TPM3019PS8

P-Channel Enhancement Mode MOSFET

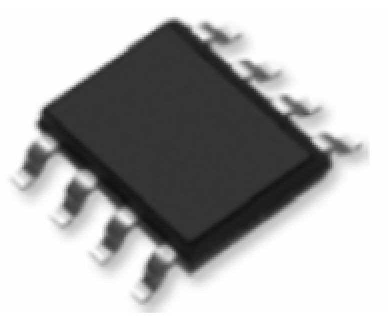
FEATURES

- $R_{DS(ON)} \leq 5.2m\Omega @ V_{GS}=-10V$
- $R_{DS(ON)} \leq 9.5m\Omega @ V_{GS}=-4V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability

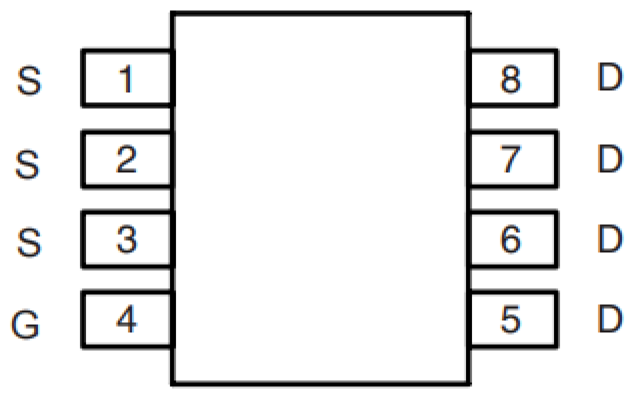
APPLICATIONS

- Power Management in Note book
- Portable Equipment
- Battery Powered System
- DC/DC Converter
- Load Switch
- LCD Display inverter

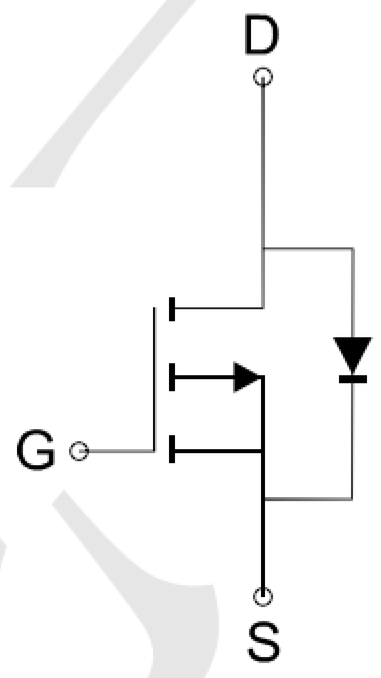
Package and Pin Configuration



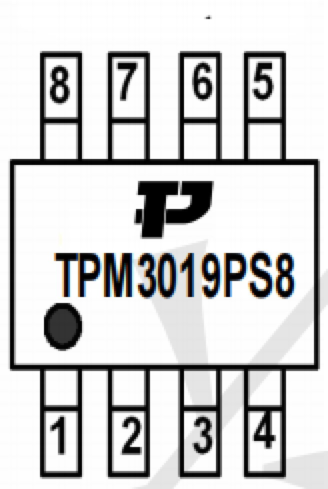
SOP-8 top view



Circuit diagram



Marking:



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

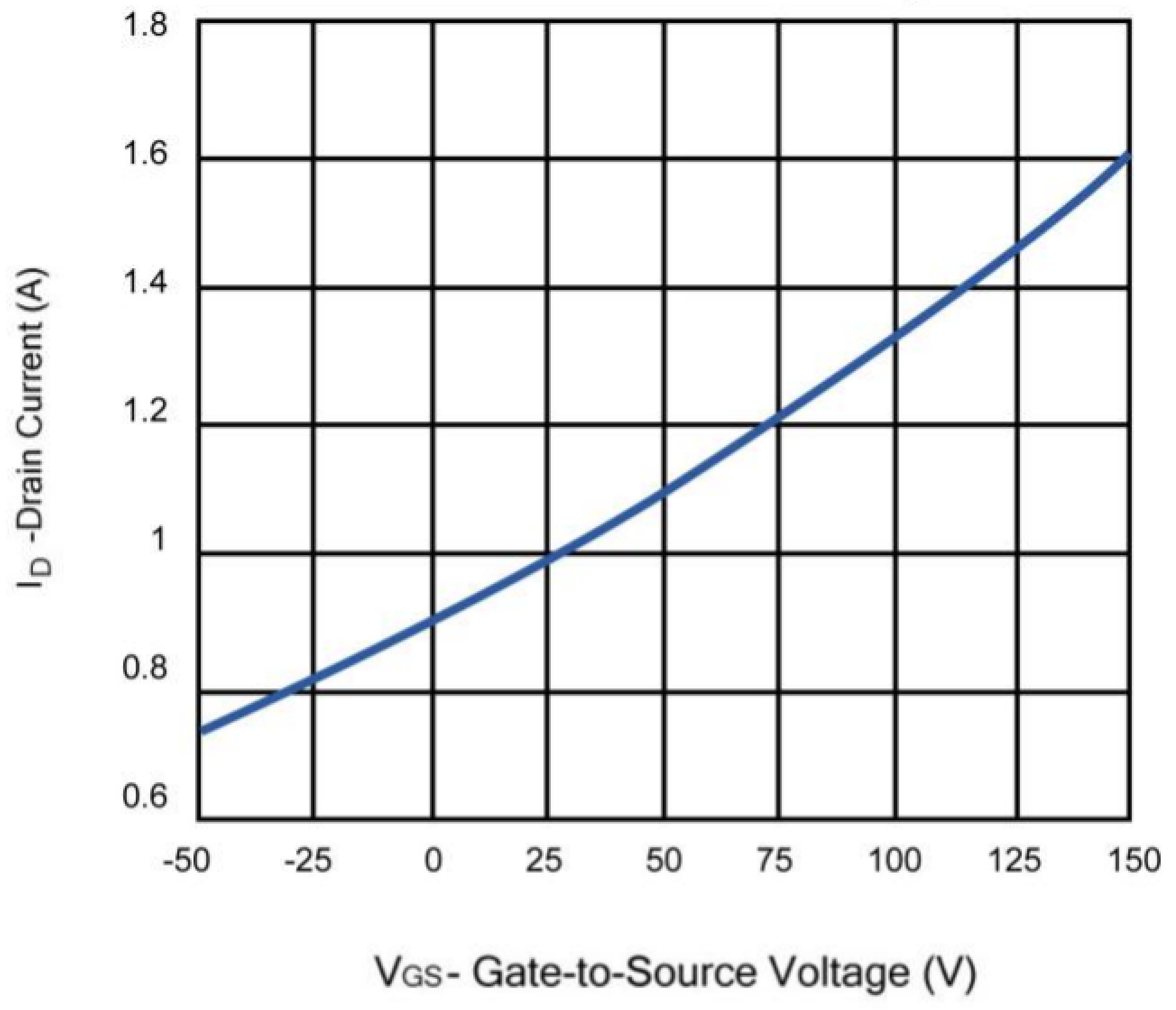
Parameter		Symbol	Maximum Ratings	Unit
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_A=25℃	I_D	-18.5	A
	T_A=70℃		-13.9	
Pulsed Drain Current		I_{DM}	-69	A
Maximum Power Dissipation*	T_A=25℃	P_D	2.5	W
	T_A=70℃		1.6	
Junction and Storage Temperature Range		TJ, Tstg	-55 to 150	℃
Thermal Resistance-Junction to Ambient*		$R_{\theta JA}$	50	℃/W

Electrical Characteristics (Tj=25℃unless otherwise noted)

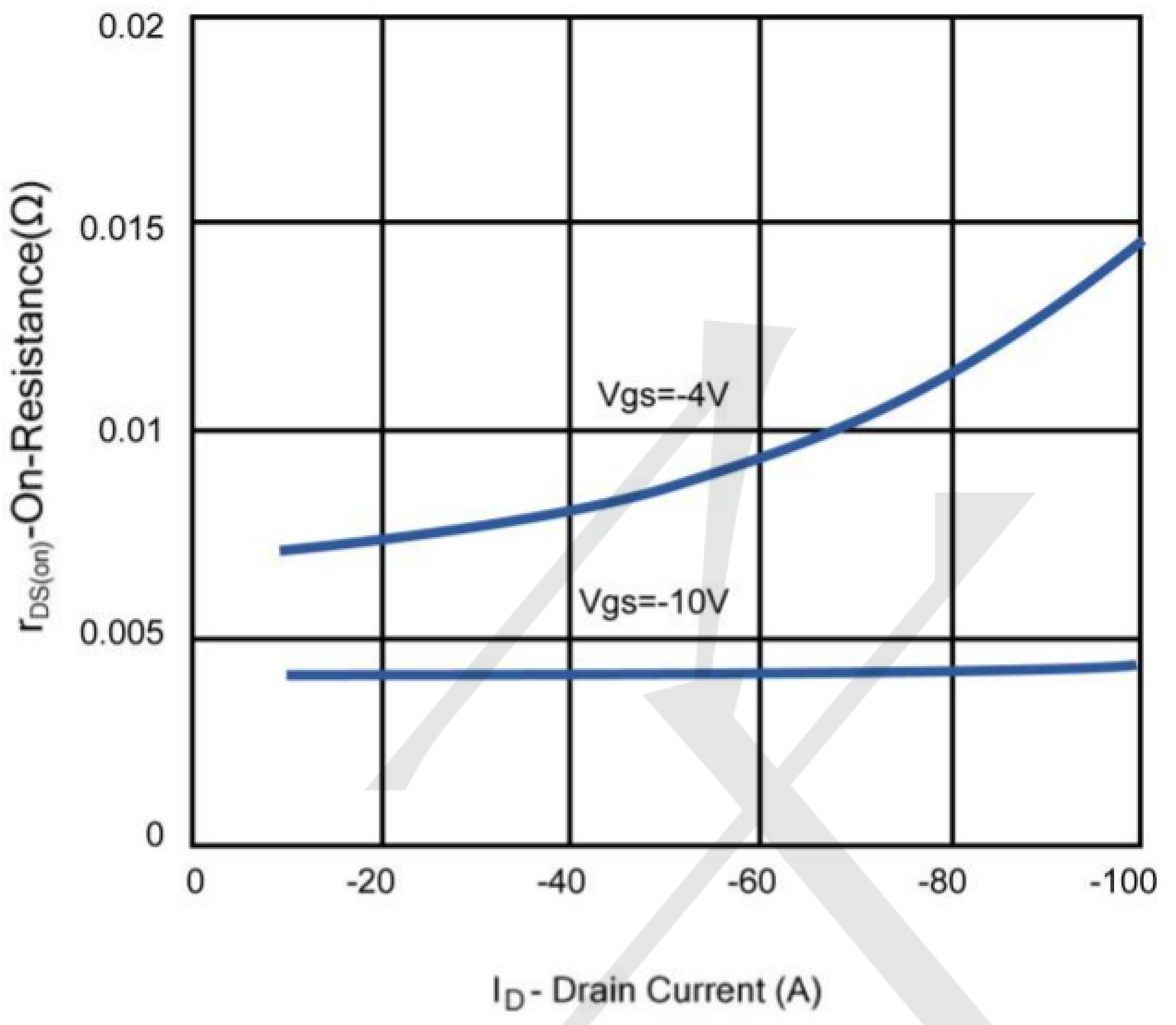
Symbol	Parameter	Limit	Min	Typ	Max	Unit
STATIC						
$V_{BR(DSS)}$	Drain-source breakdown voltage	I_D=-10mA, V_{GS}=0V	-30			V
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}= V_{DS}, I_D=-250µA	-1		-3.0	V
I_{GSS}	Gate Leakage Current	V_{DS}=0V, V_{GS}=±20V			±100	nA
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=-30V, V_{GS}=0V			-1	µA
$R_{DS(ON)}$	Drain-Source On-State Resistance[a]	V_{GS}=-10V, I_D= -9A		4	5.2	mΩ
		V_{GS}=-4V, I_D= -9A		7	9.5	
V_{SD}	Diode Forward Voltage	I_D=-18A, V_{GS}=0V		-0.8		V
DYNAMIC						
Q_g	Total Gate Charge	V_{DD}=-24V, V_{GS}=-10V, I_D=-18A		146		nC
Q_g	Total Gate Charge	V_{DD}=-24V, V_{GS}=-4.5V, I_D=-18A		78		
Q_{gs}	Gate-Source Charge			24		
Q_{gd}	Gate-Drain Charge			40		
C_{iss}	Input capacitance	V_{DS}=-15V, V_{GS}=0V, f=1MHz		6150		pF
C_{oss}	Output Capacitance			950		
C_{rss}	Reverse Transfer Capacitance			327		
$t_{d(on)}$	Turn-On Delay Time	V_{DD}=-15V, R_L =15Ω V_{GS}=-10V,R_G=4.7Ω		75		ns
t_r	Turn-On Rise Time			32		
$t_{d(off)}$	Turn-Off Delay Time			280		
t_f	Turn-Off Fall Time			88		

Typical Electrical and Thermal Characteristics

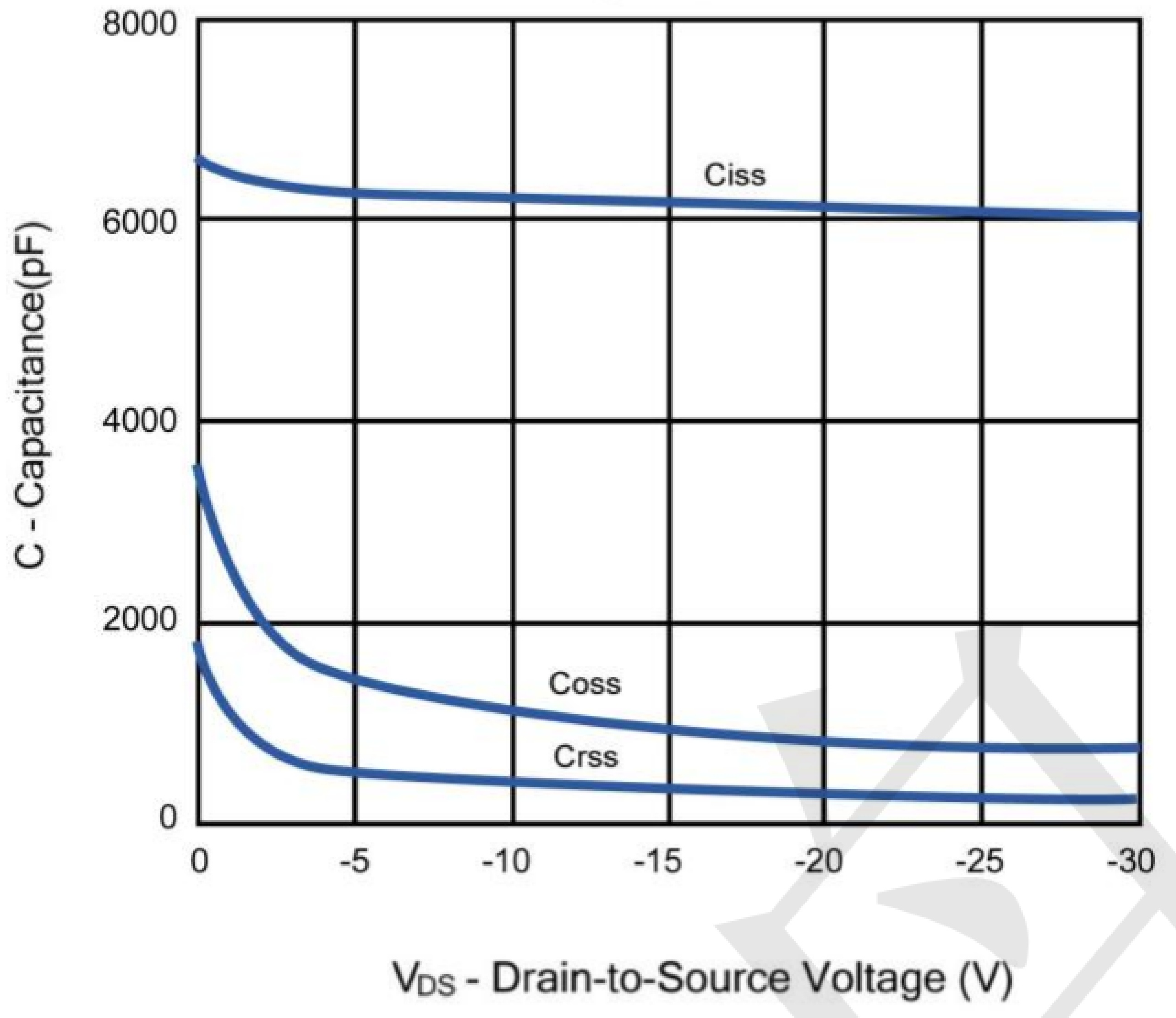
On Resistance vs. Junction Temperature



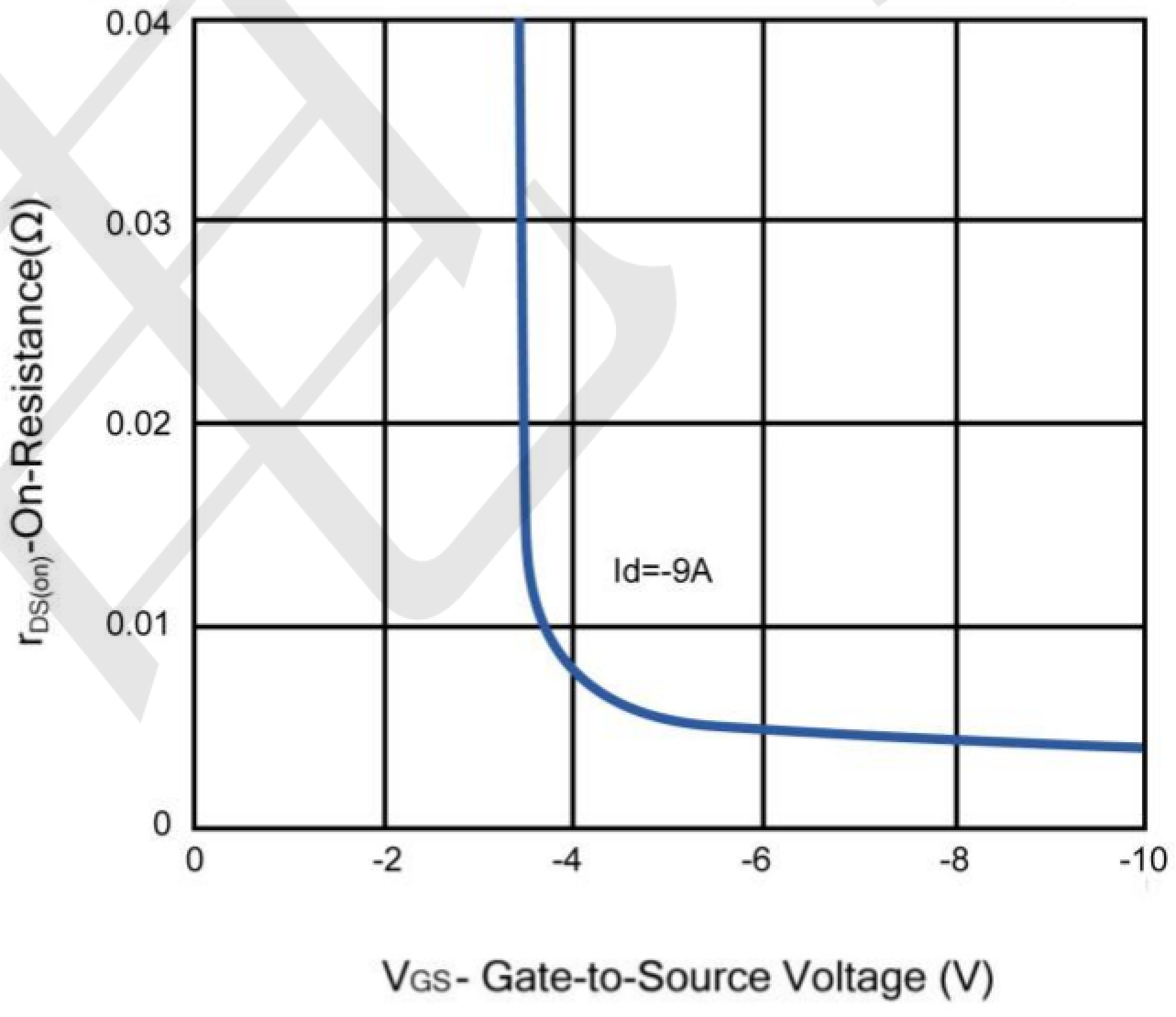
On-Resistance vs. Drain Current



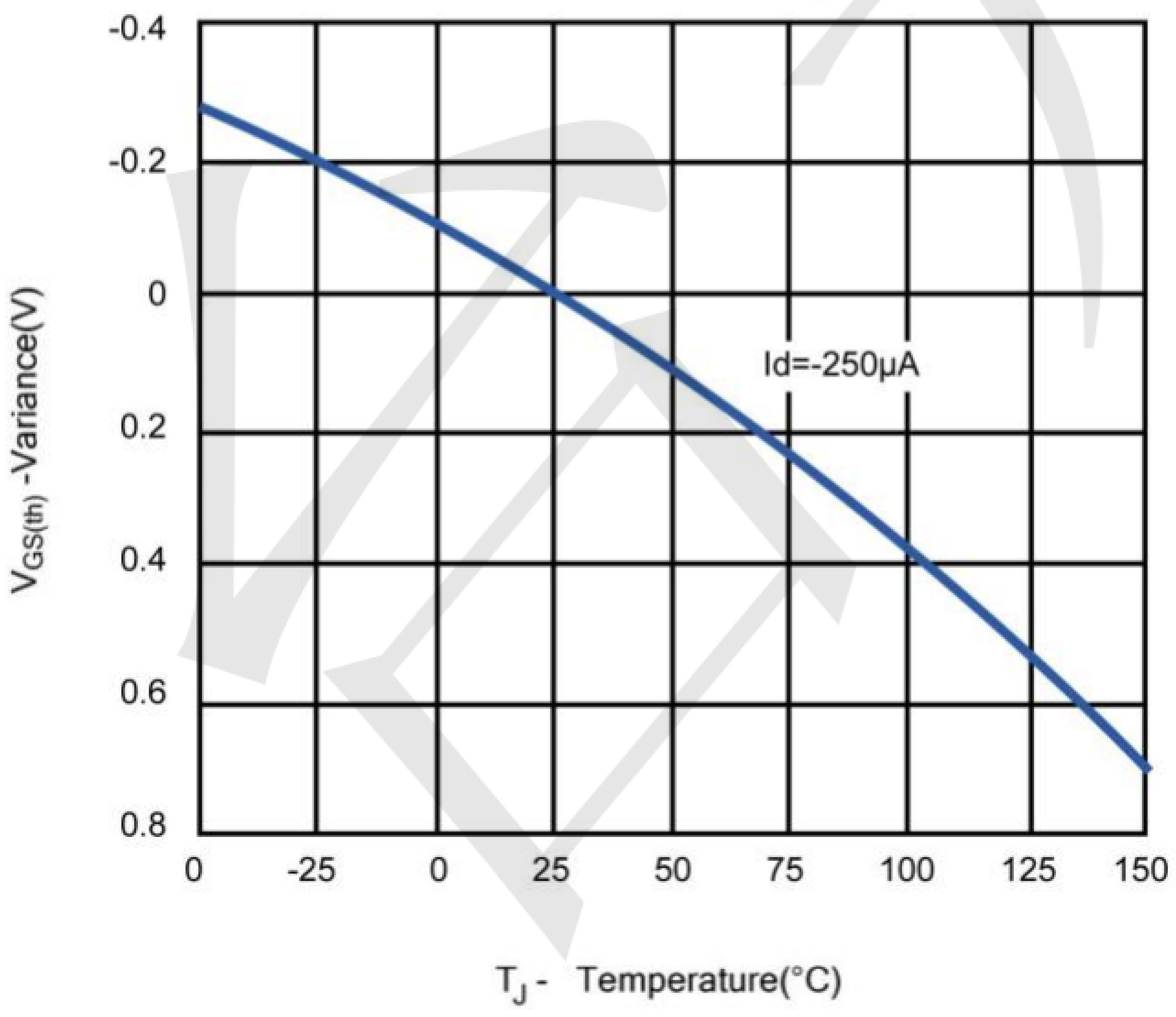
Capacitance



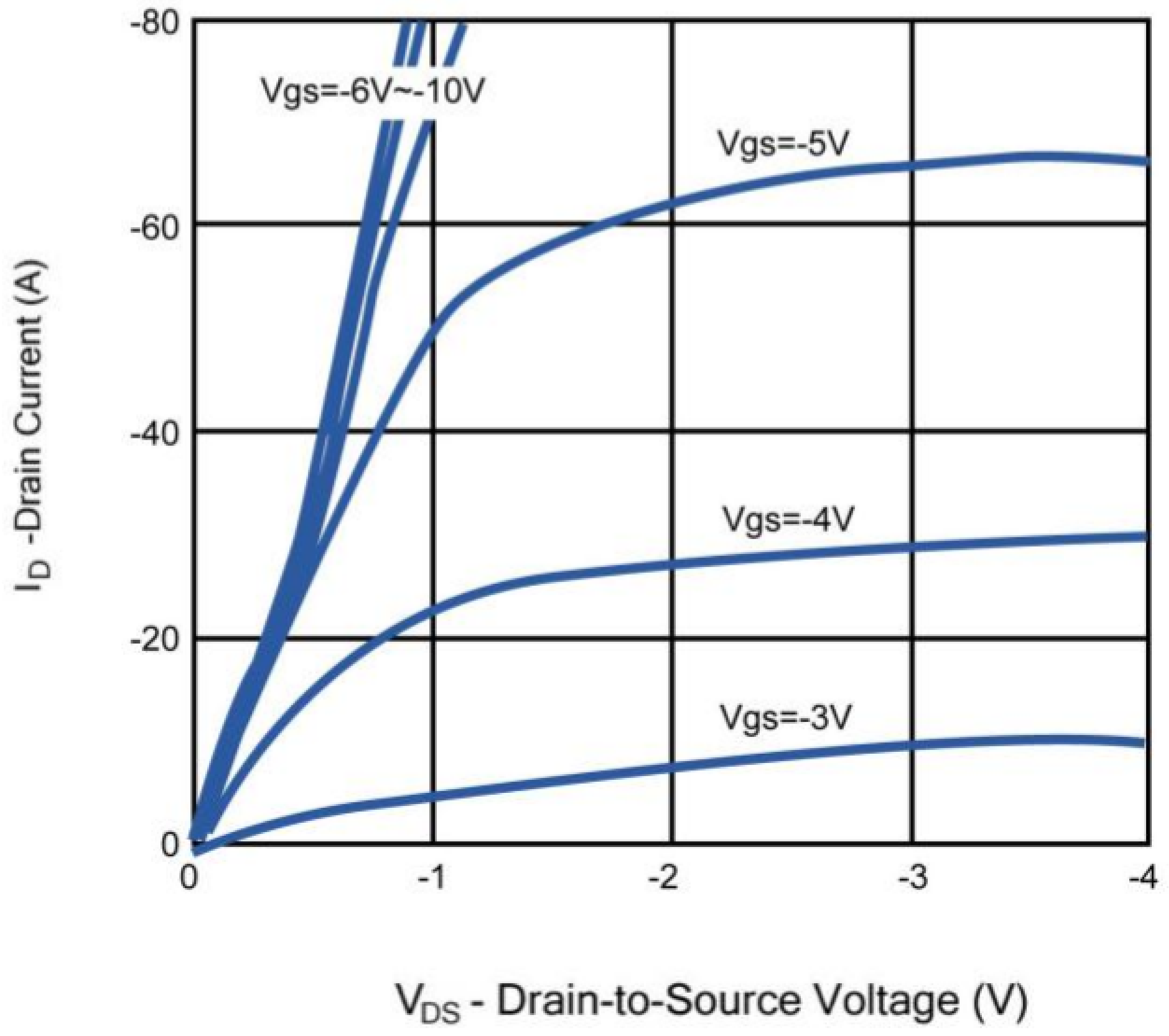
On-Resistance vs. Gate-to-Source Voltage



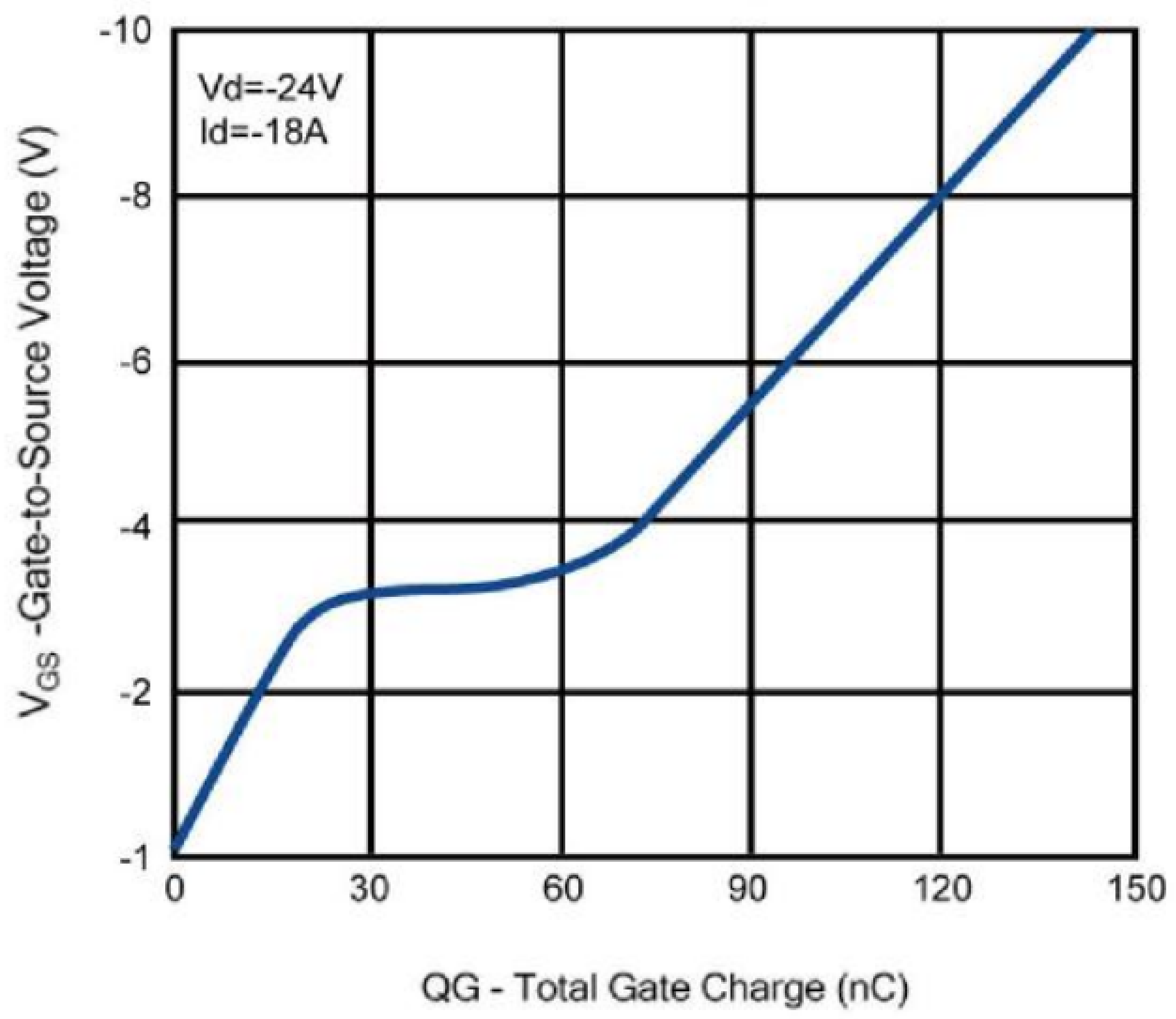
Threshold Voltage



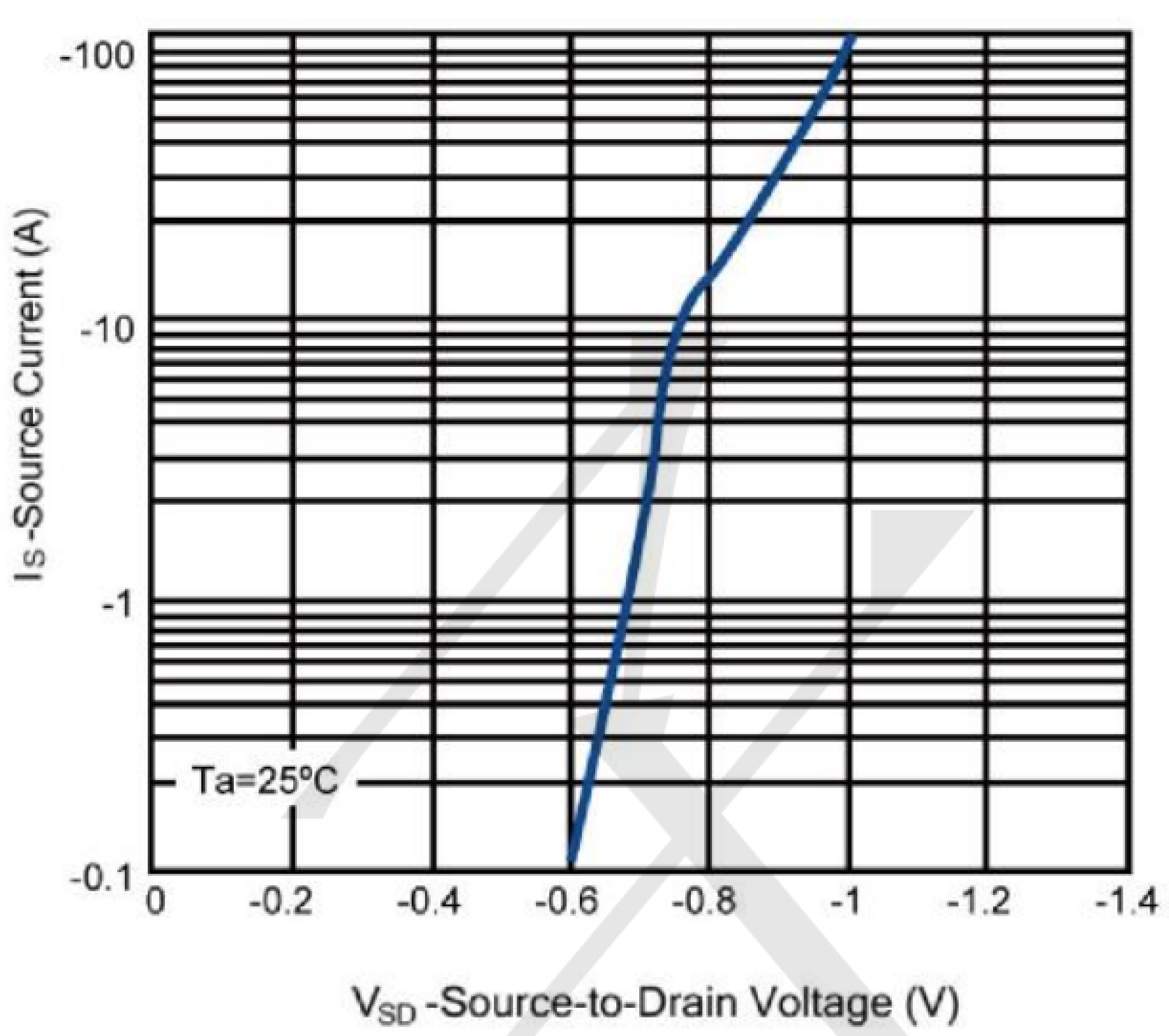
On-Region Characteristics



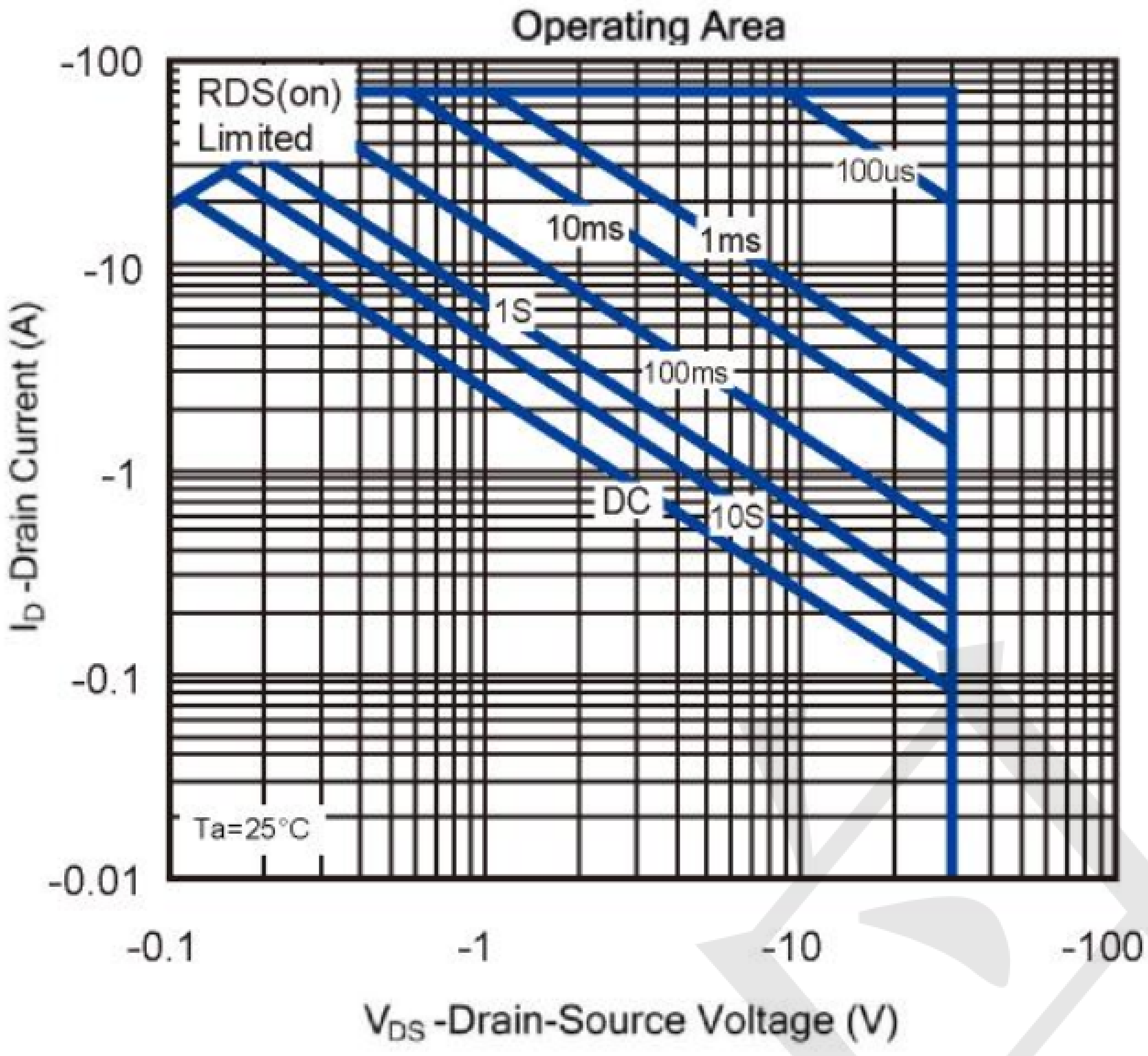
Gate Charge



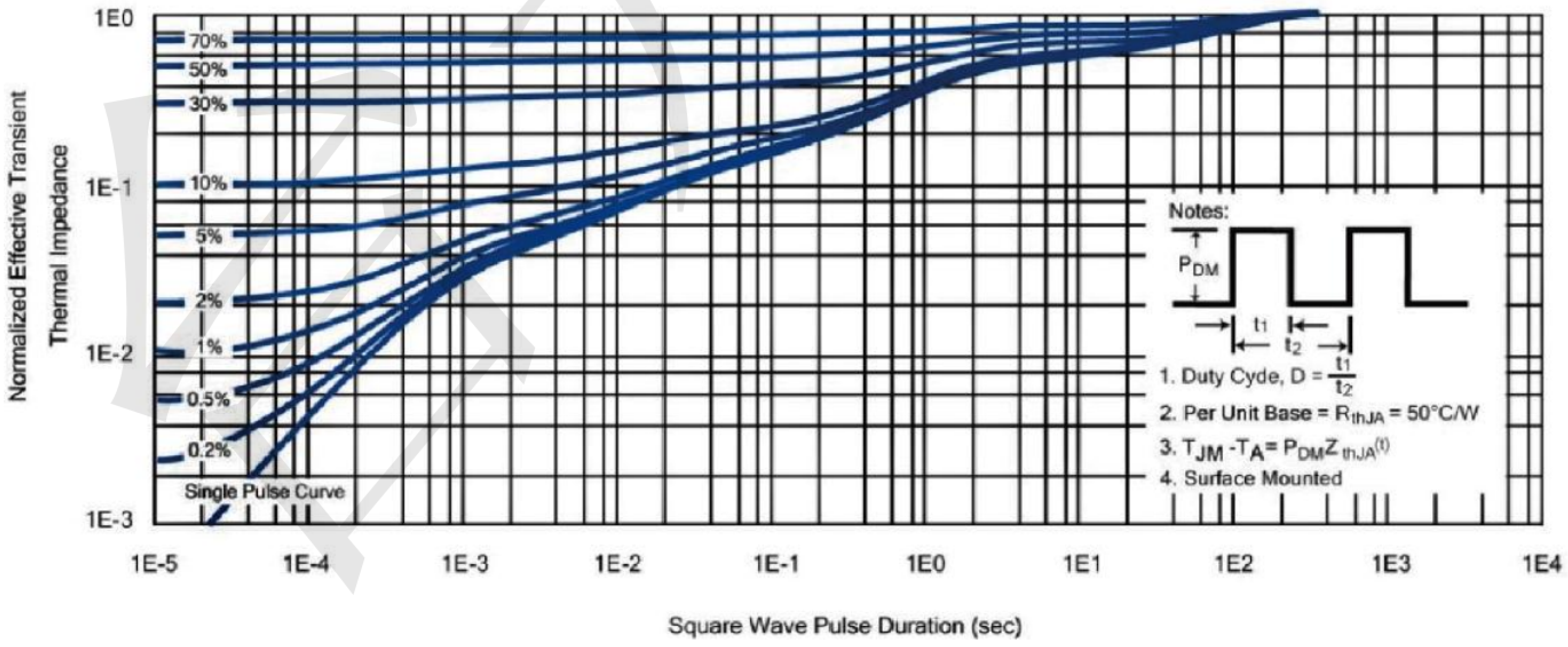
Source to Drain Diode Forward Voltage



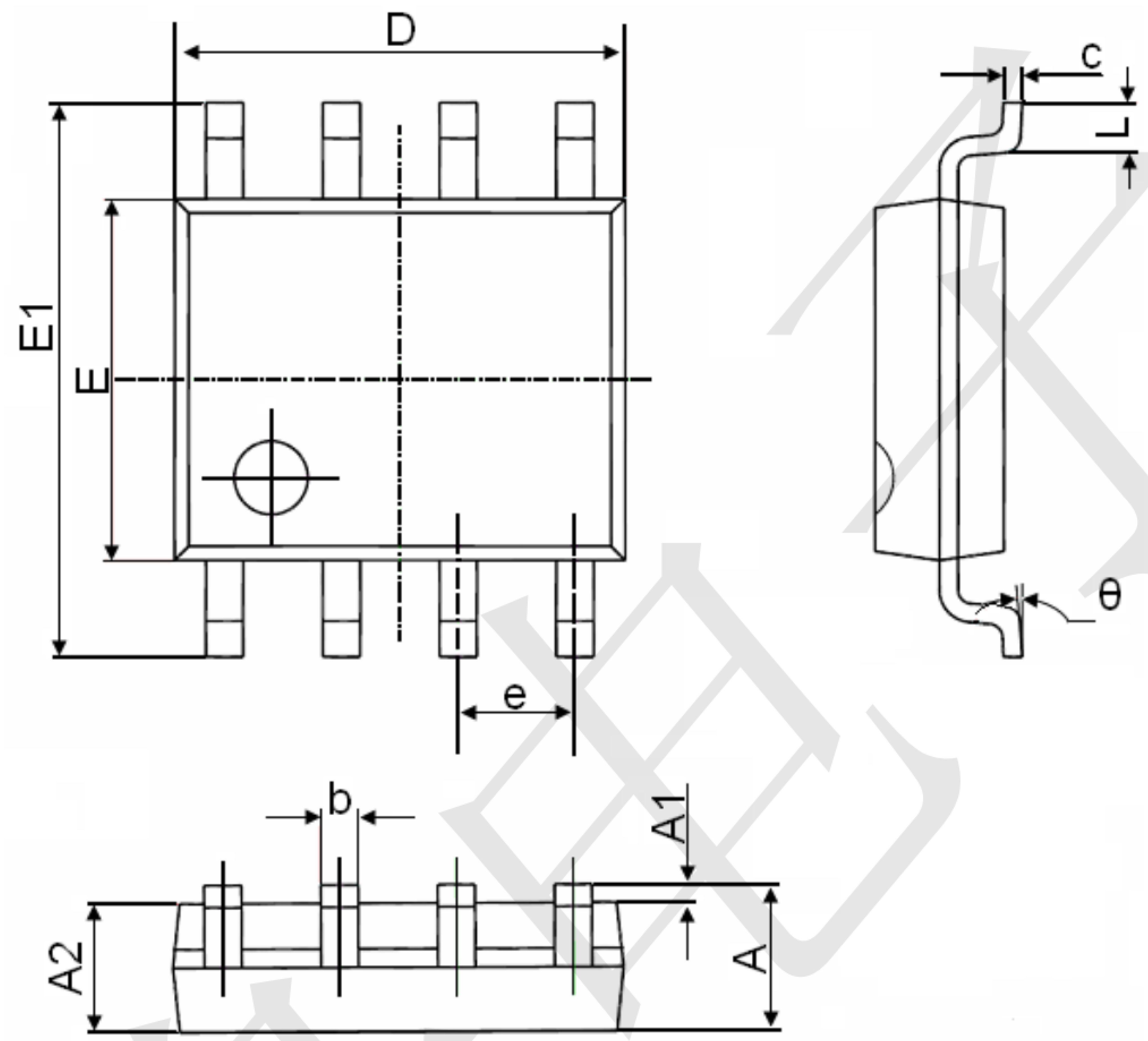
Maximum Forward Biased Safe Operating Area



Normalized Thermal Transient Impedance, Junction-to-Ambient



SOP-8 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	**Max.**	**Min.**	**Max.**
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270(BSC)		0.050(BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°