TECH PUBLIC
台舟电子

STT2PF60L

60V P-CHANNEL ENHANCEMENT MODE MOSFET

www.sot23.com.tw

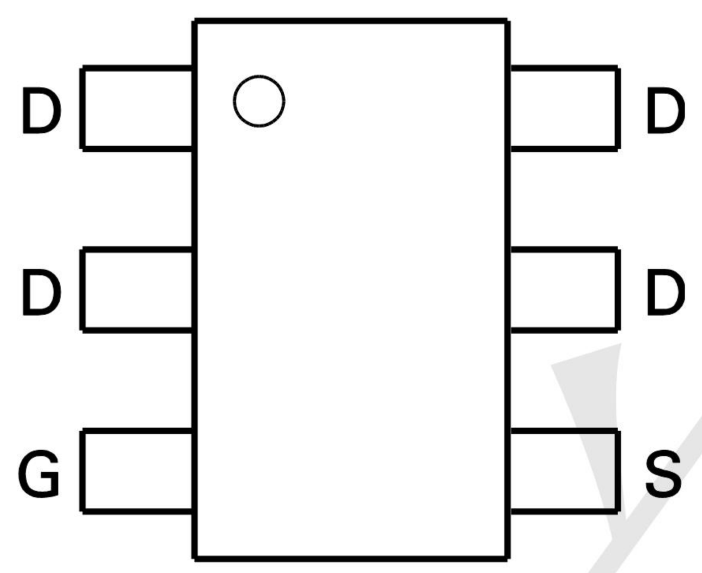
Product Summary

- -60V/-3A
  $R_{DS(ON)}$= 95mΩ(Typ) @ V_{GS}=-10V
  $R_{DS(ON)}$= 130mΩ(Typ) @ V_{GS}=-4.5V
- Reliable and Rugged
- Lead Free and Green Devices Available (RoHS Compliant)

Application

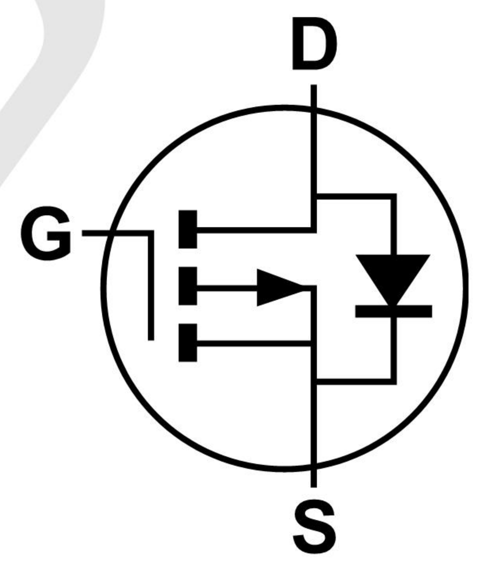
- DC-DC Converters.
- Load Switch.
- Power Management.

Package and Pin Configuration



Marking: 603P

Circuit diagram



Equivalent Circuit

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

Characteristic			Symbol	Value	Unit
Drain-Source Voltage			V_{DSS}	-60	V
Gate-Source Voltage			V_{GS}	±20	V
Continuous Drain Current	V_{GS} = -10V	(Note 6)	I_D	-3	A
		T_A = +70°C (Note 6)		-2.4	
		(Note 5)		-2.3	
Pulsed Drain Current	V_{GS} = -10V	(Note 7)	I_{DM}	-13.6	A
Continuous Source Current (Body Diode)		(Note 6)	I_S	-2.5	A
Pulsed Source Current (Body Diode)		(Note 7)	I_{SM}	-13.6	A

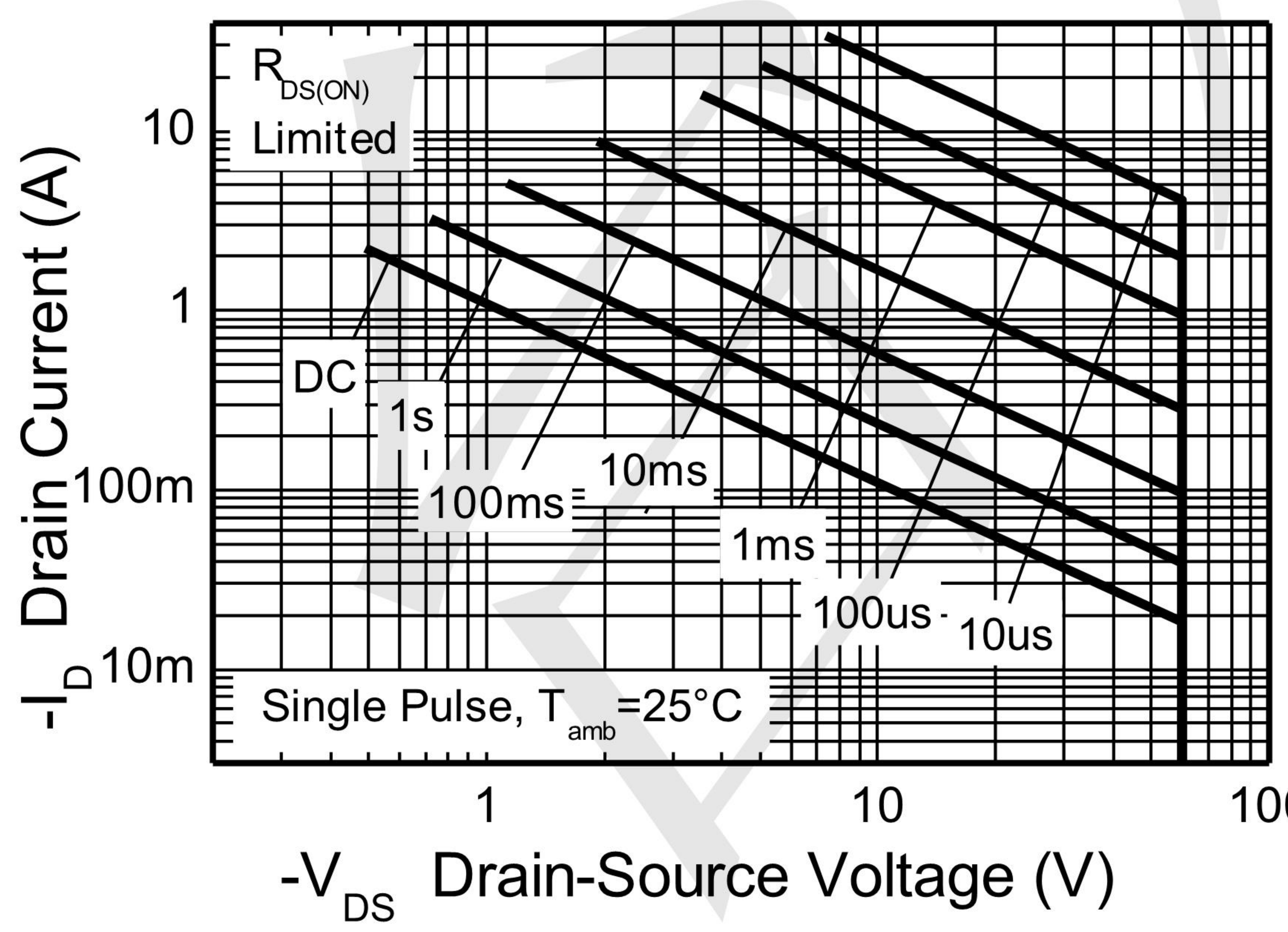
Thermal Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic		Symbol	Value	Unit
Power Dissipation Linear Derating Factor	(Note 5)	P_D	1.1 8.8	W mW/°C
	(Note 6)		1.92 15.4	
Thermal Resistance, Junction to Ambient	(Note 5)	$R_{\theta JA}$	113	°C/W
	(Note 6)		65	
Operating and Storage Temperature Range		T_J, T_{STG}	-55 to +150	°C

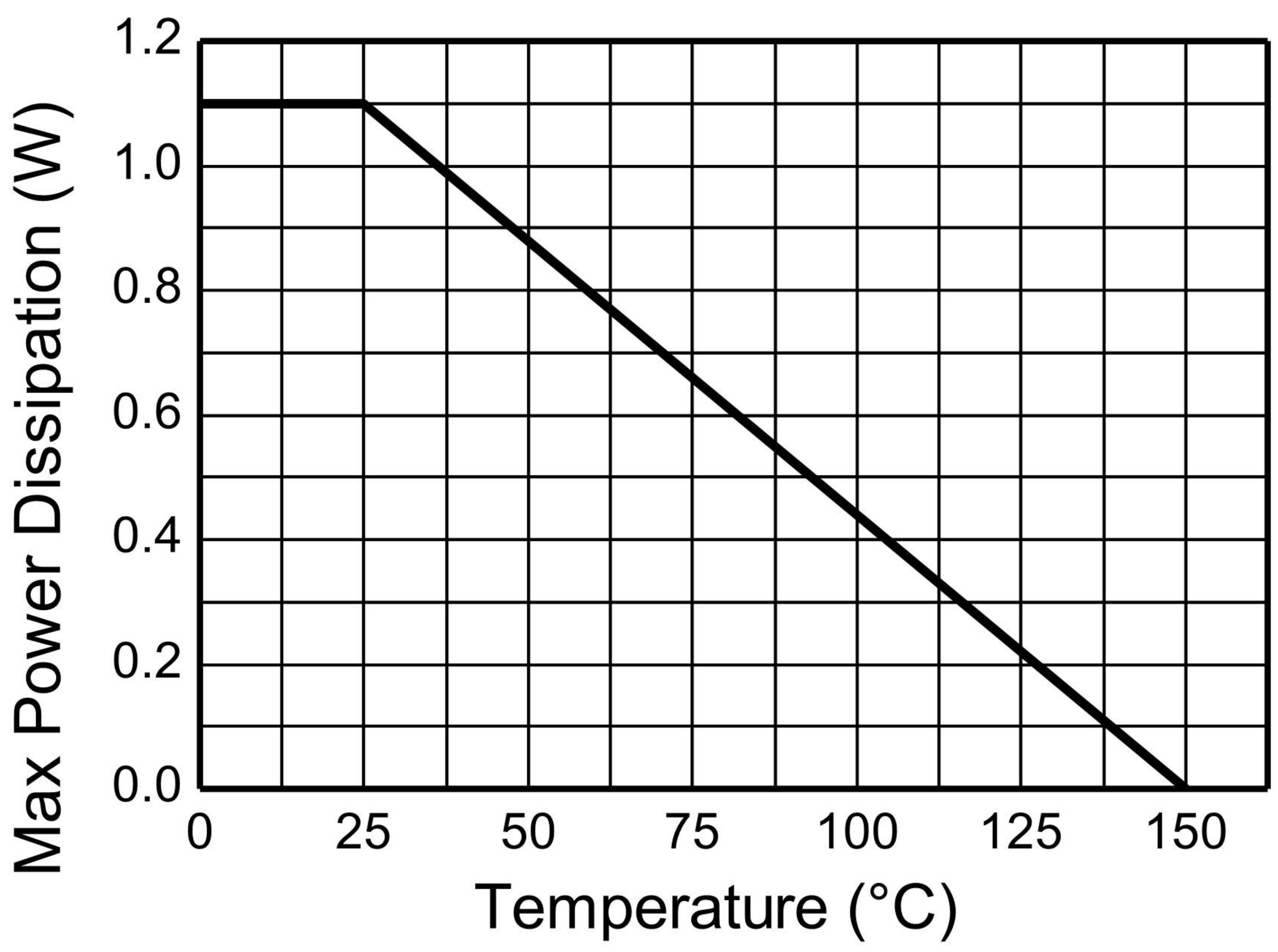
Electrical Characteristics (T_A = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition	
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage	BV_{DSS}	-60	—	—	V	I_D = -250μA, V_{GS} = 0V	
Zero Gate Voltage Drain Current	I_{DSS}	—	—	-1	μA	V_{DS} = -48V, V_{GS} = 0V	
Gate-Source Leakage	I_{GSS}	—	—	±100	nA	V_{GS} = ±20V, V_{DS} = 0V	
ON CHARACTERISTICS							
Gate Threshold Voltage	$V_{GS(th)}$	-1	-1.5	-3	V	I_D = -250μA, V_{DS} = V_{GS}	
Static Drain-Source On-Resistance (Note 8)	$R_{DS\ (ON)}$	—	95	118	mΩ	V_{GS} = -10V, I_D = -3A	
			130	190		V_{GS} = -4.5V, I_D = -1.9A	
Forward Transconductance (Notes 8 & 9)	g_{fs}	—	4.7	—	S	V_{DS} = -15V, I_D = -2.3A	
Diode Forward Voltage (Note 8)	V_{SD}	—	-0.85	-0.95	V	I_S = -2A, V_{GS} = 0V	
Reverse Recovery Time (Note 9)	t_{rr}		25.1	—	ns	I_F = -1.7A, di/dt = 100A/μs	
Reverse Recovery Charge (Note 9)	Q_{rr}	—	27.2	—	nC		
DYNAMIC CHARACTERISTICS (Note 9)							
Input Capacitance	C_{iss}	—	637	—	pF	V_{DS} = -30V, V_{GS} = 0V f = 1MHz	
Output Capacitance	C_{oss}	—	70	—	pF		
Reverse Transfer Capacitance	C_{rss}	—	53	—	pF		
Total Gate Charge (Note 10)	Q_g	—	9.8	—	nC	V_{GS} = -5V	V_{DS} = -30V I_D = -2.3A
Total Gate Charge (Note 10)	Q_g	—	17.7	—	nC	V_{GS} = -10V	
Gate-Source Charge (Note 10)	Q_{gs}	—	1.6	—	nC		
Gate-Drain Charge (Note 10)	Q_{gd}	—	4.4	—	nC		
Turn-On Delay Time (Note 10)	$t_{D(on)}$	—	2.6	—	ns	V_{DD} = -30V, V_{GS} = -10V I_D = -1A, R_G ≅ 6Ω	
Turn-On Rise Time (Note 10)	t_r	—	3.4	—	ns		
Turn-Off Delay Time (Note 10)	$t_{D(off)}$	—	26.2	—	ns		
Turn-Off Fall Time (Note 10)	t_f	—	11.3	—	ns		

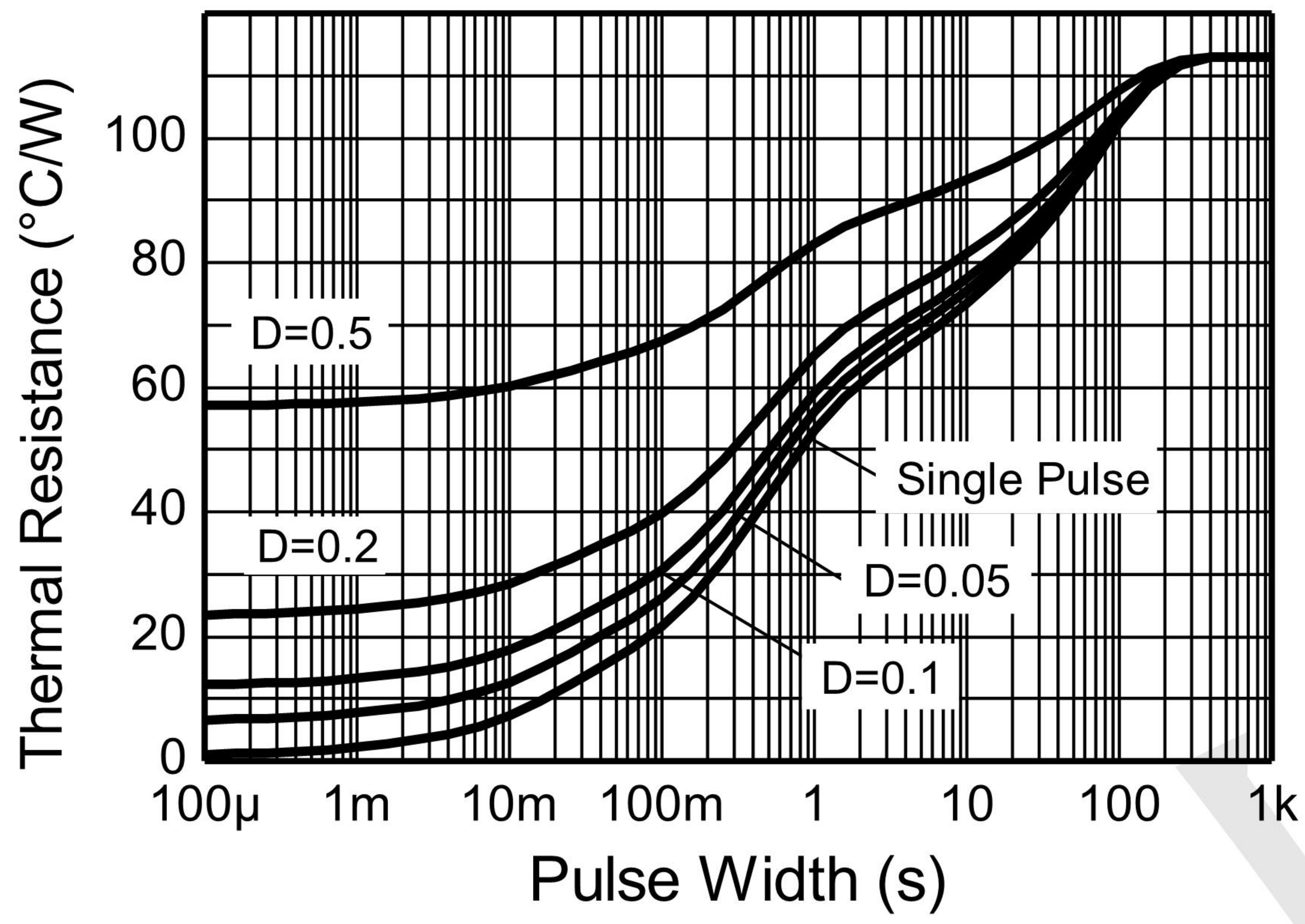
Typical Performance Characteristics (T_A=25°C unless otherwise Specified)



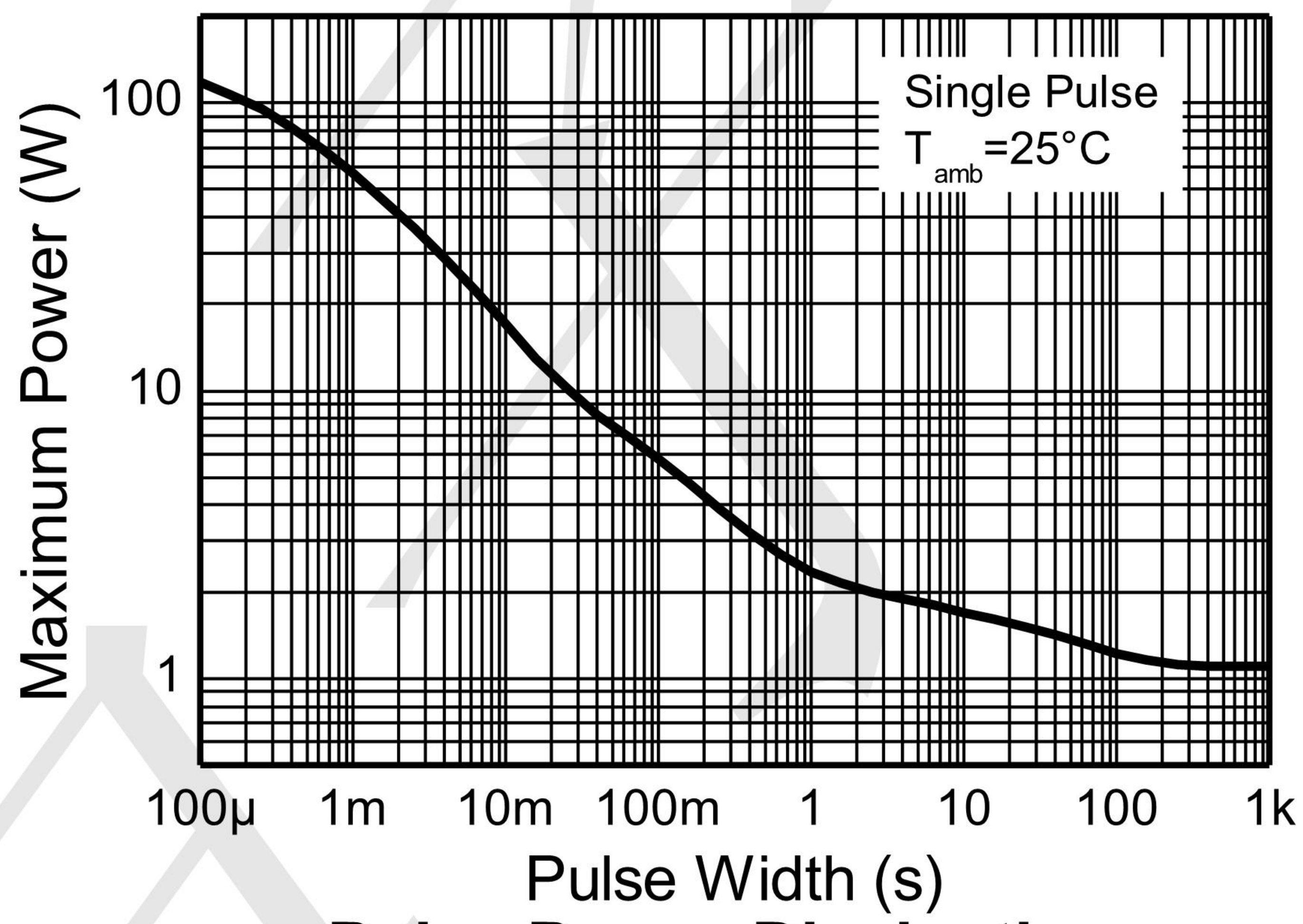
P-channel Safe Operating Area



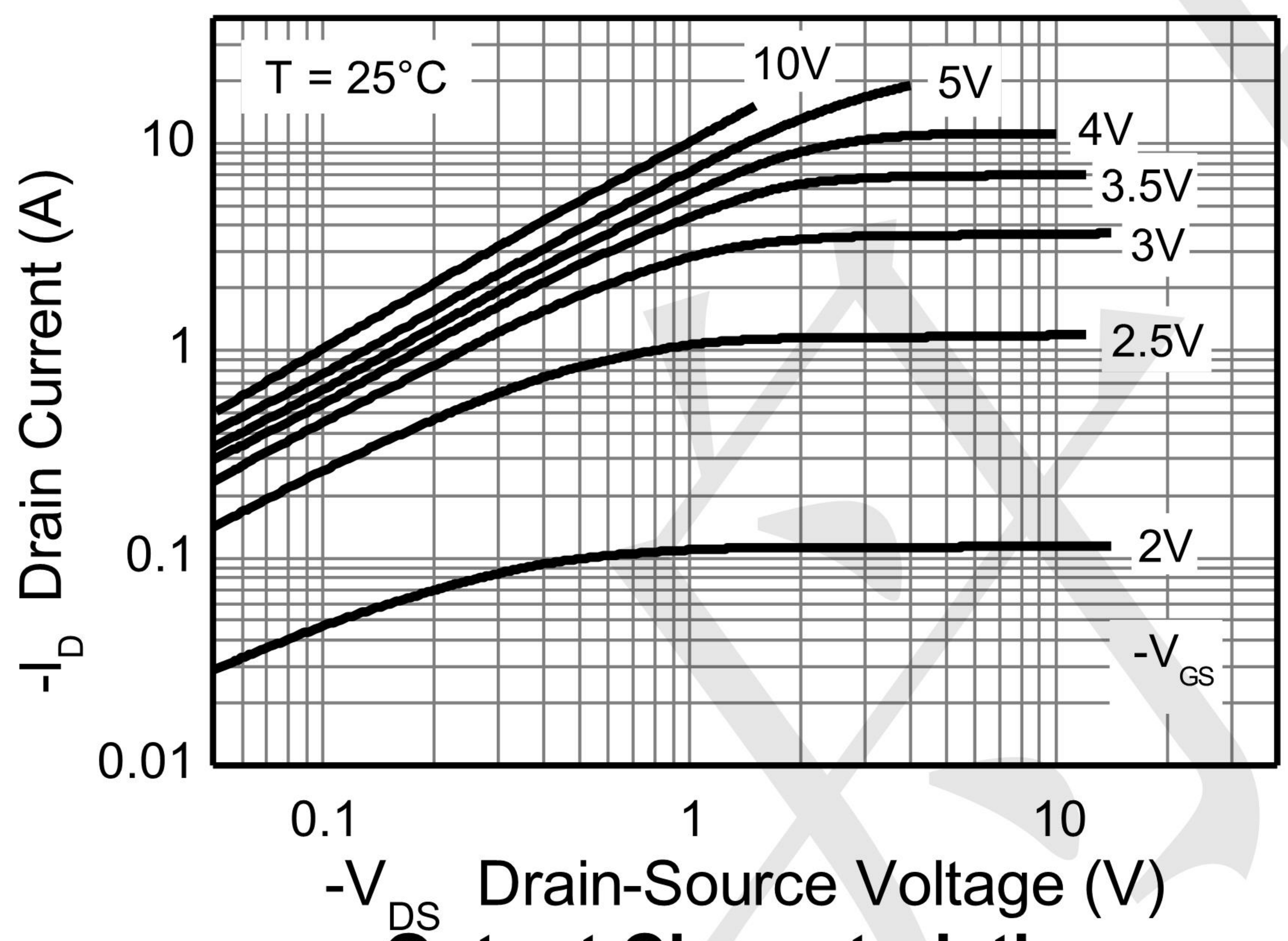
Derating Curve



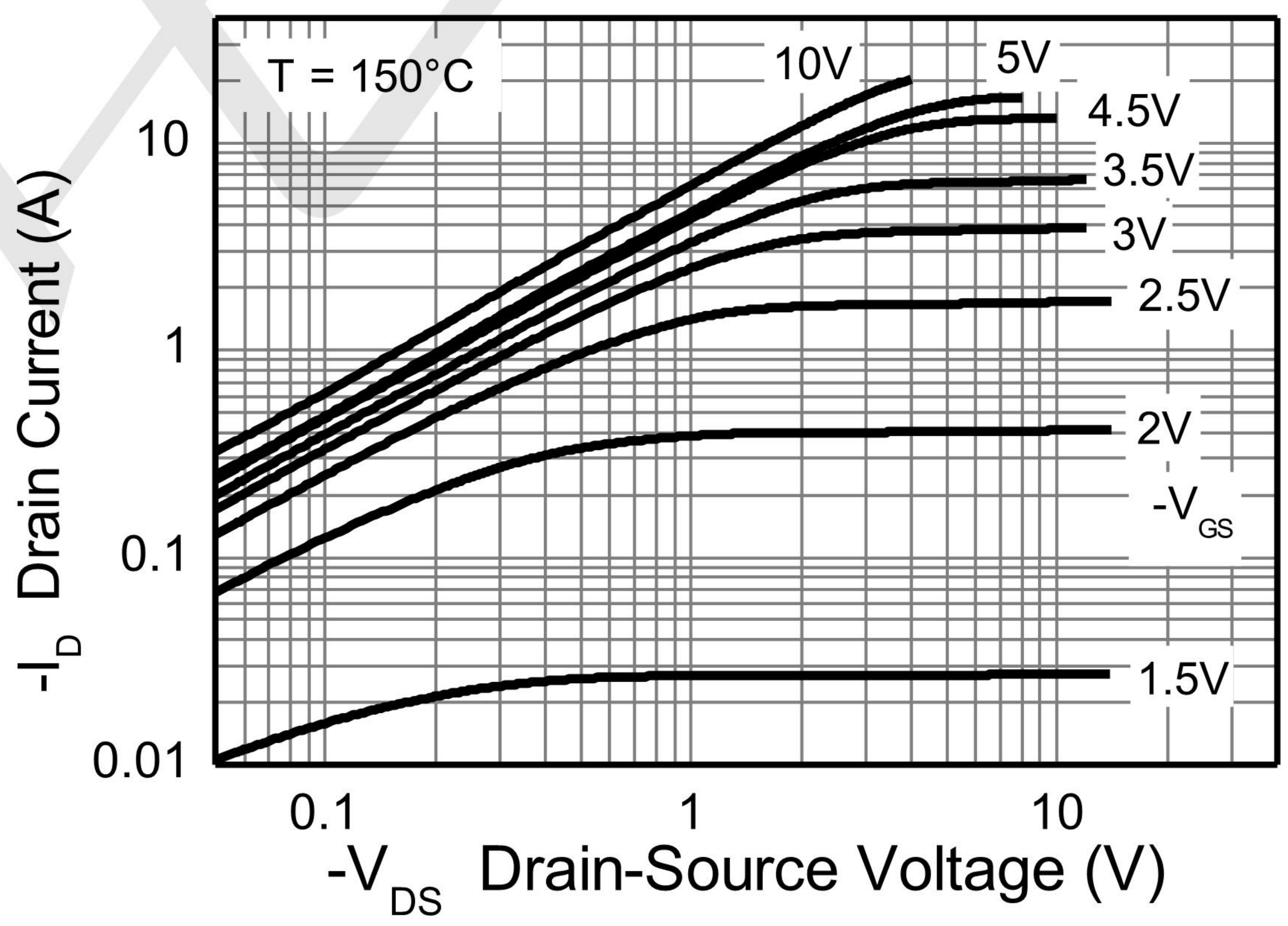
Transient Thermal Impedance



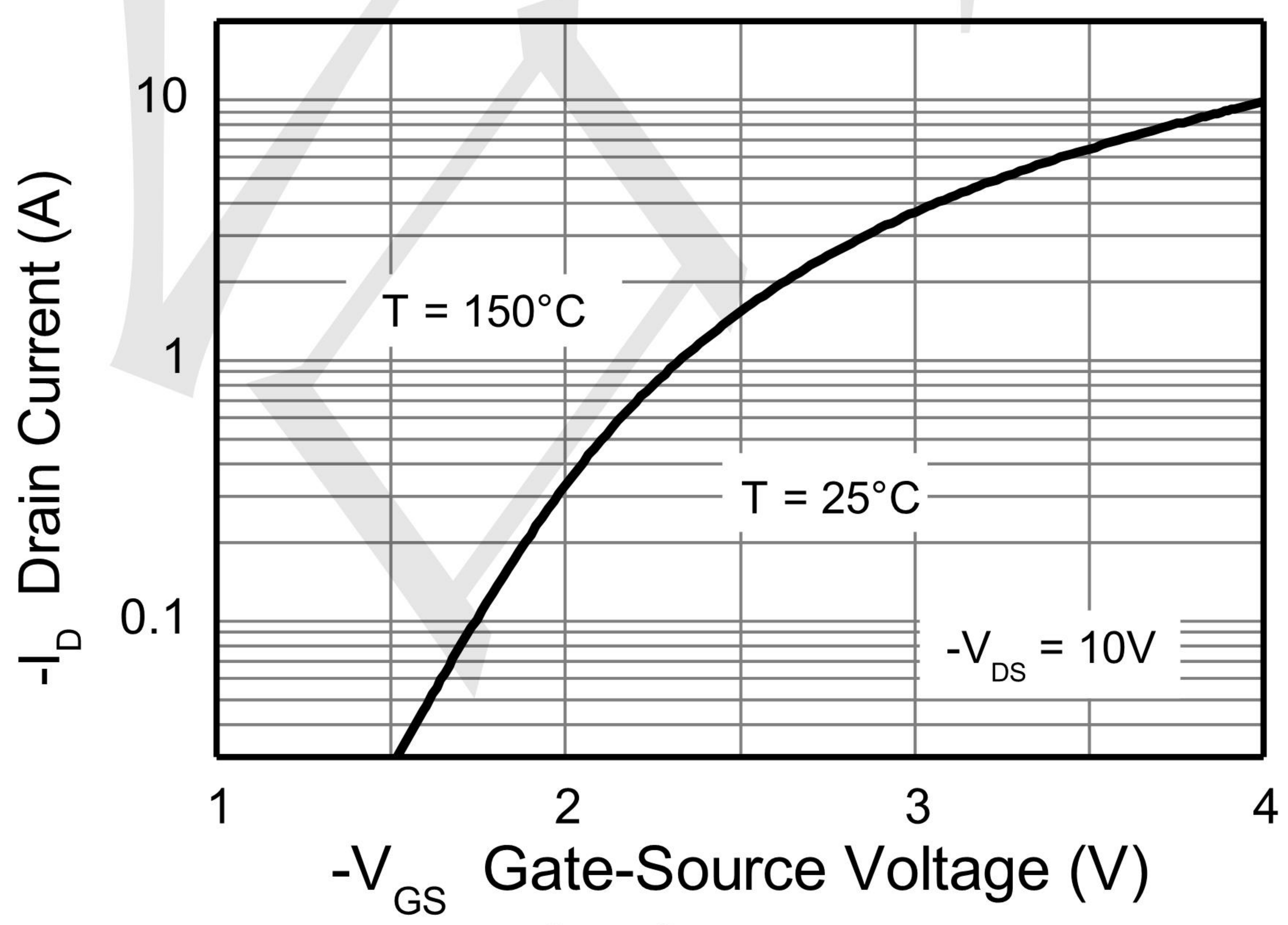
Pulse Power Dissipation



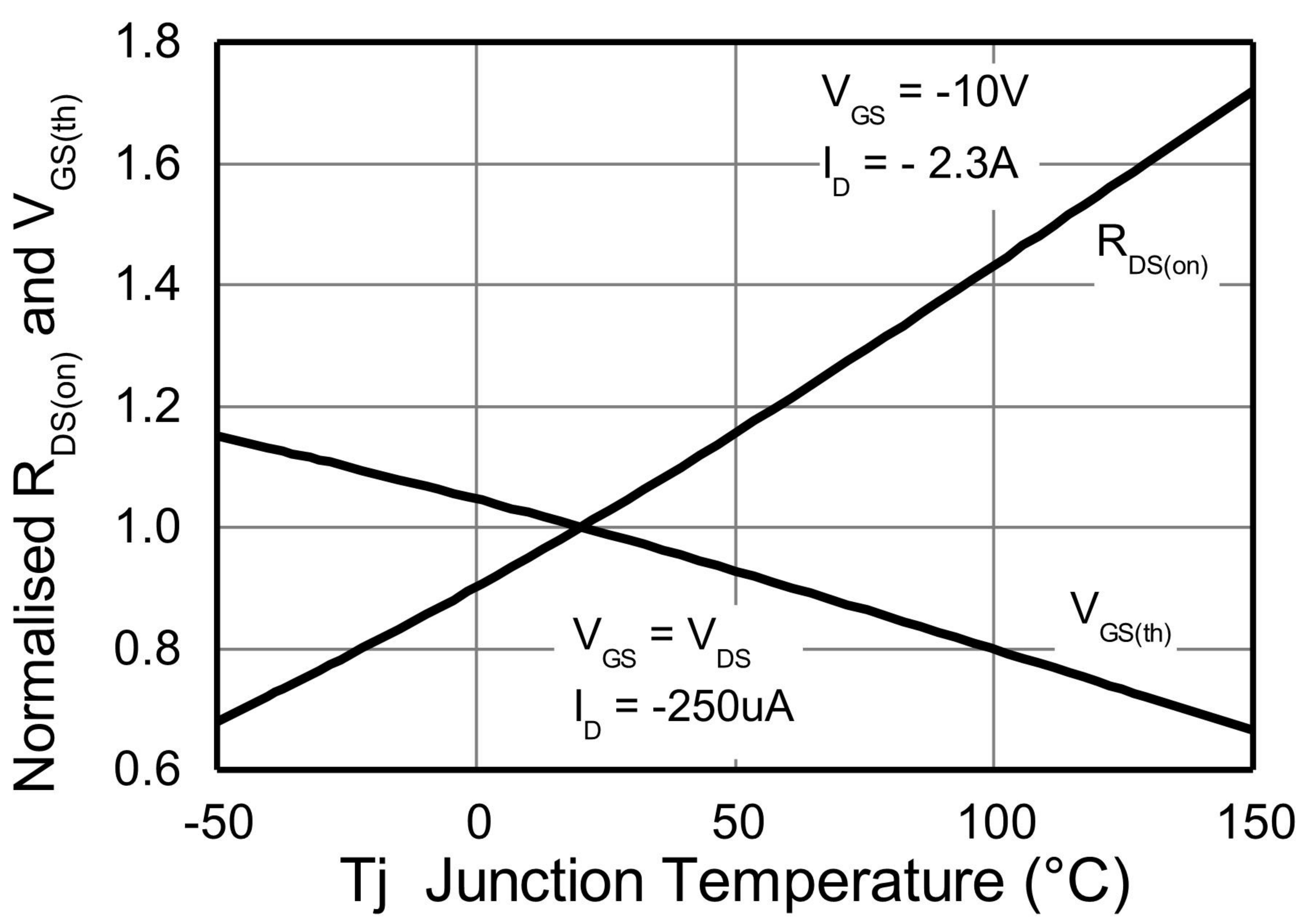
Output Characteristics



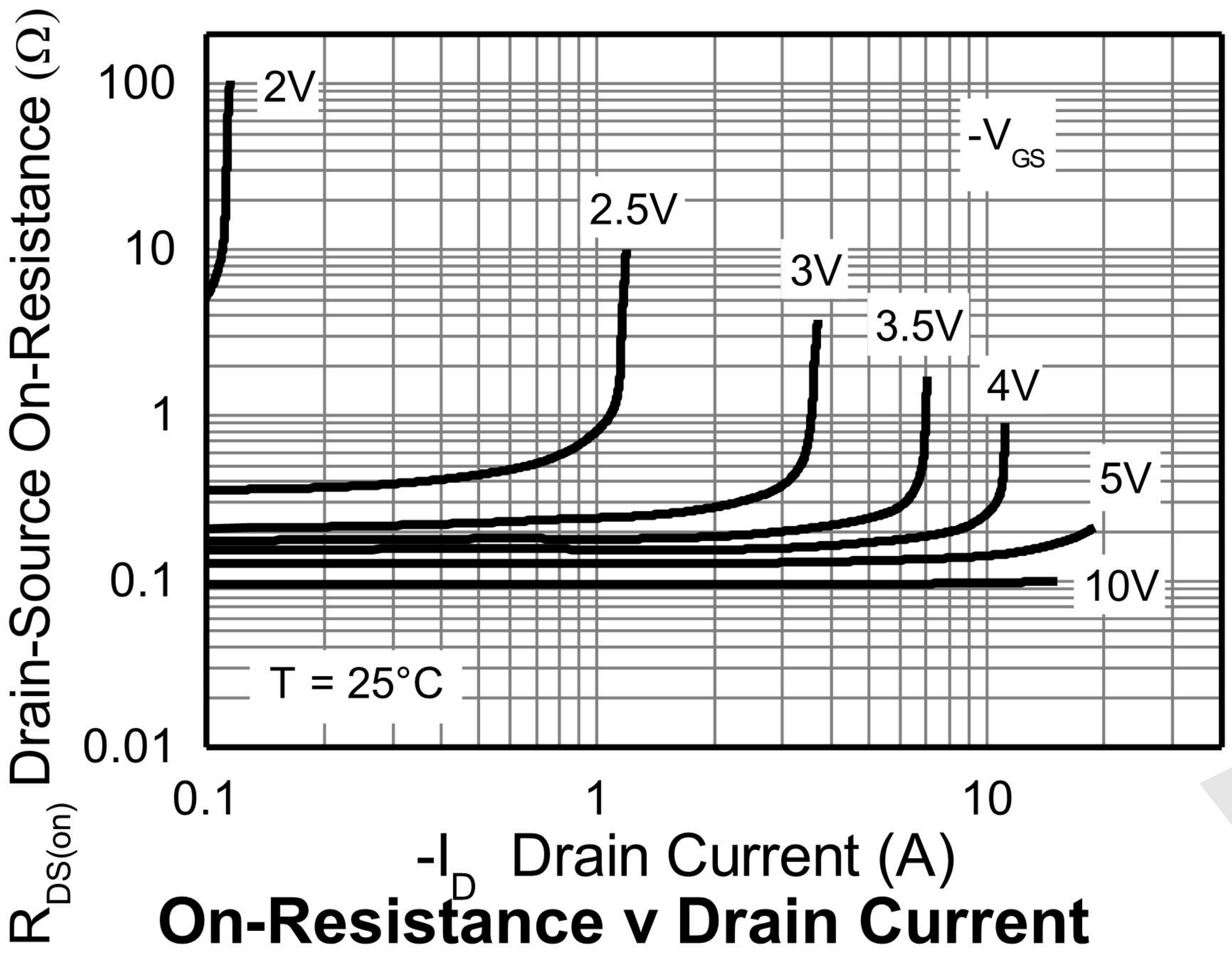
Output Characteristics



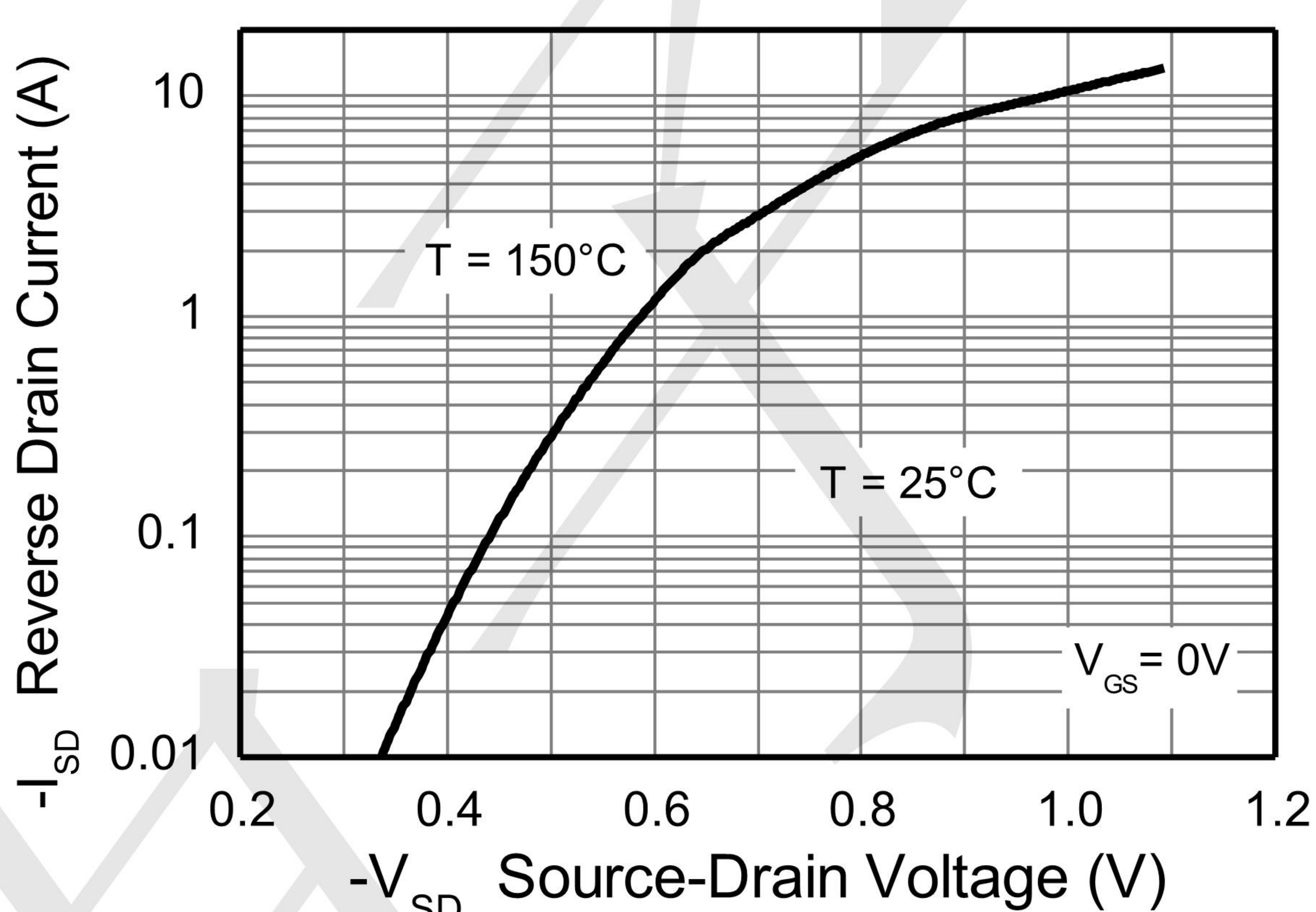
Typical Transfer Characteristics



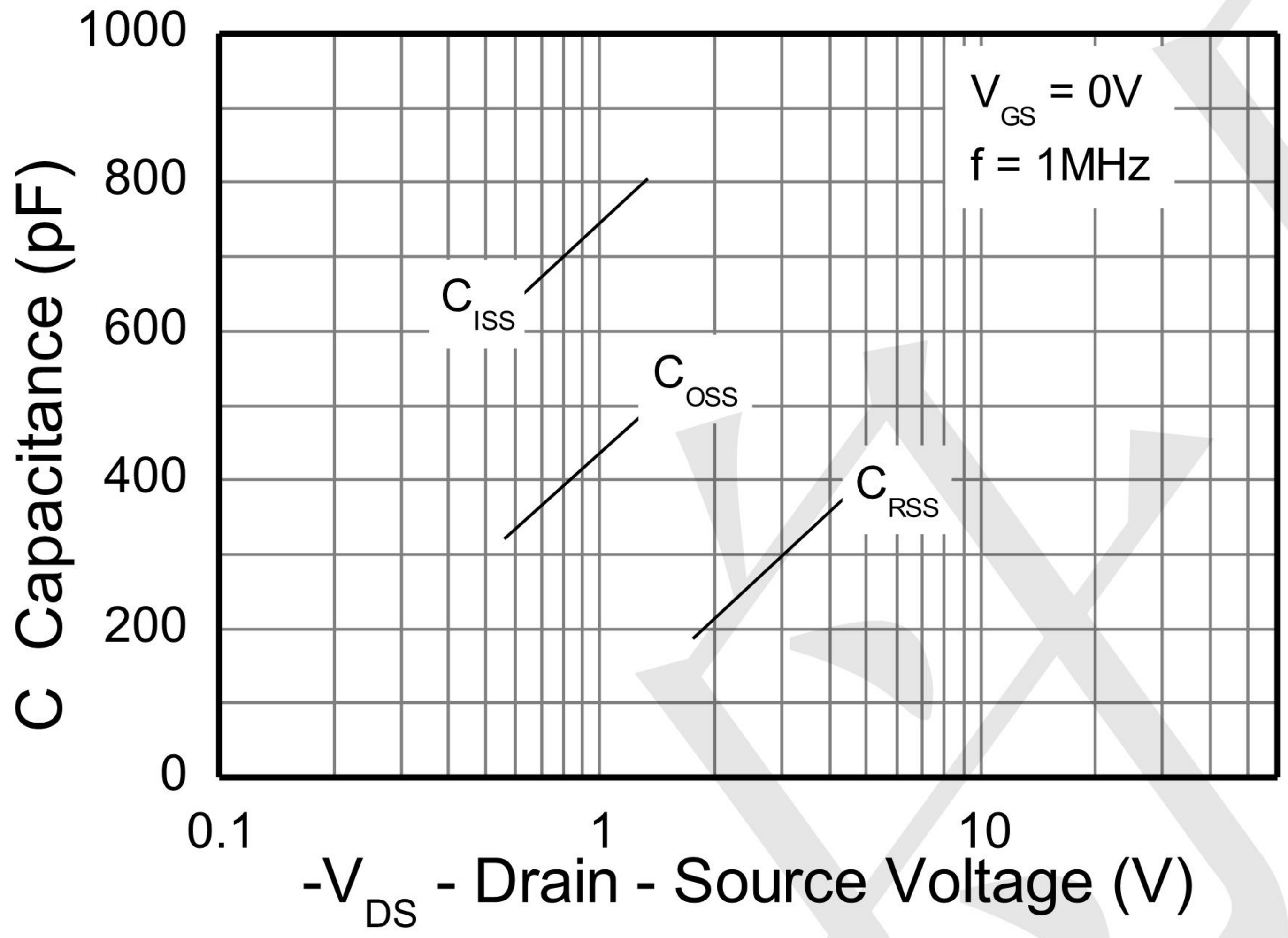
Normalised Curves v Temperature



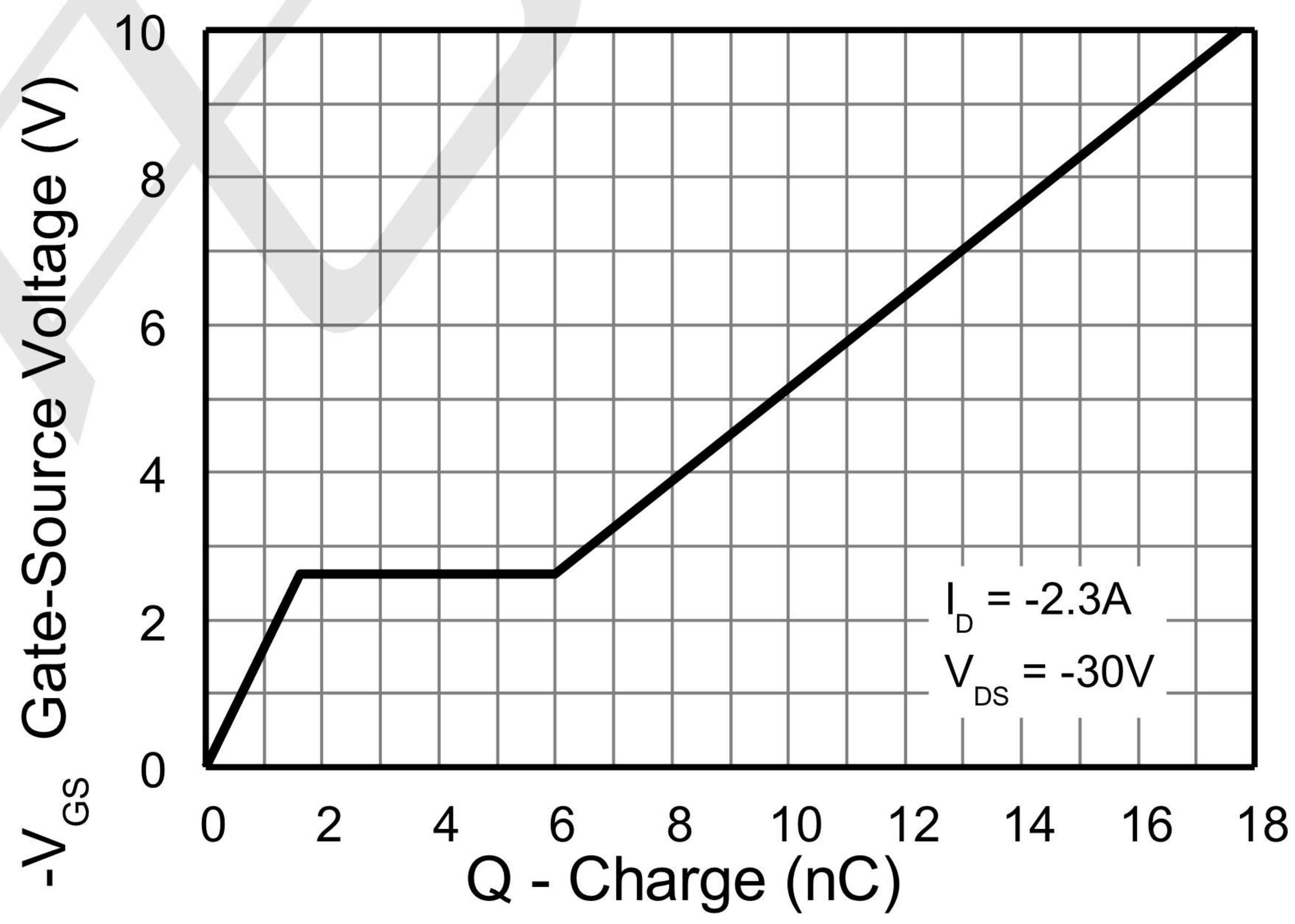
On-Resistance v Drain Current



Source-Drain Diode Forward Voltage

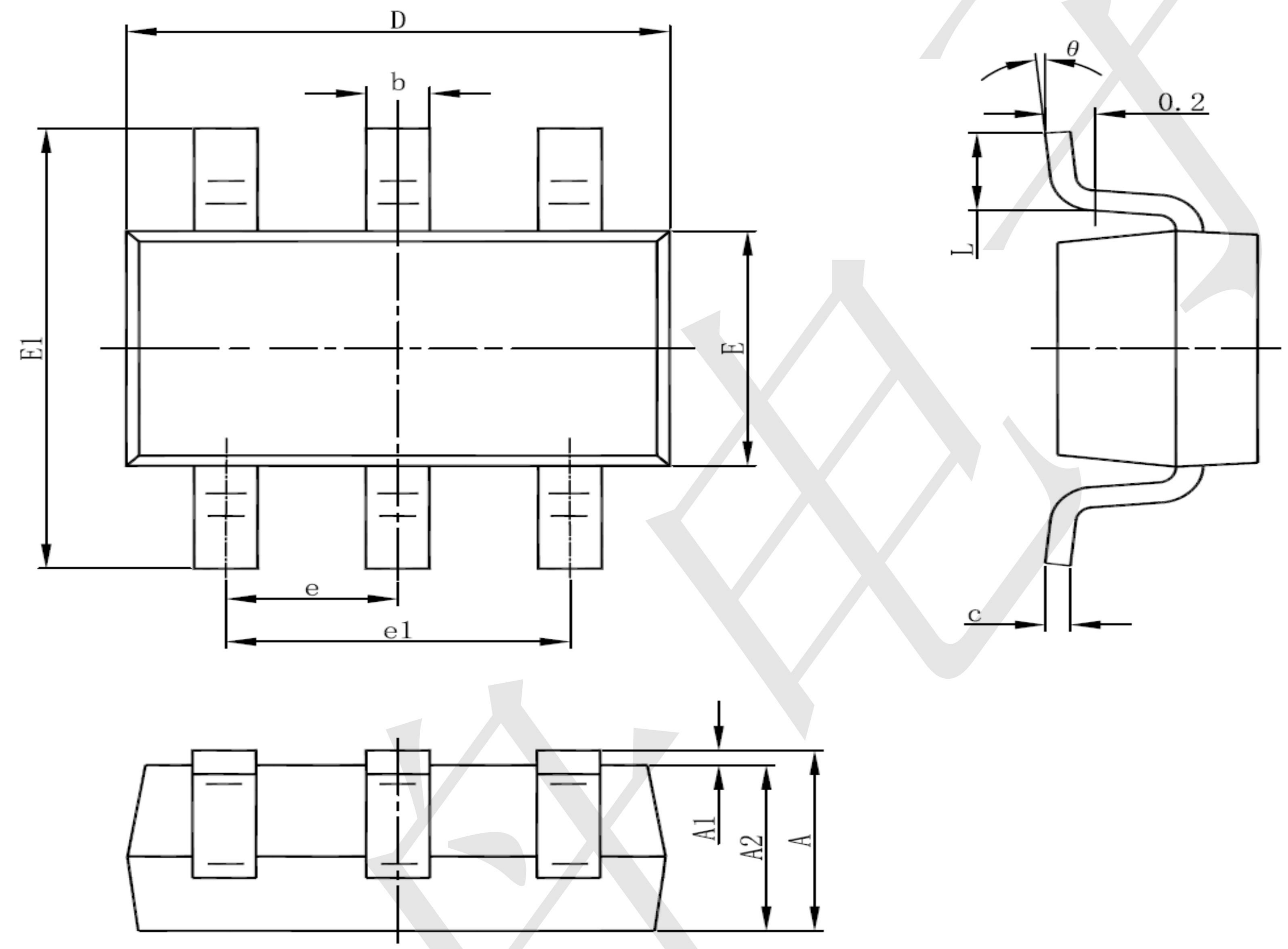


Capacitance v Drain-Source Voltage



Gate-Source Voltage v Gate Charge

SOT23-6 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°