Resistance	V _{GS} =10V , I _D =2A		1.4	1.8	Ω
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =-250uA	1.0		3.0	V
I _{DSS}	Zero Gate Voltage Drain Curren	V _{DS} =200V , V _{GS} =0V ,			1	uA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±20V , V _{DS} =0V			±100	nA
g _{fs}	Forward Transconductance	V _{DS} =15V , I _D =2A		8		S
Q _g	Total Gate Charge	V _{DS} =100V , V _{GS} =10V , I _D =2A		12		nC
Q _{gs}	Gate-Source Charge			2.5		nC
Q _{gd}	Gate-Drain Charge			3.8		nC
T _{d(on)}	Turn-On Delay Time	V _{DS} =100V , V _{GS} =10V , R _G =2.5Ω, R _L =15Ω		10		ns
T _r	Rise Time			12		ns
T _{d(off)}	Turn-Off Delay Time			15		ns
T _f	Fall Time			15		ns
C _{iss}	Input Capacitance	V _{DS} =25V , V _{GS} =0V , f=1MHz		580		pF
C _{oss}	Output Capacitance			90		pF
C _{rss}	Reverse Transfer Capacitance			3		pF
I _s	Continuous Source Current (NOTE1)				2	A
V _{SD}	Diode Forward Voltage (NOTE2)	V _{GS} =0V , I _s =1A ,			1.2	V

Note 1. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%

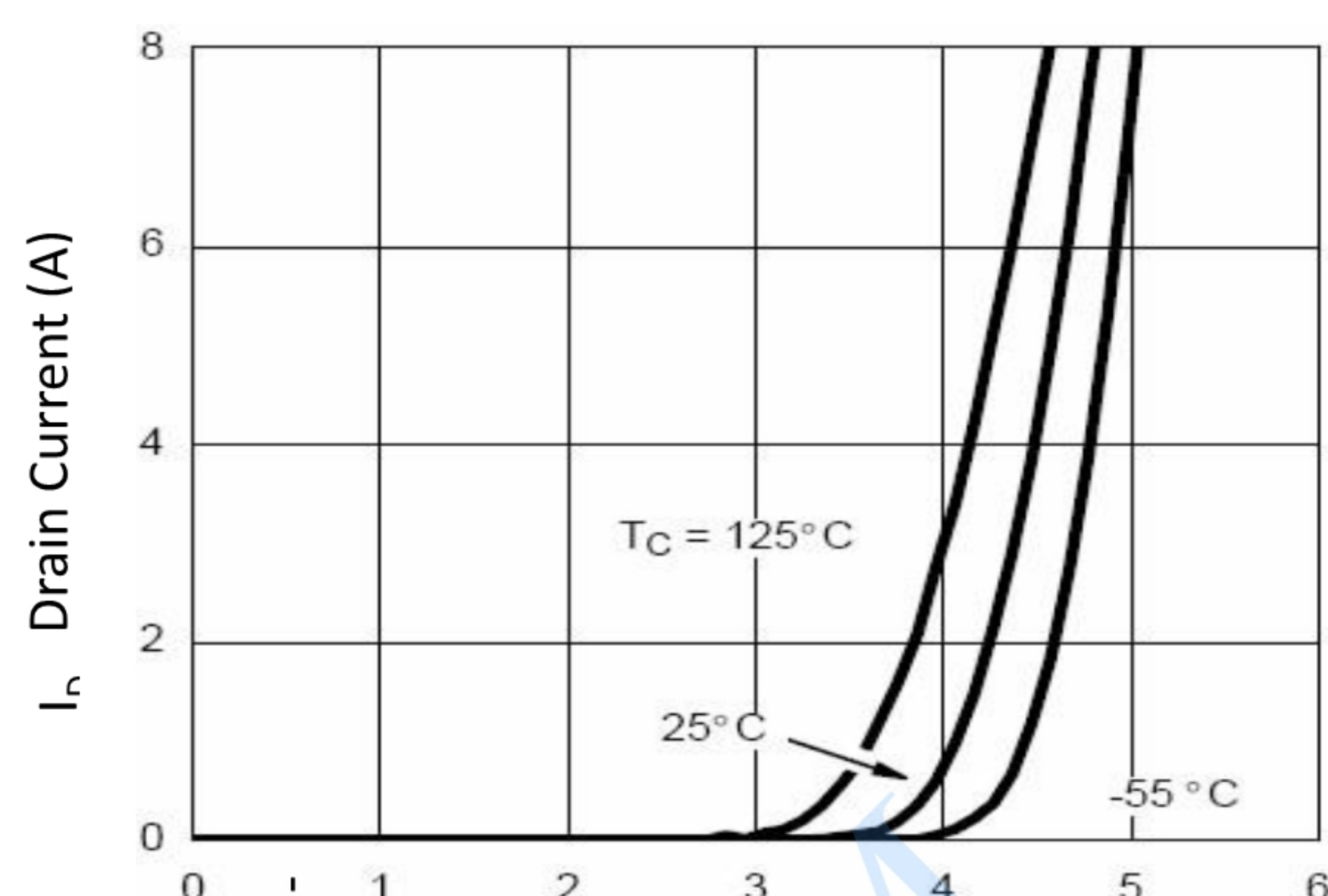
Note 2. Guaranteed by design, not subject to production

Thermal Characteristics And Typical electrical



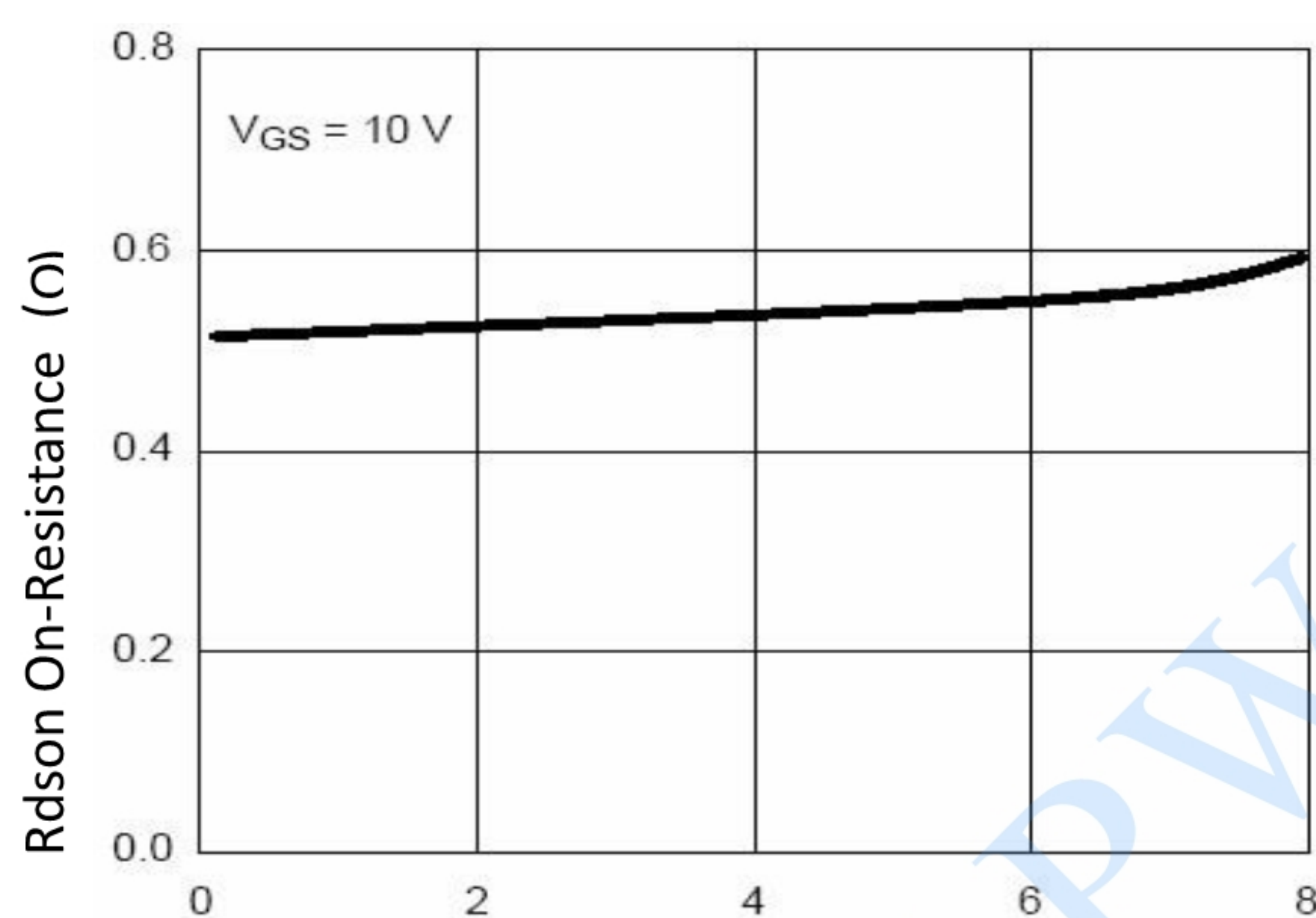
V_{DS} Drain-Source Voltage (V)

Output Characteristics



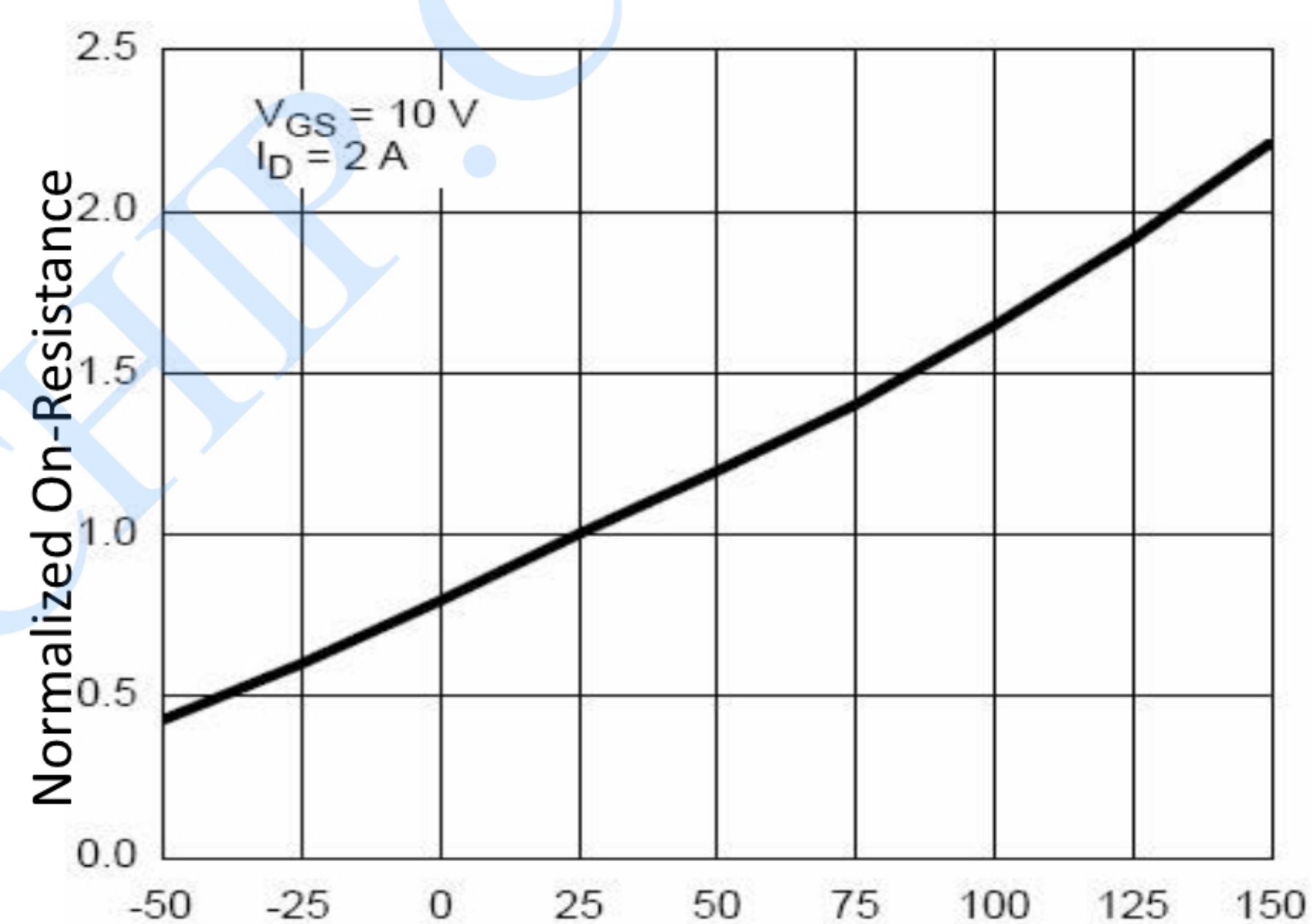
V_{GS} Gate-Source Voltage (V)

Transfe Characteristics



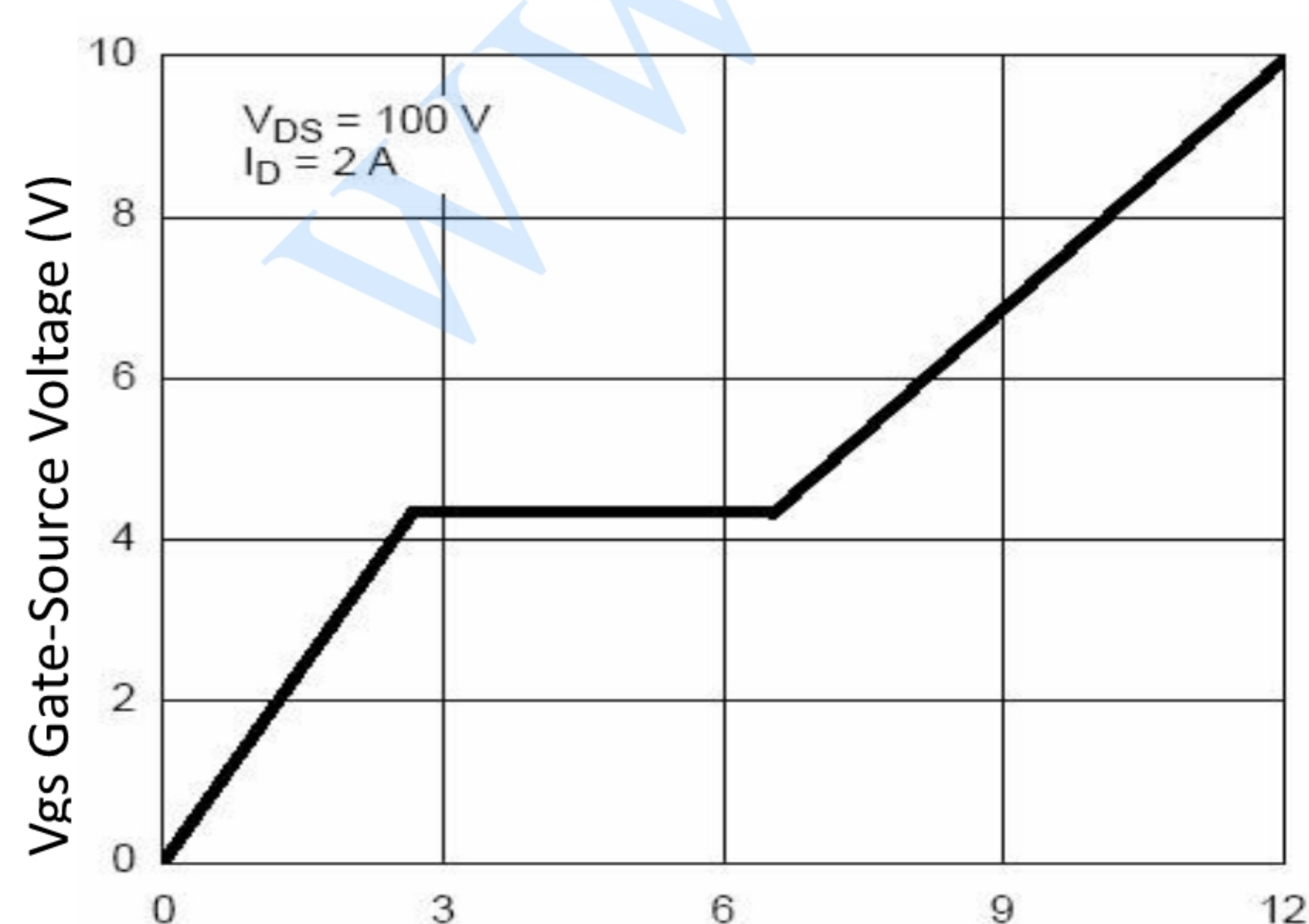
I_D - Drain Current (A)

RDSON vs. Drain Current



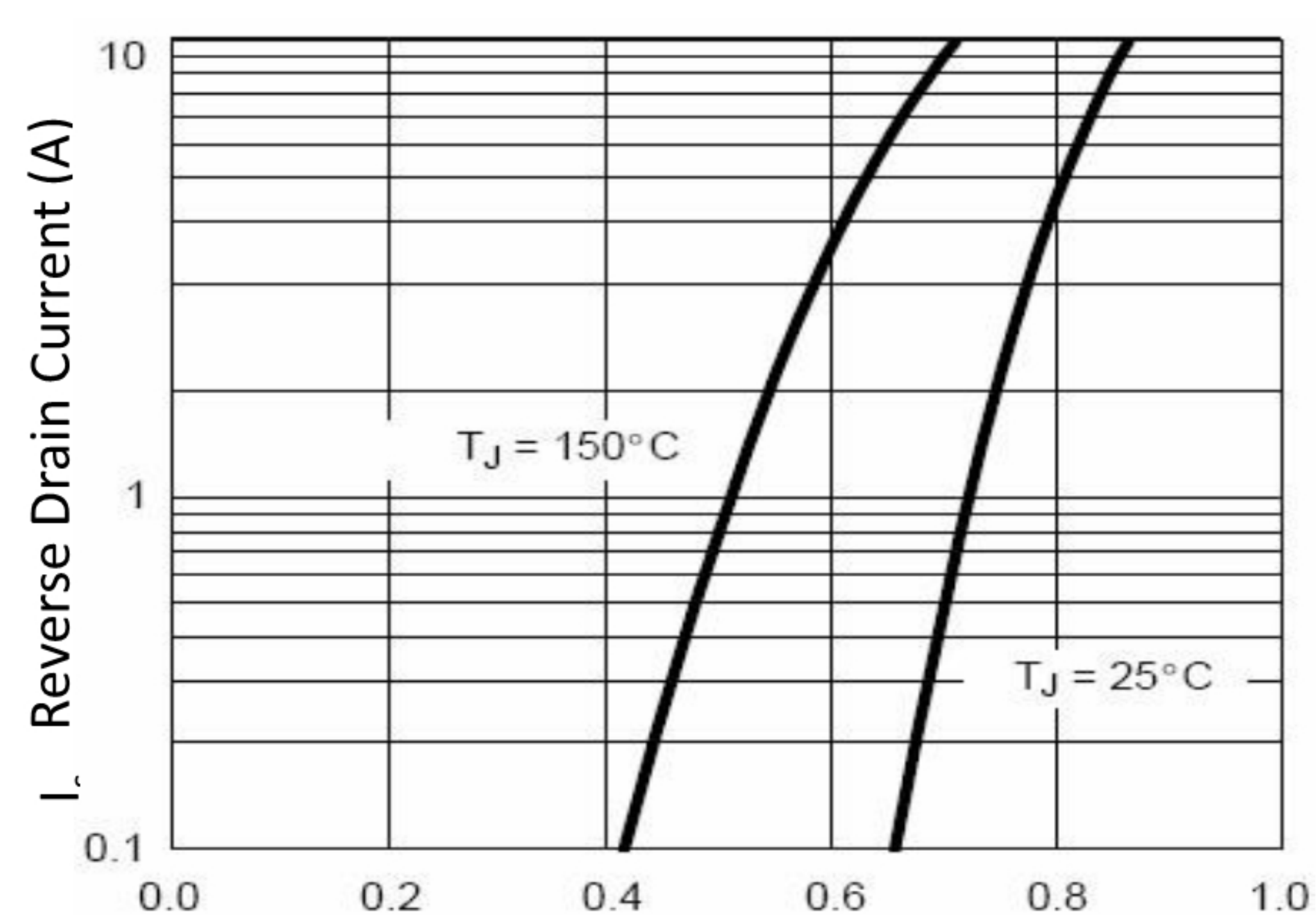
T - Junction Temperature (°C)

Rdson Junction Temperature



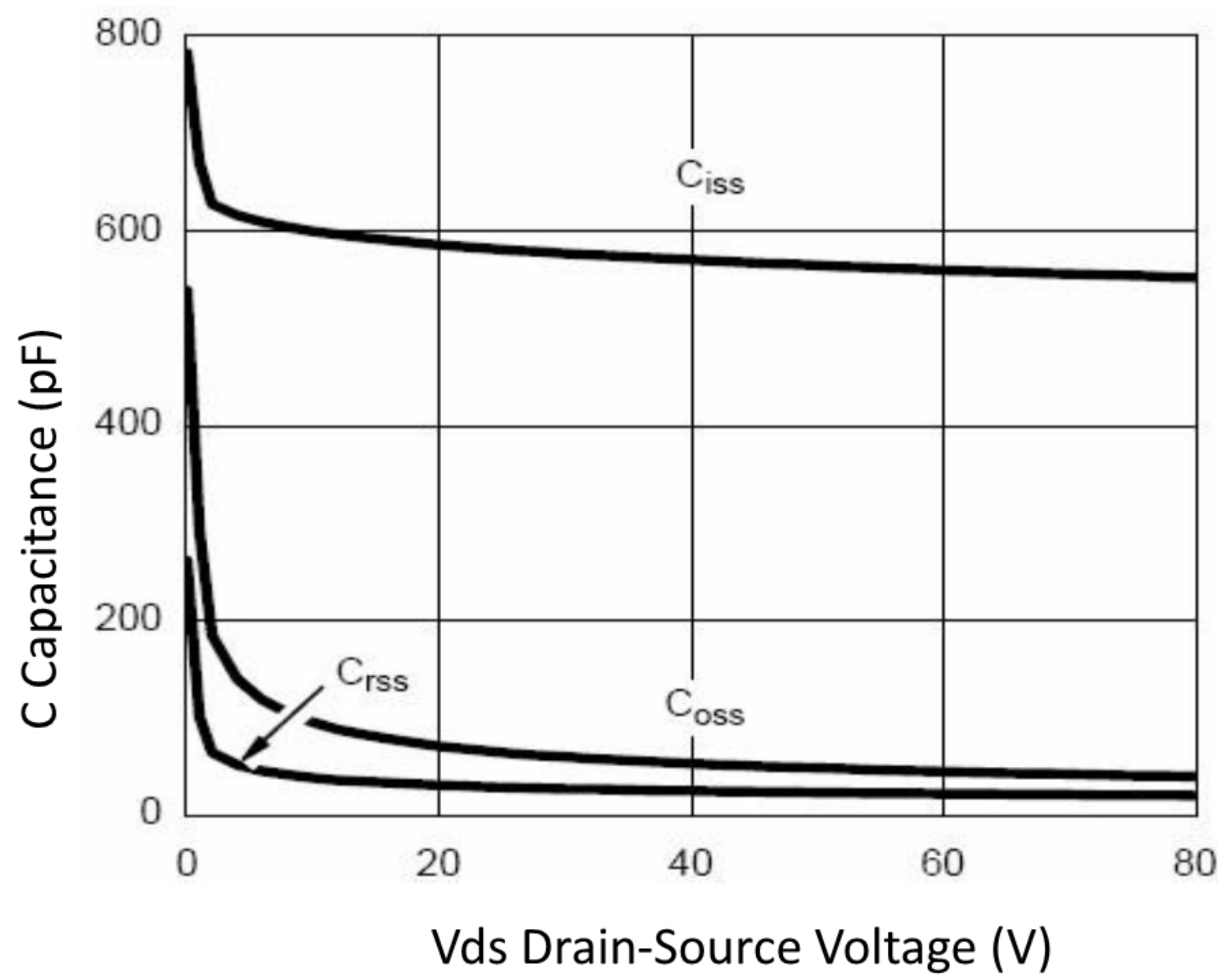
Q_g Gate Charge (nC)

Gate Charge

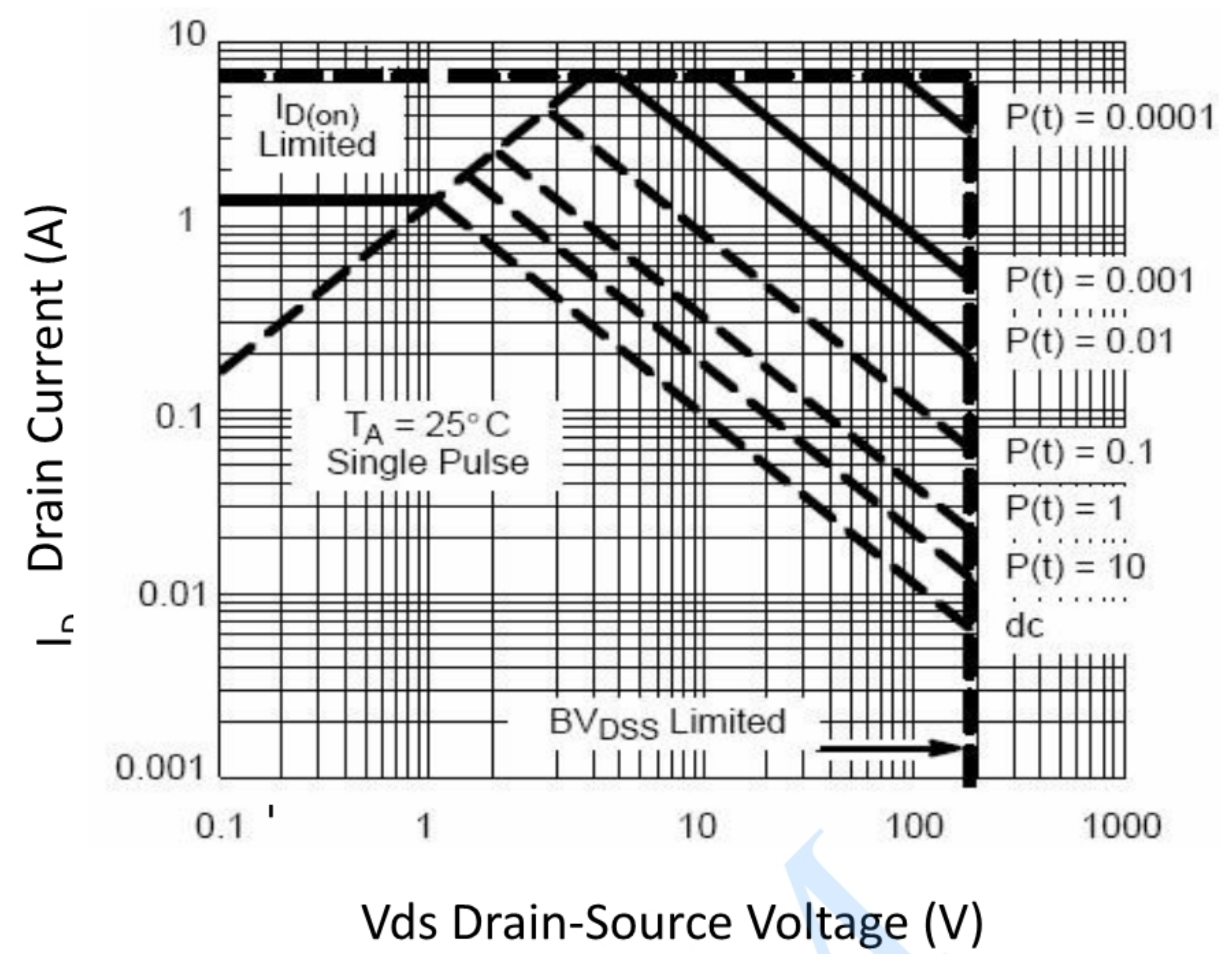


V_{SD} Source-Drain Voltage (V)

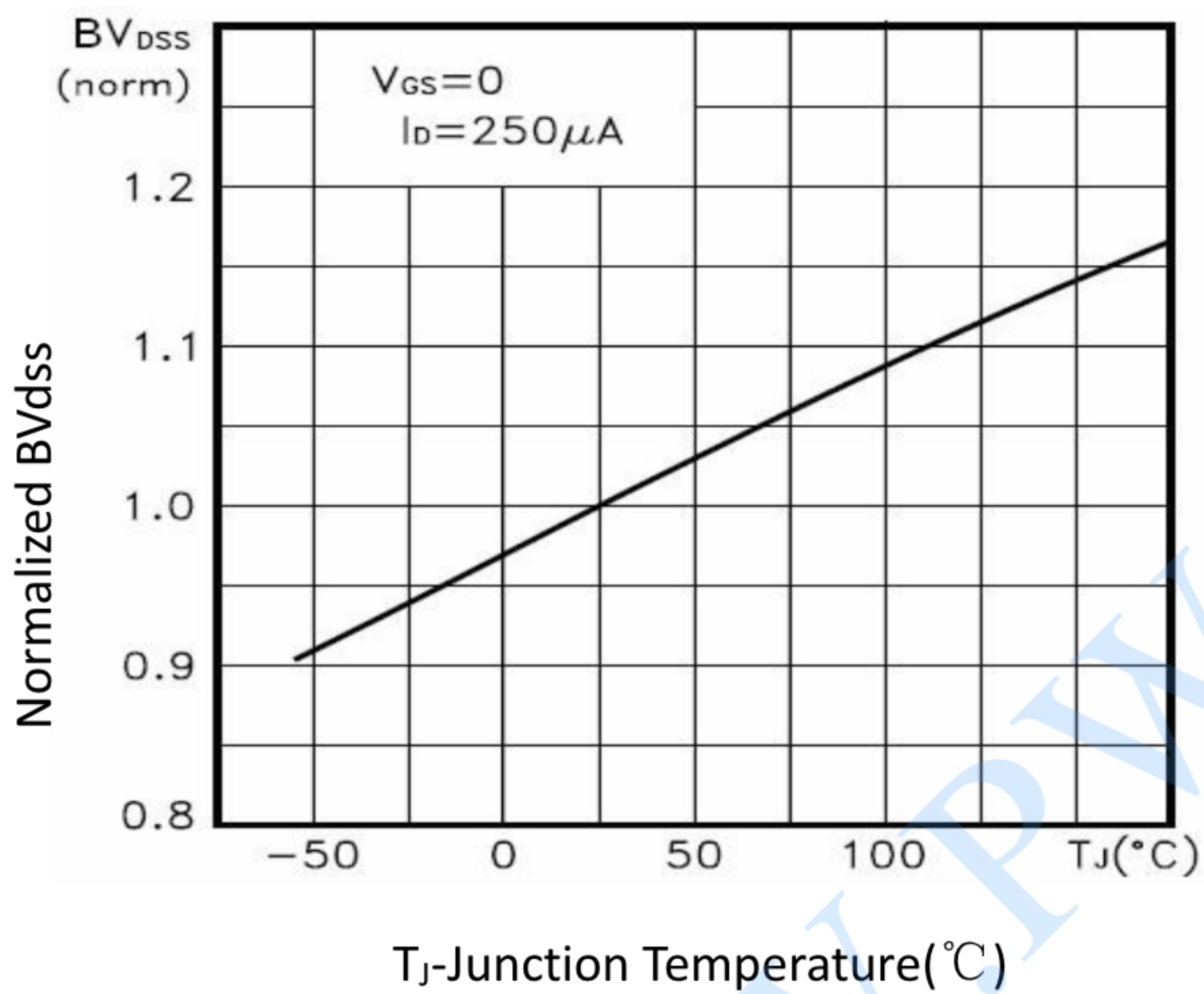
Source- Drain Diode Forward



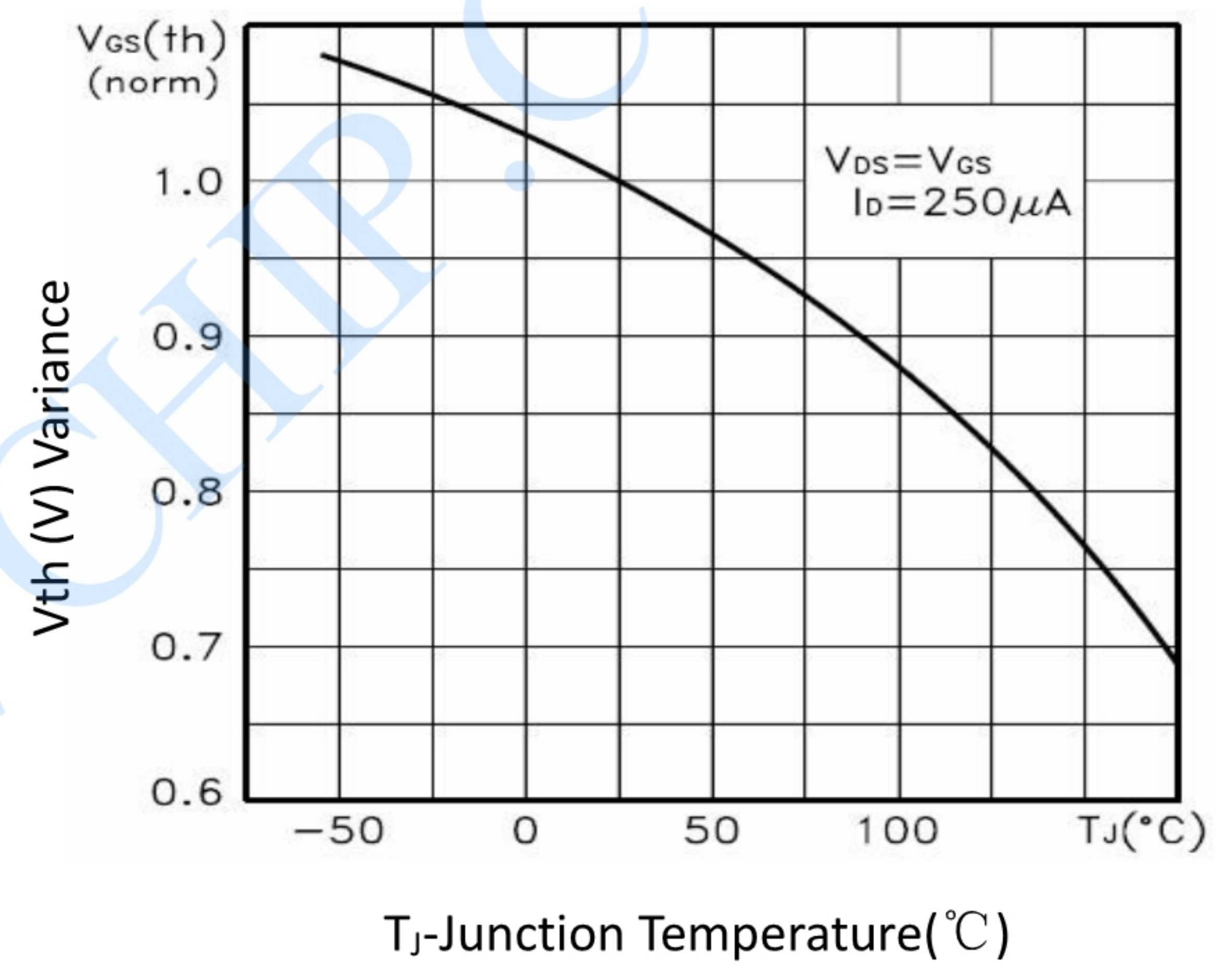
Capacitance vs Vds



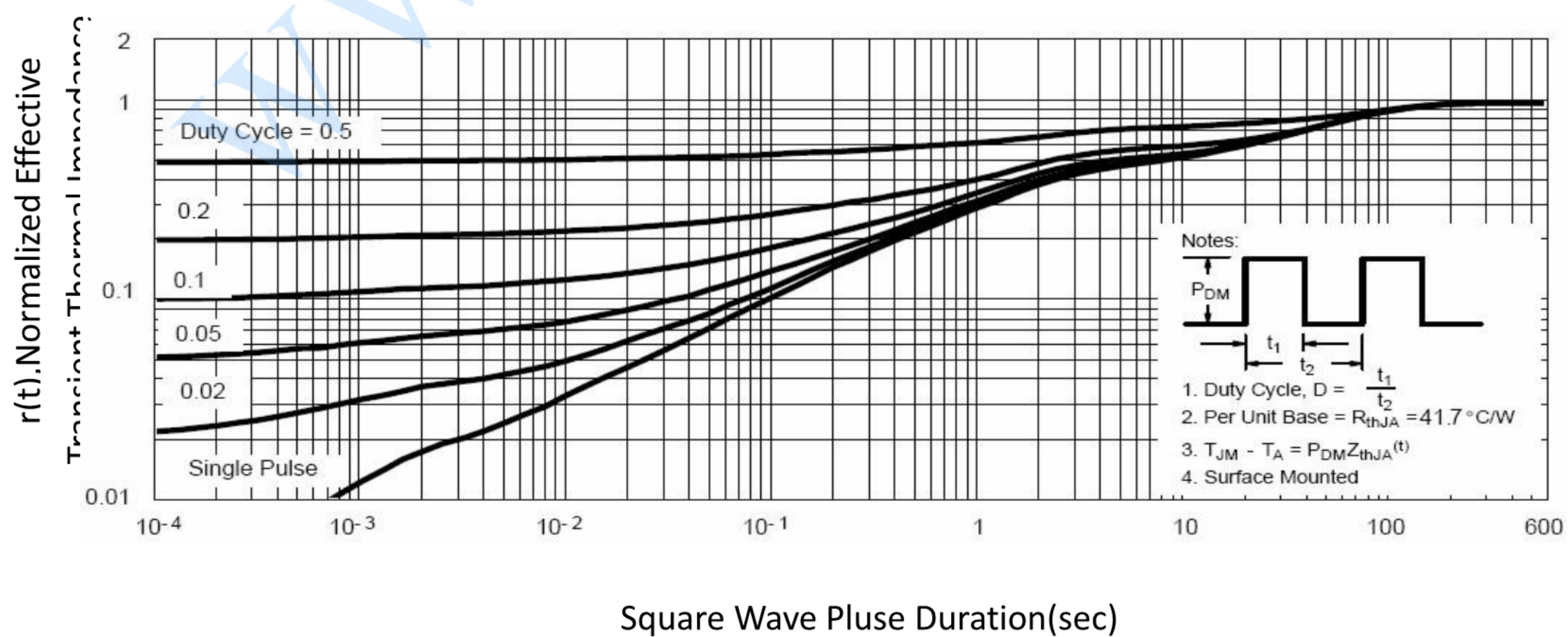
Safe Operation Area



BVDSS vs Junction Temperature



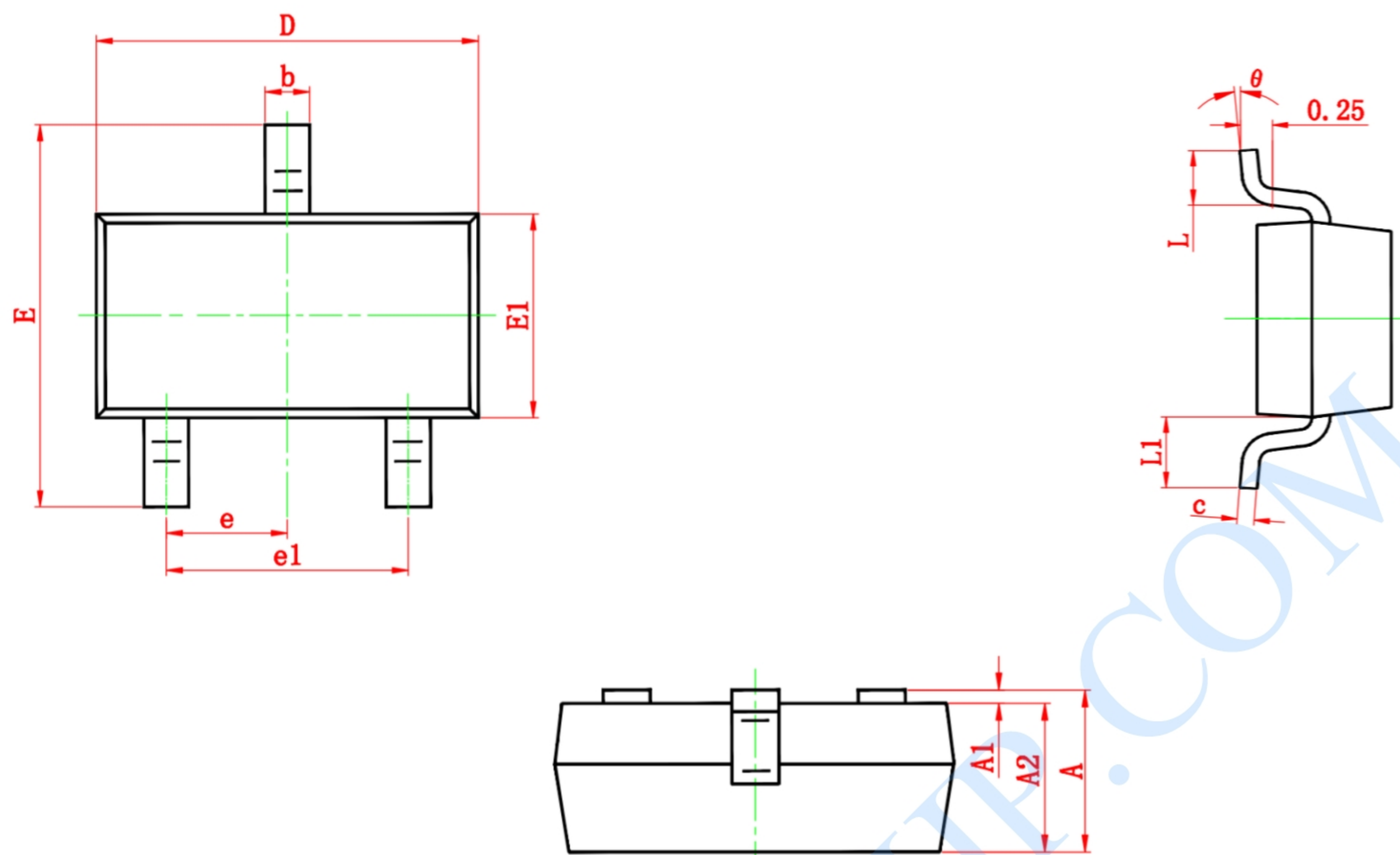
VGS(th) vs Junction Temperature



Normalized Maximum Transient Thermal Impedance

PACKAGE DESCRIPTION

SOT23-3L



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	2.250	2.550	0.089	0.100
E1	1.200	1.400	0.047	0.055
e	0.950 TYP.		0.037 TYP.	
e1	1.800	2.000	0.071	0.079
L	0.300	0.500	0.012	0.020
L1	0.550 REF.		0.022 REF.	
θ	0°	8°	0°	8°

Notes

1. All dimensions are in millimeters.
2. Tolerance $\pm 0.10\text{mm}$ (4 mil) unless otherwise specified
3. Package body sizes exclude mold flash and gate burrs. Mold flash at the non-lead sides should be less than 5 mils.
4. Dimension L is measured in gauge plane.
5. Controlling dimension is millimeter, converted inch dimensions are not necessarily exact.



IMPORTANT NOTICE

Wuxi PWChip Semi Technology CO., LTD (PW) reserves the right to make corrections, modifications, enhancements, improvements, and other changes to its products and services at any time and to discontinue any products or services. Customers should obtain the latest relevant information before placing orders and should verify that such information is current and complete.

PW assumes no liability for applications assistance or customer product design. Customers are responsible for their products and applications using PW components.

PW products are not authorized for use in safety-critical applications (such as life support devices or systems) where a failure of the PW product would reasonably be expected to affect the safety or effectiveness of that devices or systems.

The information included herein is believed to be accurate and reliable. However, PW assumes no responsibility for its use; nor for any infringement of patents or other rights of third parties which may result from its use.