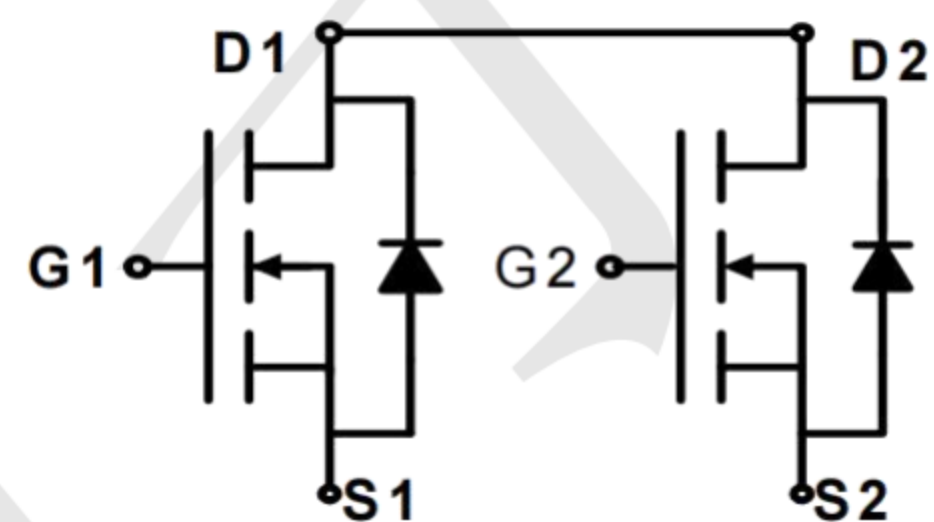


## Features

- ◆ 20V MOSFET technology
- ◆ Low on-state resistance
- ◆ Fast switching
- ◆  $V_{GS} \pm 12V$

## Applications

- ◆ Power Switching Application
- ◆ Load Switching



Marking:8205A

### Absolute Max Ratings at $T_a = 25^\circ C$

Parameter	Symbol	Maximum	Units
Drain to Source Voltage	$V_{DSS}$	20	V
Gate to Source Voltage	$V_{GSS}$	$\pm 12$	V
Drain Current (DC)	$I_D$	6	A
Drain Current (Pulse), $PW \leq 300\mu s$	$I_{DP}$	25	A
Total Dissipation	$P_D$	1.5	W
Junction Temperature	$T_j$	150	$^\circ C$
Storage Temperature	$T_{stg}$	-55 to +150	$^\circ C$

Note 1: Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

### Thermal Resistance Ratings

Parameter	Symbol	Value	Unit
Junction to Ambient (Note 2)	$R_{\theta JA}$	83	$^\circ C/W$

Note 2: When mounted on 1 inch square copper board  $t \leq 10sec$  The value in any given application depends on the user's specific board design.

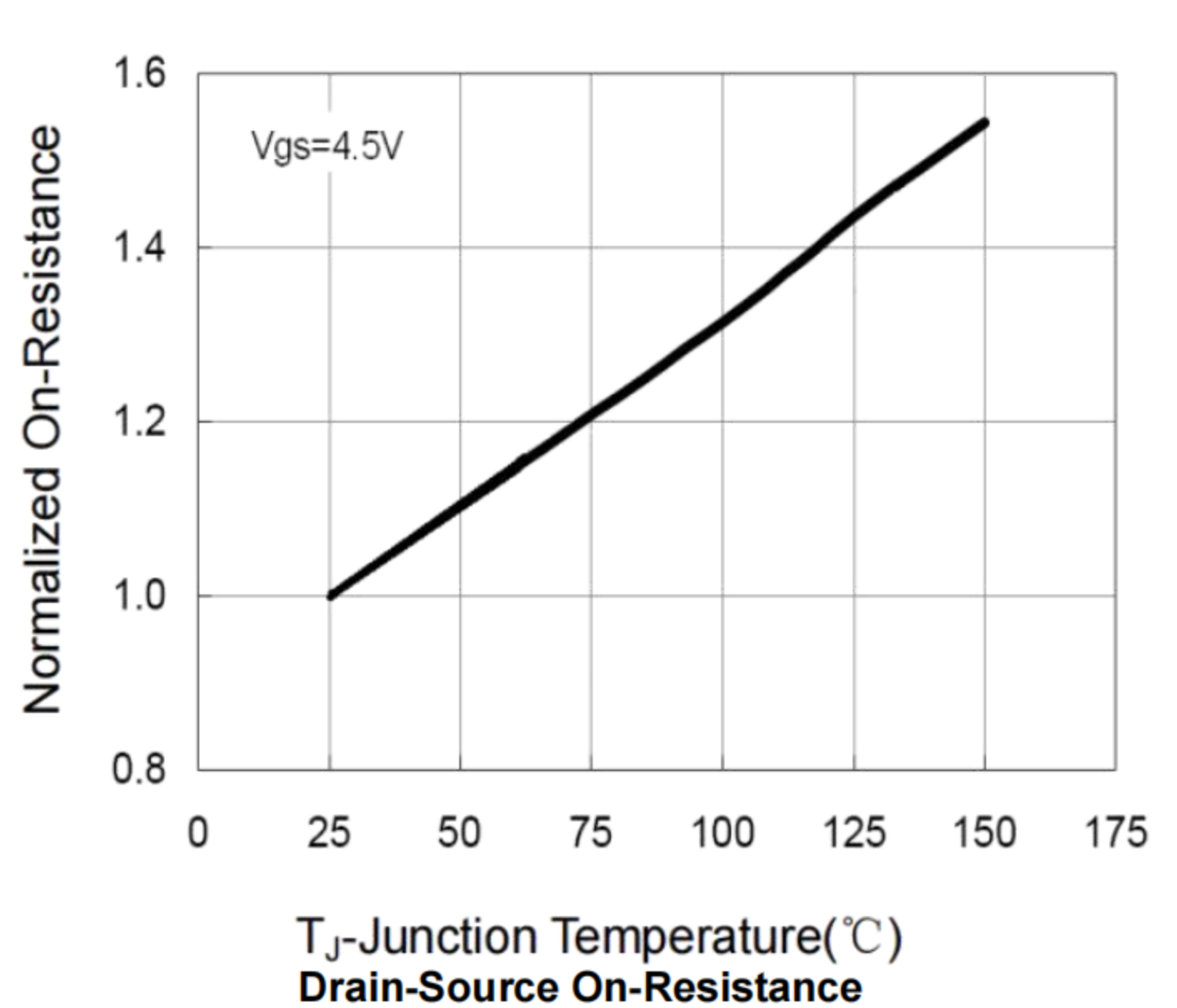
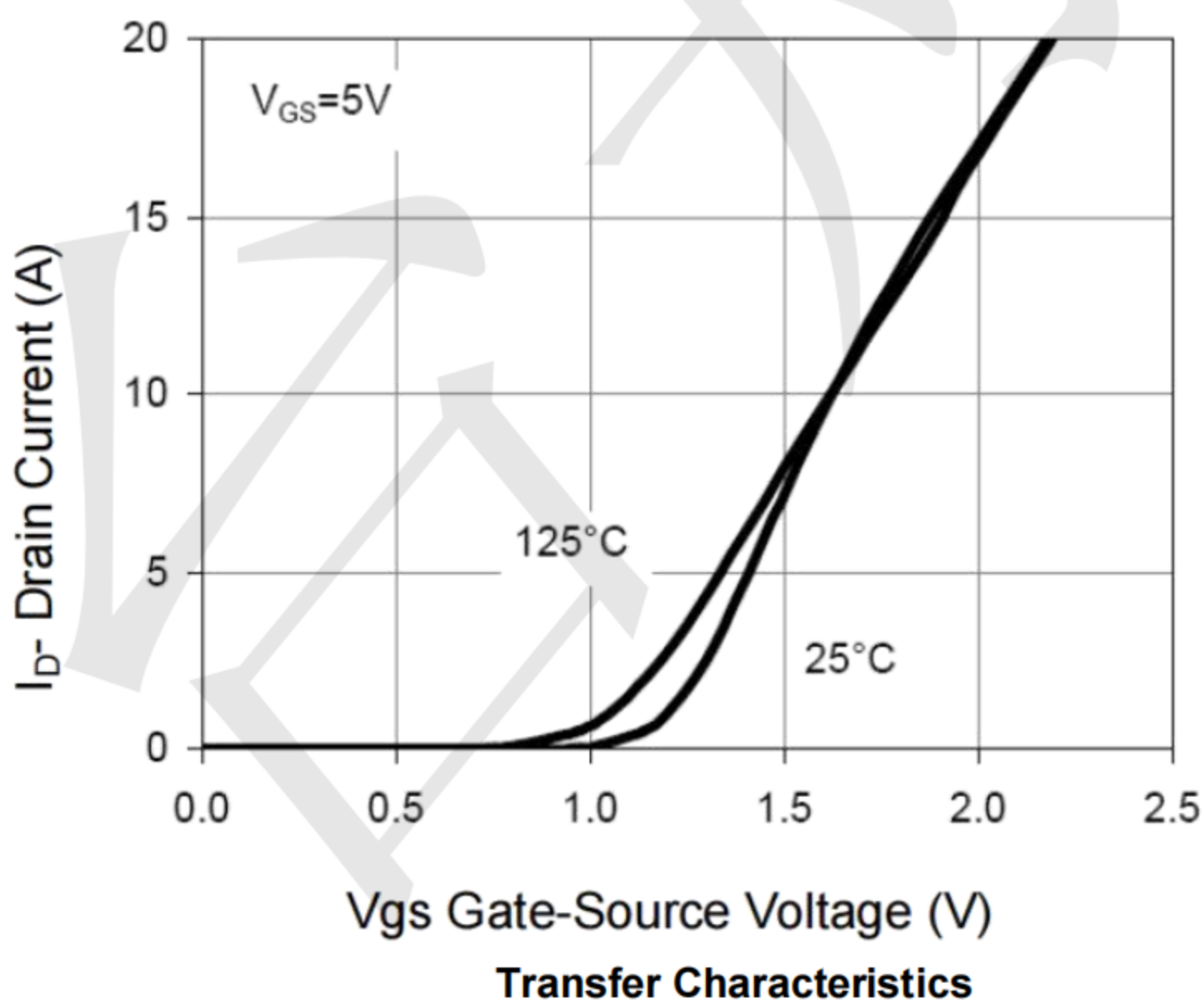
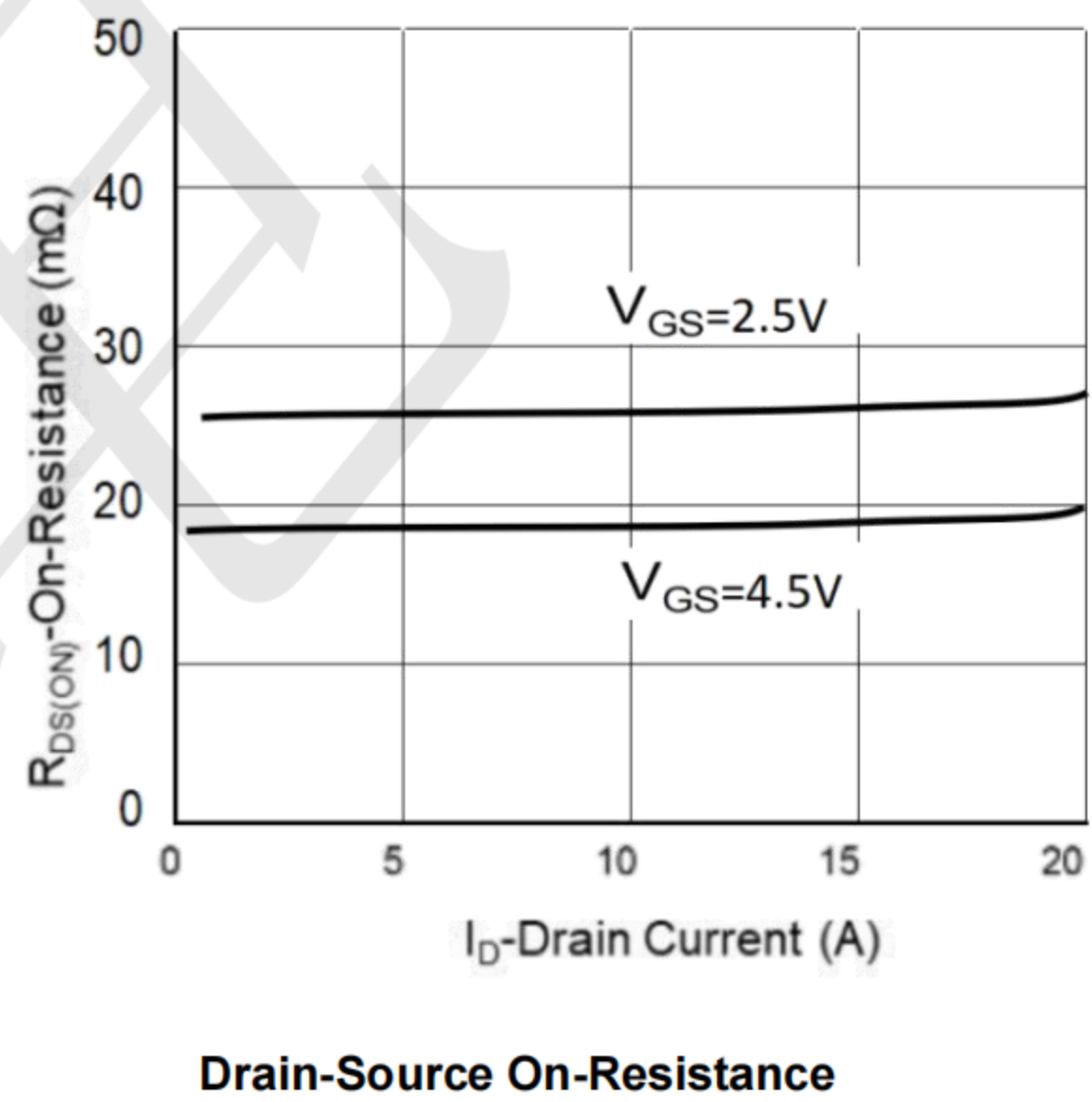
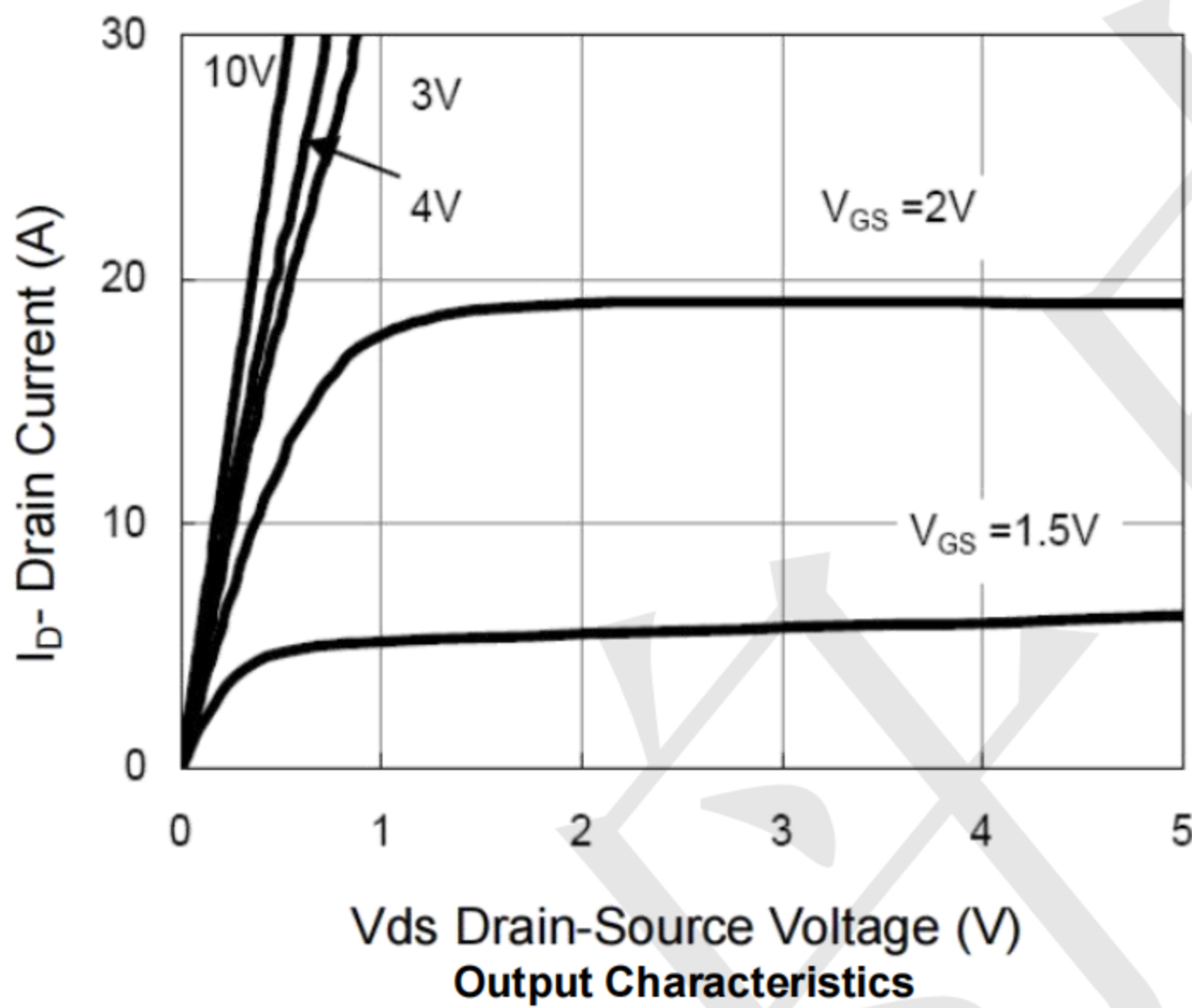
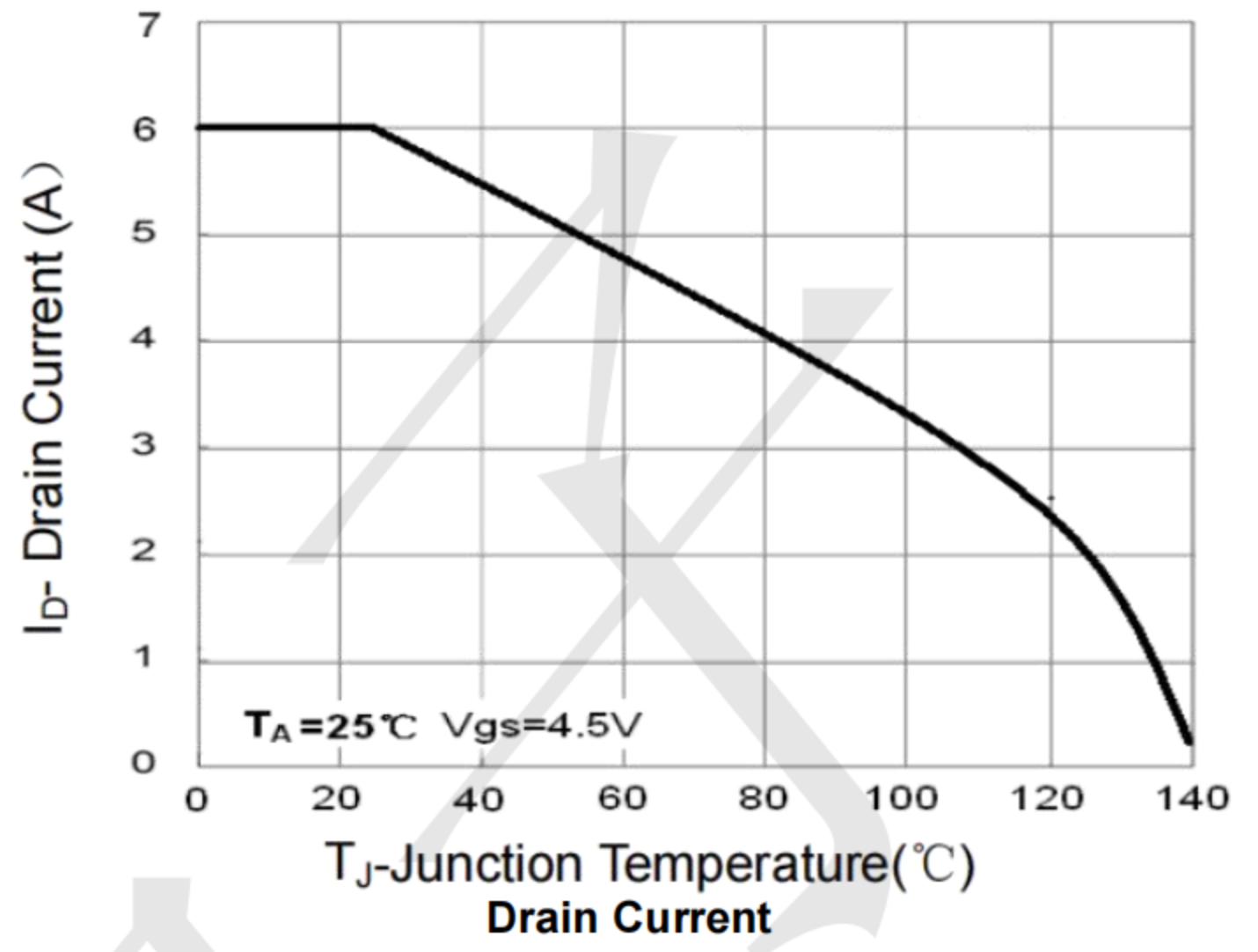
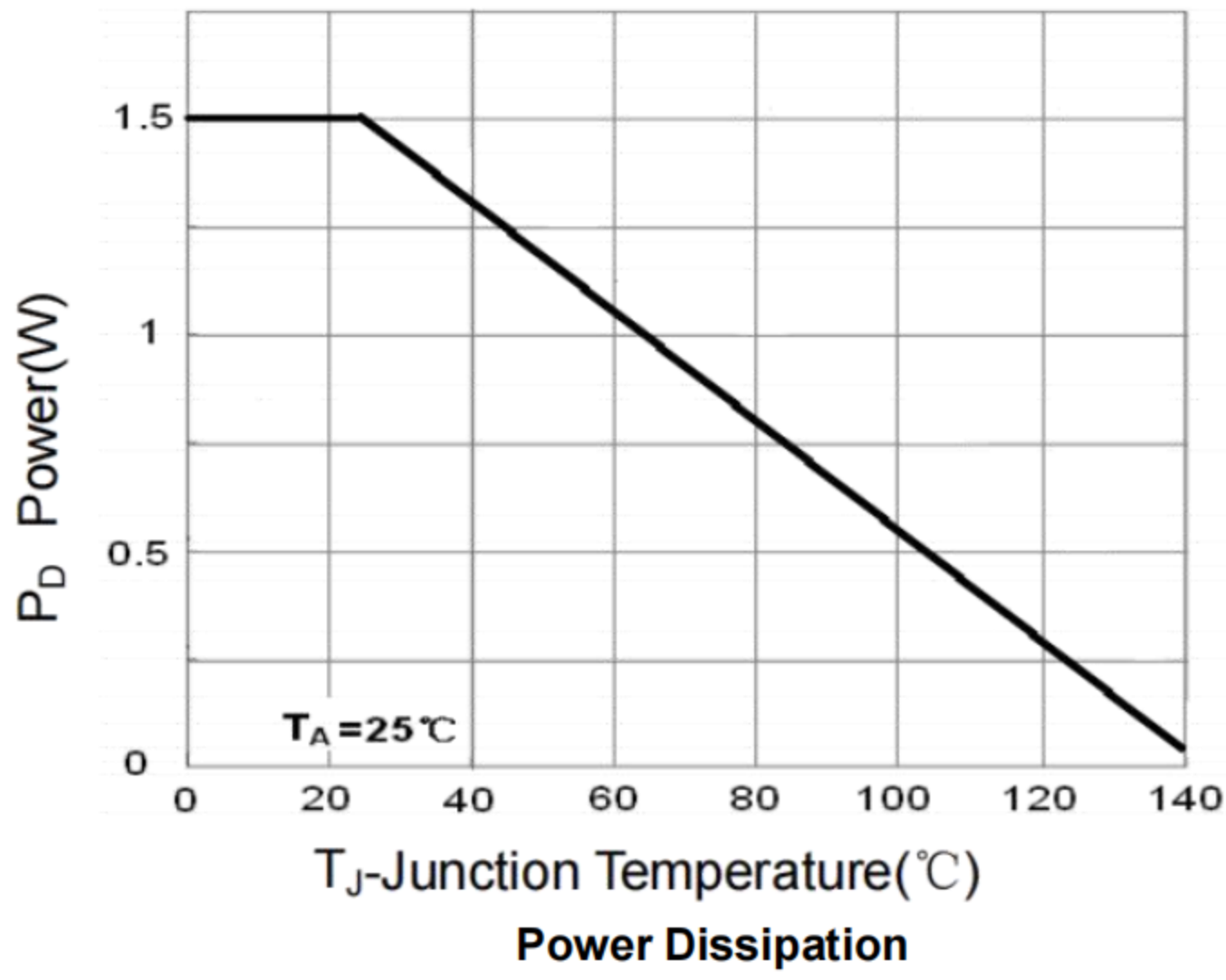
**Electrical Characteristics at Ta=25°C Note 3 )**

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = 250\mu A, V_{GS} = 0V$	20			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 20V, V_{GS} = 0V$			1	$\mu A$
Gate to Source Leakage Current	$I_{GSS1}$	$V_{GS} = \pm 12V, V_{SS} = 0V$			$\pm 100$	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_{DS} = 250\mu A$	0.5	0.75	1.2	V
Static Drain to Source On-State Resistance	$R_{DS(on)}$	$I_D = 6A, V_{GS} = 4.5V$		19	25	mΩ
		$I_D = 3A, V_{GS} = 2.5V$		23	30	mΩ
Forward Transconductance	$G_{FS}$	$I_D = 4.5A, V_{DS} = 5V$		10		S
Input Capacitance	$C_{iss}$	$V_{GS} = 0V,$ $V_{DS} = 8V,$ Frequency = 1.0MHz		600		pF
Output Capacitance	$C_{oss}$			330		pF
Reverse Transfer Capacitance	$C_{rss}$			140		pF
Turn-ON Delay Time	$t_{d(on)}$	$V_{DD} = 10V, I_D = 1A,$ $V_{GS} = 4.5V, R_G = 6\Omega$		10		ns
Rise Time	$t_r$			11		ns
Turn-OFF Delay Time	$t_{d(off)}$			35		ns
Fall Time	$t_f$			30		ns
Total Gate Charge	$Q_g$	$V_{DS} = 10V,$ $V_{GS} = 4.5V,$ $I_D = 6A$		10		nC
	$Q_{gs}$			2.3		nC
	$Q_{gd}$			1.5		nC
Diode Forward Voltage	$V_{FSD}$	$I_S = 4A, V_{GS} = 0V$		0.85	1.2	V

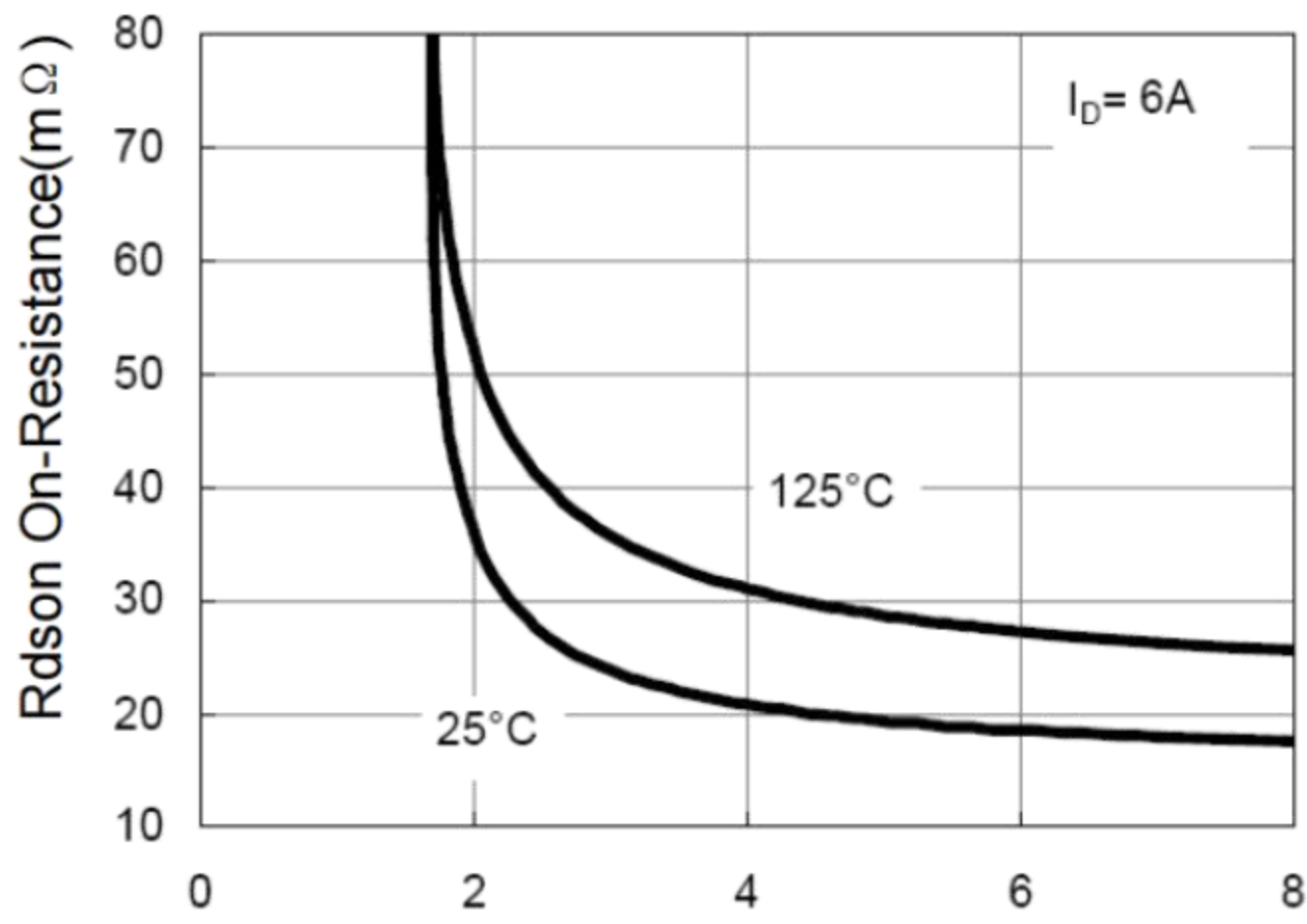
Note 3: Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.



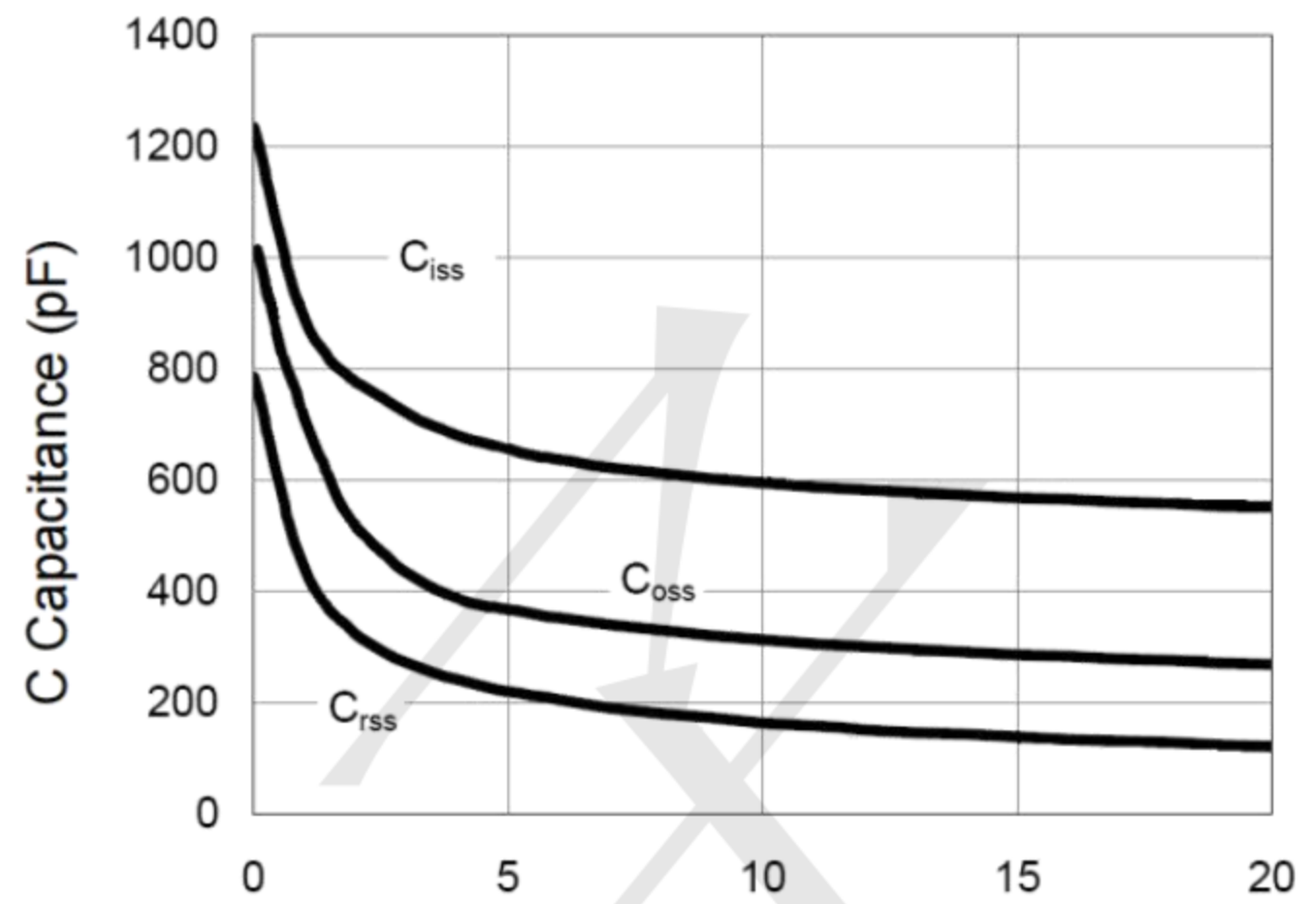
**Typical Electrical Characteristic Curves**



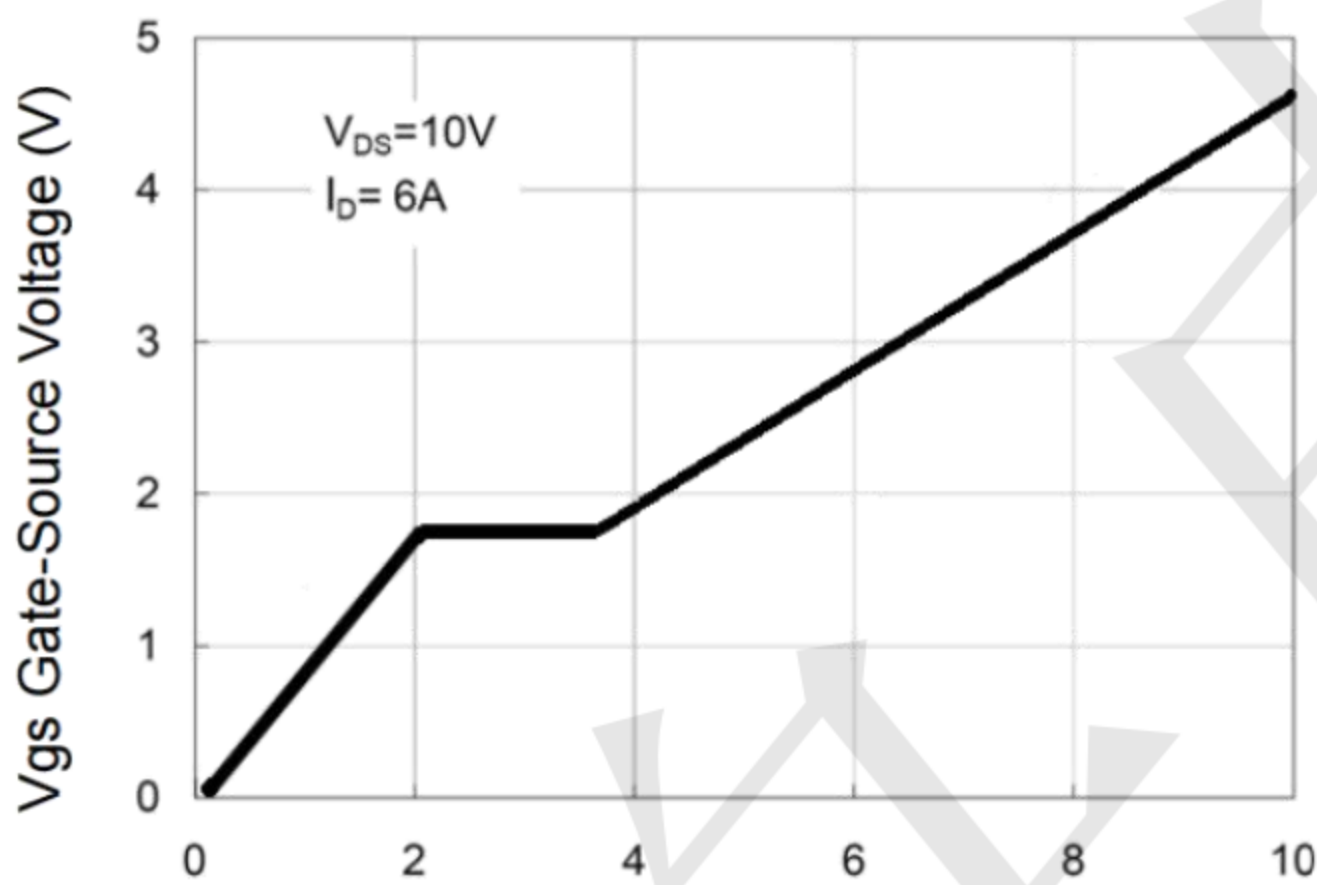




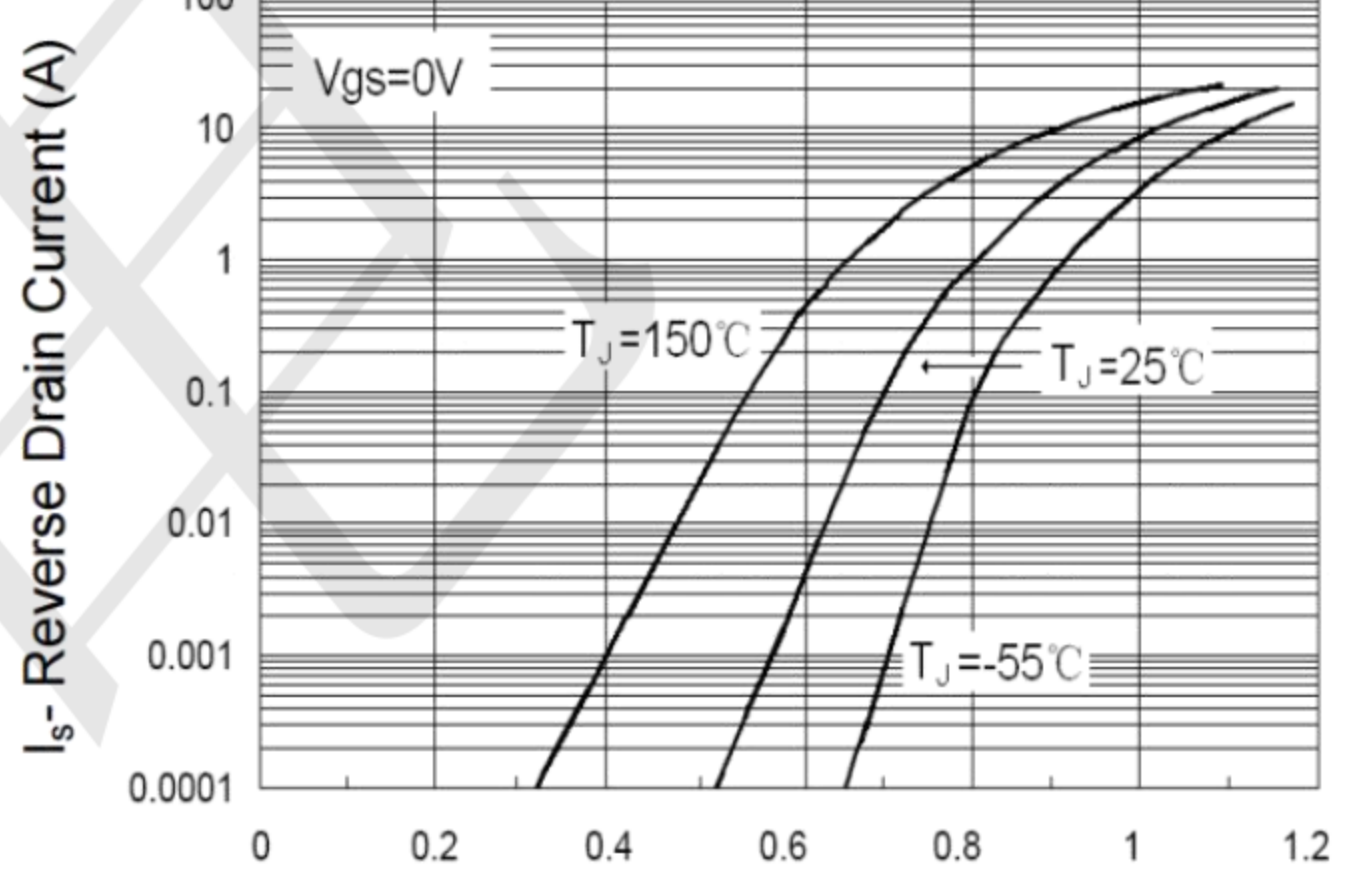
Vgs Gate-Source Voltage (V)  
**Rdson vs Vgs**



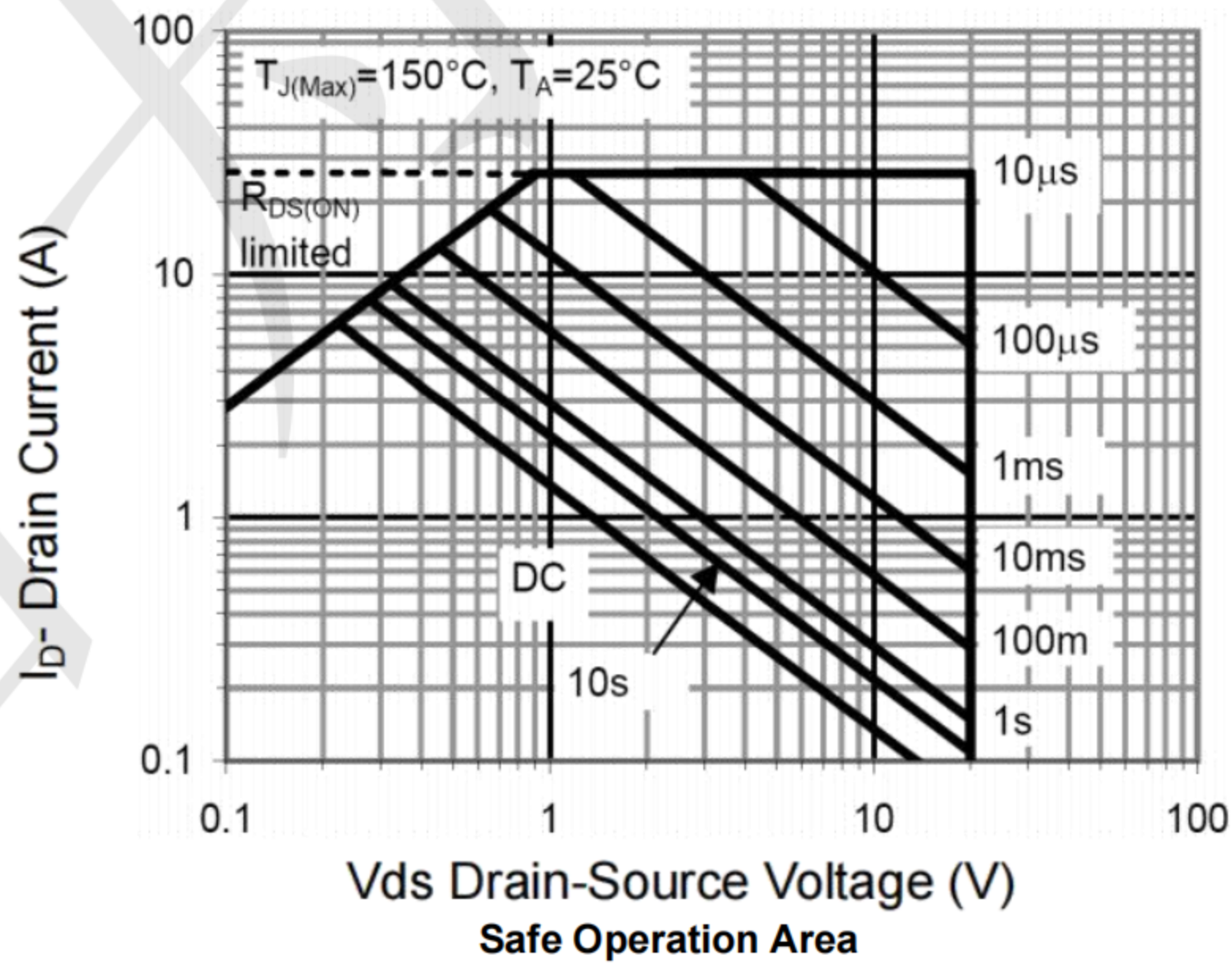
Vds Drain-Source Voltage (V)  
**Capacitance vs Vds**



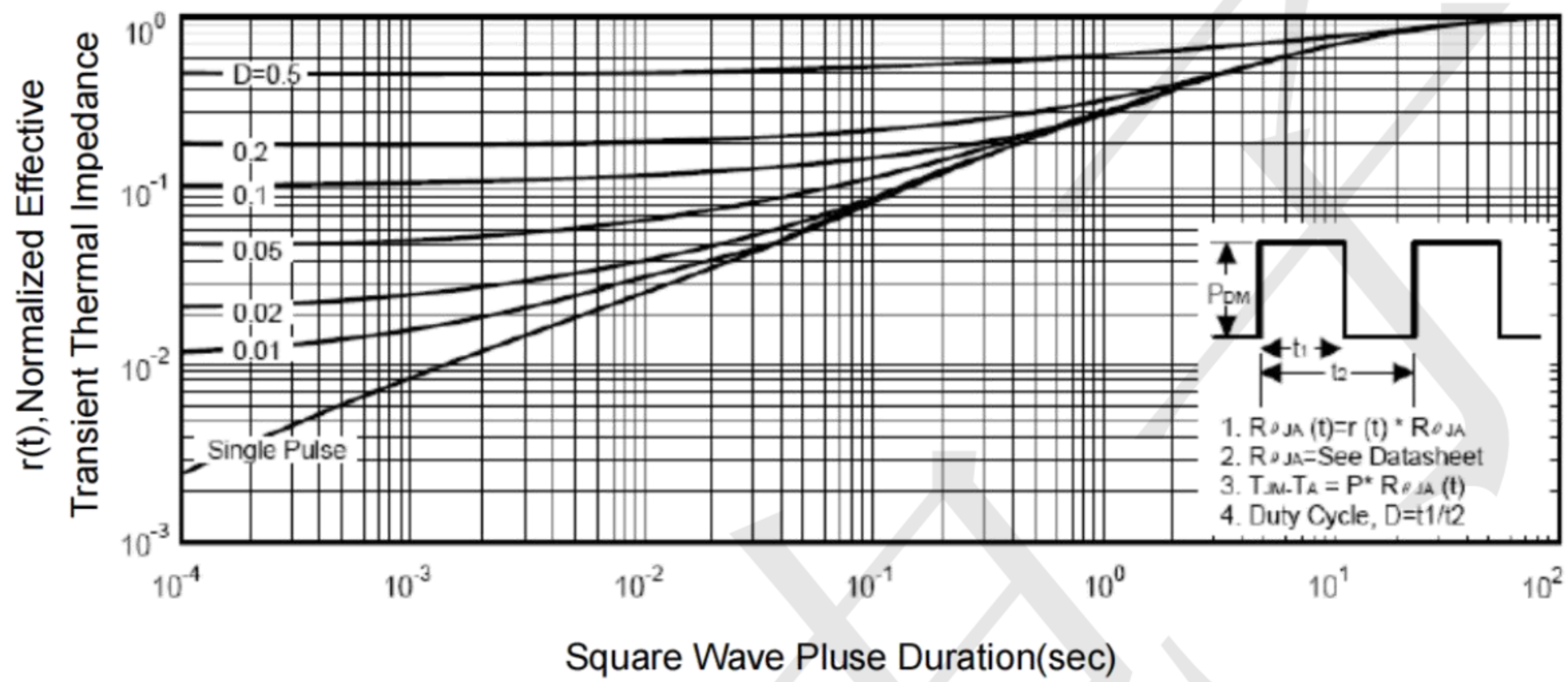
Qg Gate Charge (nC)  
**Gate Charge**



Vsd Source-Drain Voltage (V)  
**Source- Drain Diode Forward**



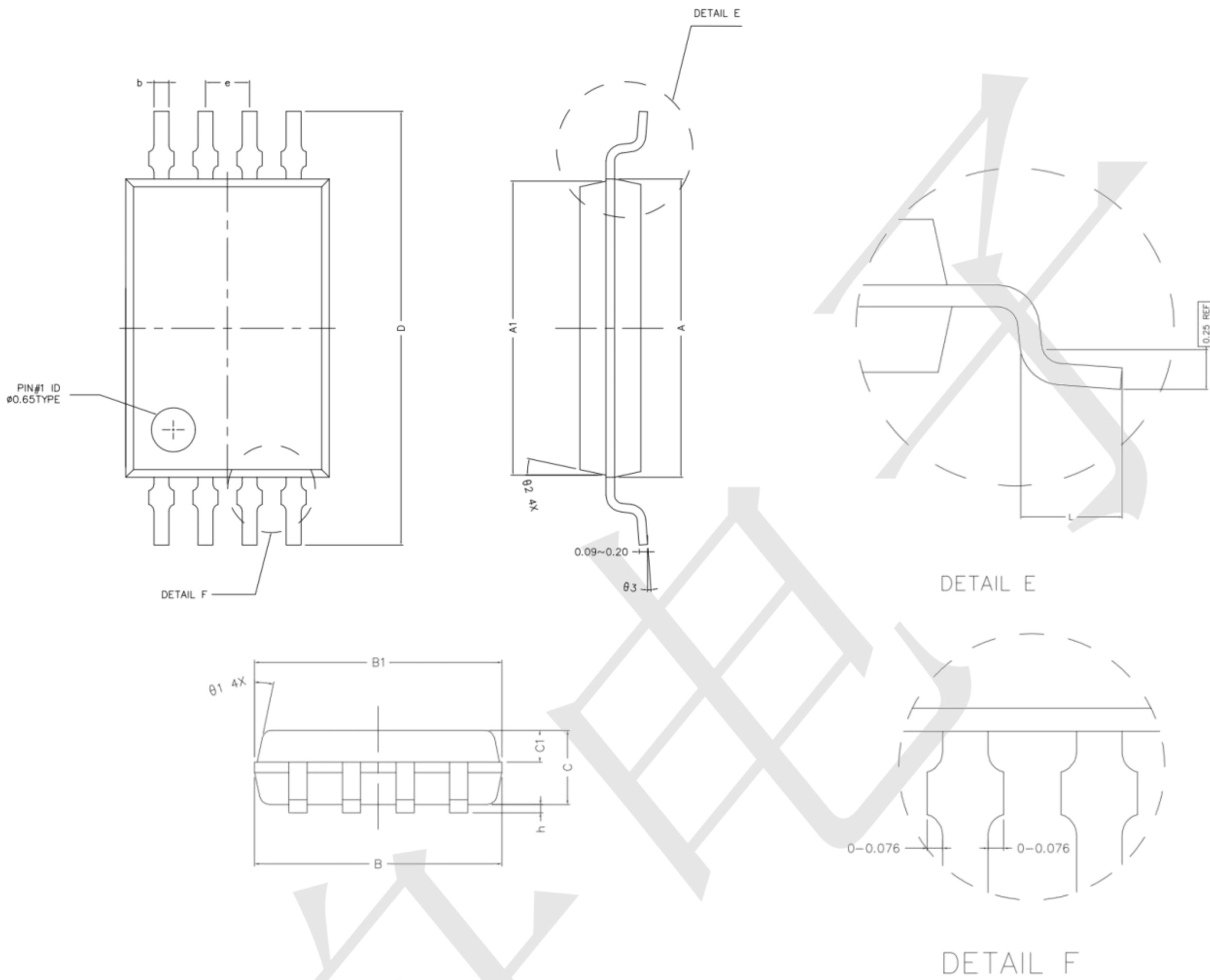
Vds Drain-Source Voltage (V)  
**Safe Operation Area**



**Normalized Maximum Transient Thermal Impedance**



**Outline Drawing - TSSOP8**



COMMON DIMENSIONS (UNITS OF MEASURE IS mm)			
	MIN	NORMAL	MAX
A	4.300	4.400	4.500
A1	4.240	4.340	4.440
B	2.900	3.000	3.100
B1	2.840	2.940	3.040
C	0.850	0.900	0.950
C1	0.337	0.387	0.437
D	6.250	6.400	6.550
L	0.450	0.600	0.750
b	0.170	0.220	0.300
h	0.050	0.100	0.150
e	0.650TYPE		
θ <sub>1</sub>	12° TYPE		
θ <sub>2</sub>	12° TYPE		
θ <sub>3</sub>	0° ~ 7°		