

GENERAL FEATURES

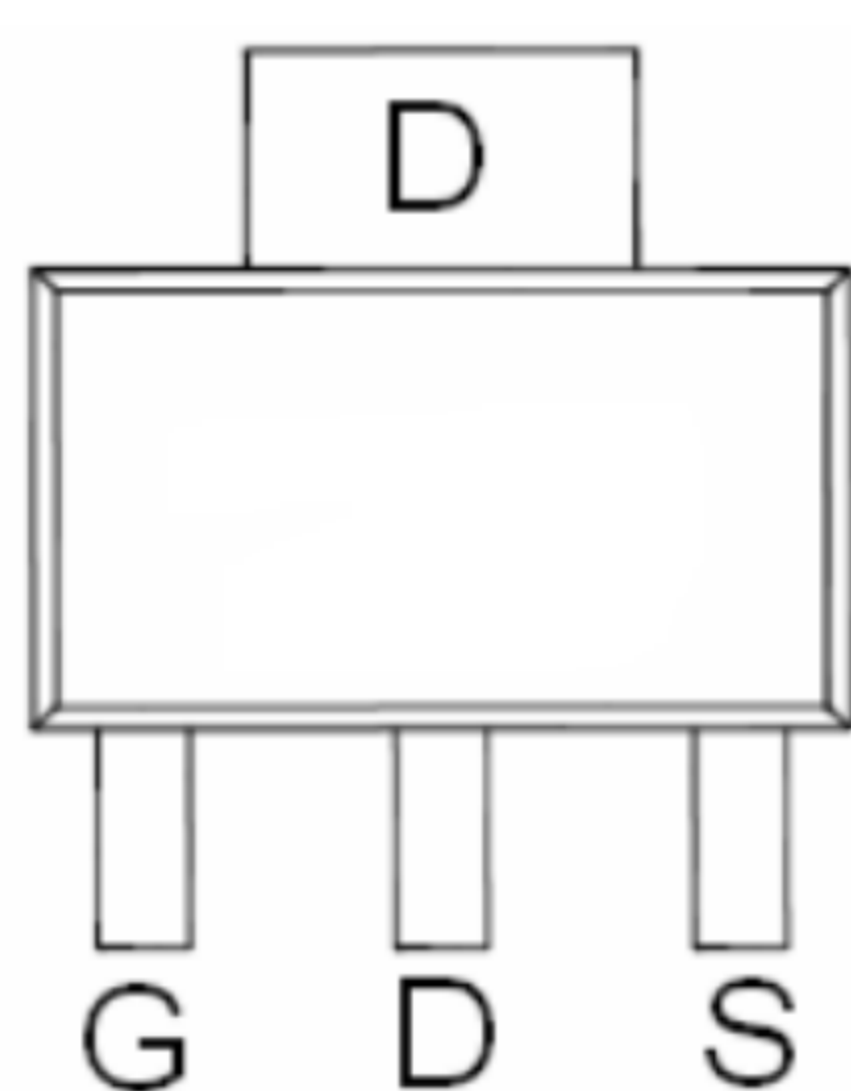
KEY PERFORMANCE PARAMETERS			
PARAMETER		VALUE	UNIT
V_{DS}		100	V
$R_{DS(on)}$ (max)	$V_{GS} = 10V$	100	mΩ
	$V_{GS} = 4.5V$	118	
Q_g		9.3	nC

Application

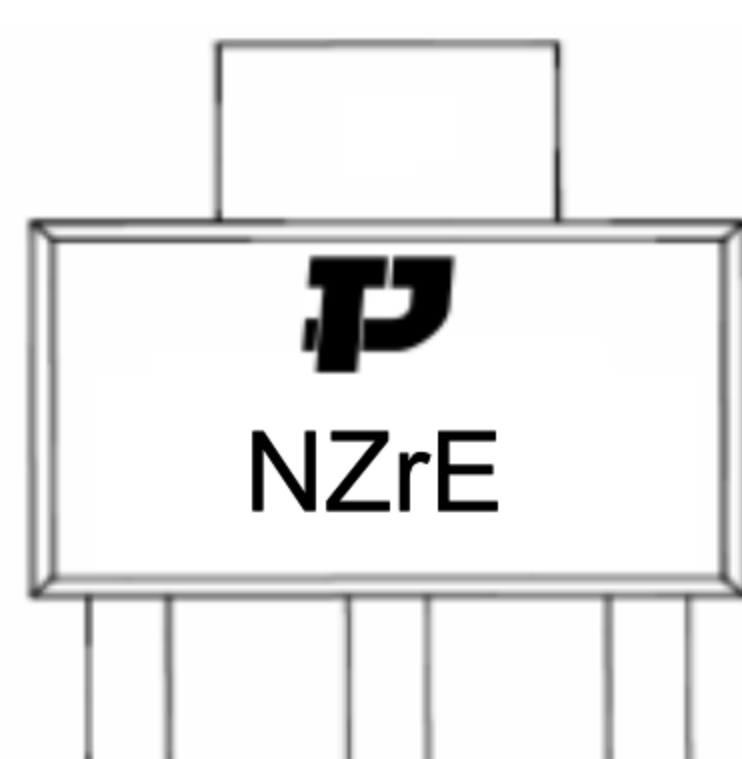
- Load/Power Switching
- Interfacing Switching
- Logic Level Shift

Package and Pin Configuration

SOT223

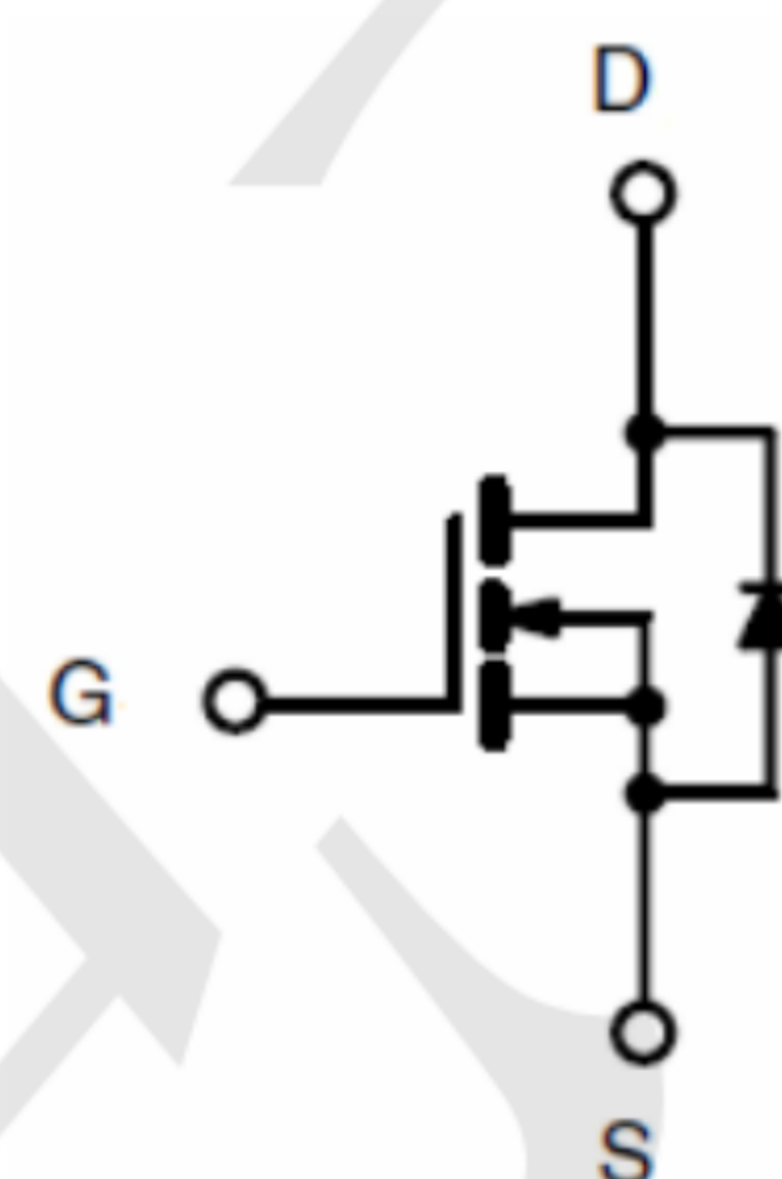


Marking:



“P” is part number, fixed
“NZ” is part number, fixed
“rE” is internal code

Circuit diagram



Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ unless otherwise noted)

ABSOLUTE MAXIMUM RATINGS (T _A = 25°C unless otherwise noted)				
PARAMETER		SYMBOL	LIMIT	UNIT
Drain-Source Voltage		V _{DS}	100	V
Gate-Source Voltage		V _{GS}	±20	V
Continuous Drain Current (Note 1)	T _C = 25°C	I _D	6.5	A
	T _C = 100°C		4.1	
Pulsed Drain Current (Note 2)		I _{DM}	26	A
Total Power Dissipation @ T _C = 25°C		P _{DTOT}	9	W
Operating Junction and Storage Temperature Range		T _J , T _{STG}	- 55 to +150	°C

Thermal Characteristic

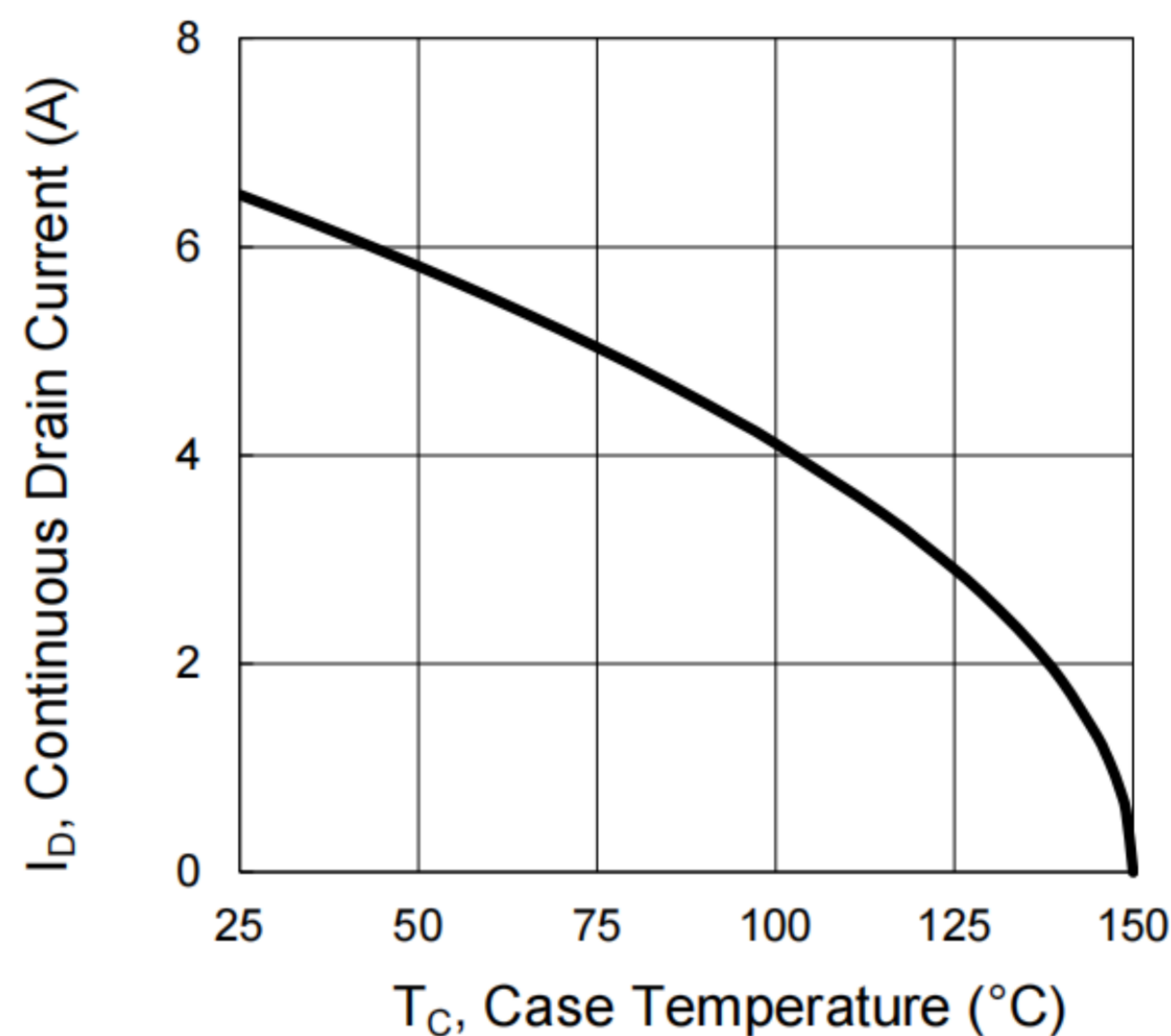
PARAMETER	SYMBOL	LIMIT	UNIT
Junction to Case Thermal Resistance	$R_{\theta JC}$	14	$^\circ\text{C/W}$
Junction to Ambient Thermal Resistance	$R_{\theta JA}$	62	$^\circ\text{C/W}$

Electrical Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted)

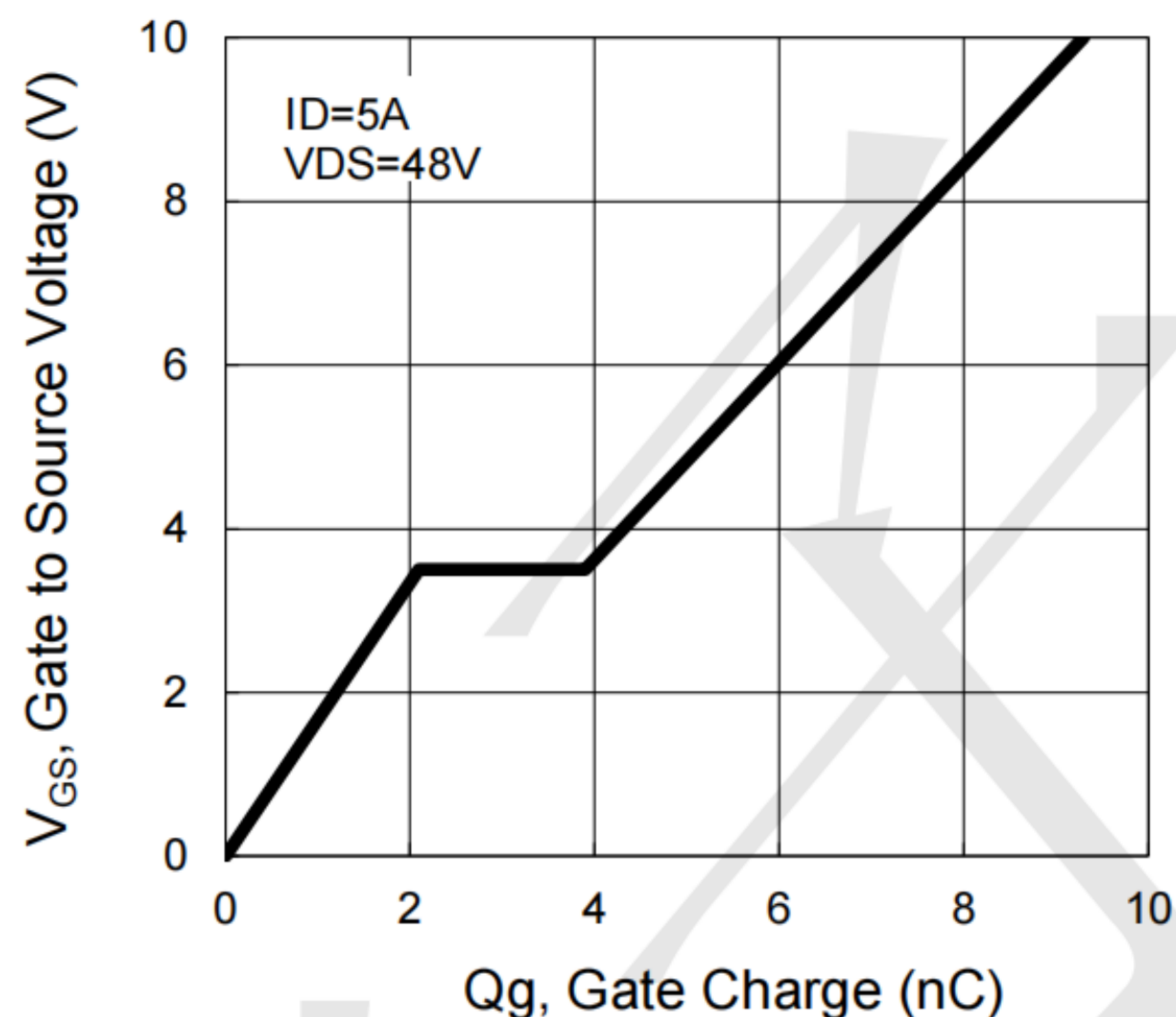
ELECTRICAL SPECIFICATIONS (T _A = 25°C unless otherwise noted)						
PARAMETER	CONDITIONS	SYMBOL	MIN	TYP	MAX	UNIT
Static (Note 3)						
Drain-Source Breakdown Voltage	V _{GS} = 0V, I _D = 250μA	BV _{DSS}	100	--	--	V
Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = 250μA	V _{GS(TH)}	1.2	1.6	2.5	V
Gate Body Leakage	V _{GS} = ±20V, V _{DS} = 0V	I _{GSS}	--	--	±100	nA
Zero Gate Voltage Drain Current	V _{DS} = 100V, V _{GS} = 0V	I _{DSS}	--	--	1	μA
Drain-Source On-State Resistance	V _{GS} = 10V, I _D = 5A	R _{DS(on)}	--	80	100	mΩ
	V _{GS} = 4.5V, I _D = 3A		--	85	118	
Dynamic (Note 4)						
Total Gate Charge	V _{DS} = 48V, I _D = 5A, V _{GS} = 10V	Q _g	--	9.3	--	nC
Gate-Source Charge		Q _{gs}	--	2.1	--	
Gate-Drain Charge		Q _{gd}	--	1.8	--	
Input Capacitance	V _{DS} = 50V, V _{GS} = 0V, f = 1.0MHz	C _{iss}	--	1480	--	pF
Output Capacitance		C _{oss}	--	480	--	
Reverse Transfer Capacitance		C _{rss}	--	35	--	
Gate Resistance	f = 1MHz, open drain	R _g	--	1.3	--	Ω
Switching (Note 5)						
Turn-On Delay Time	V _{DD} = 30V, R _{GEN} = 3.3Ω, I _D = 1A, V _{GS} = 10V,	t _{d(on)}	--	2.9	--	ns
Turn-On Rise Time		t _r	--	9.5	--	
Turn-Off Delay Time		t _{d(off)}	--	18.4	--	
Turn-Off Fall Time		t _f	--	5.3	--	
Source-Drain Diode (Note 3)						
Forward On Voltage	I _S = 3.3A, V _{GS} = 0V	V _{SD}	--	--	1	V
Continuous Drain-Source Diode		I _S	--	--	6.5	A
Pulse Drain-Source Diode		I _{SM}	--	--	26	A

Typical Electrical and Thermal Characteristics

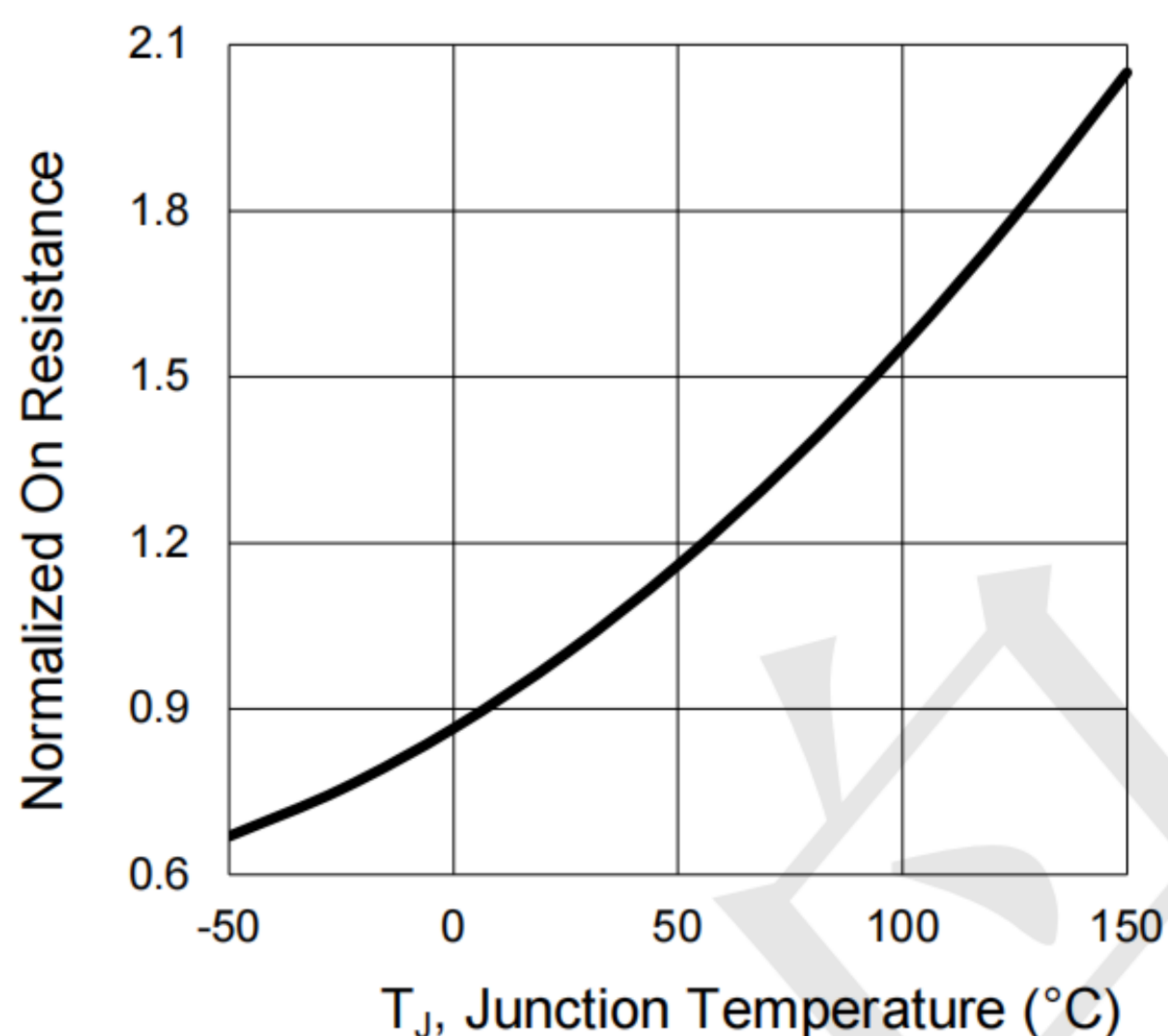
Continuous Drain Current vs. T_C



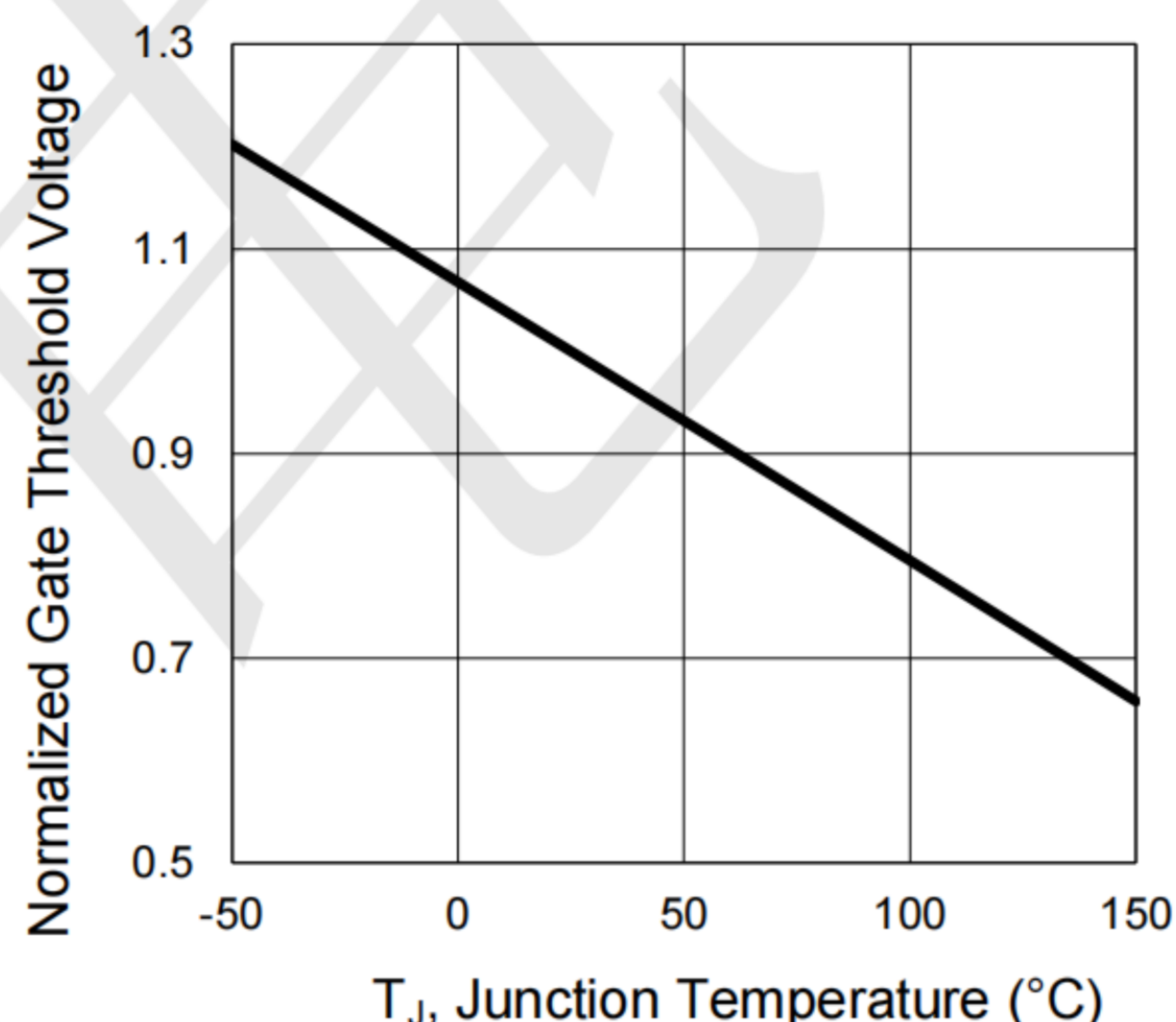
Gate Charge



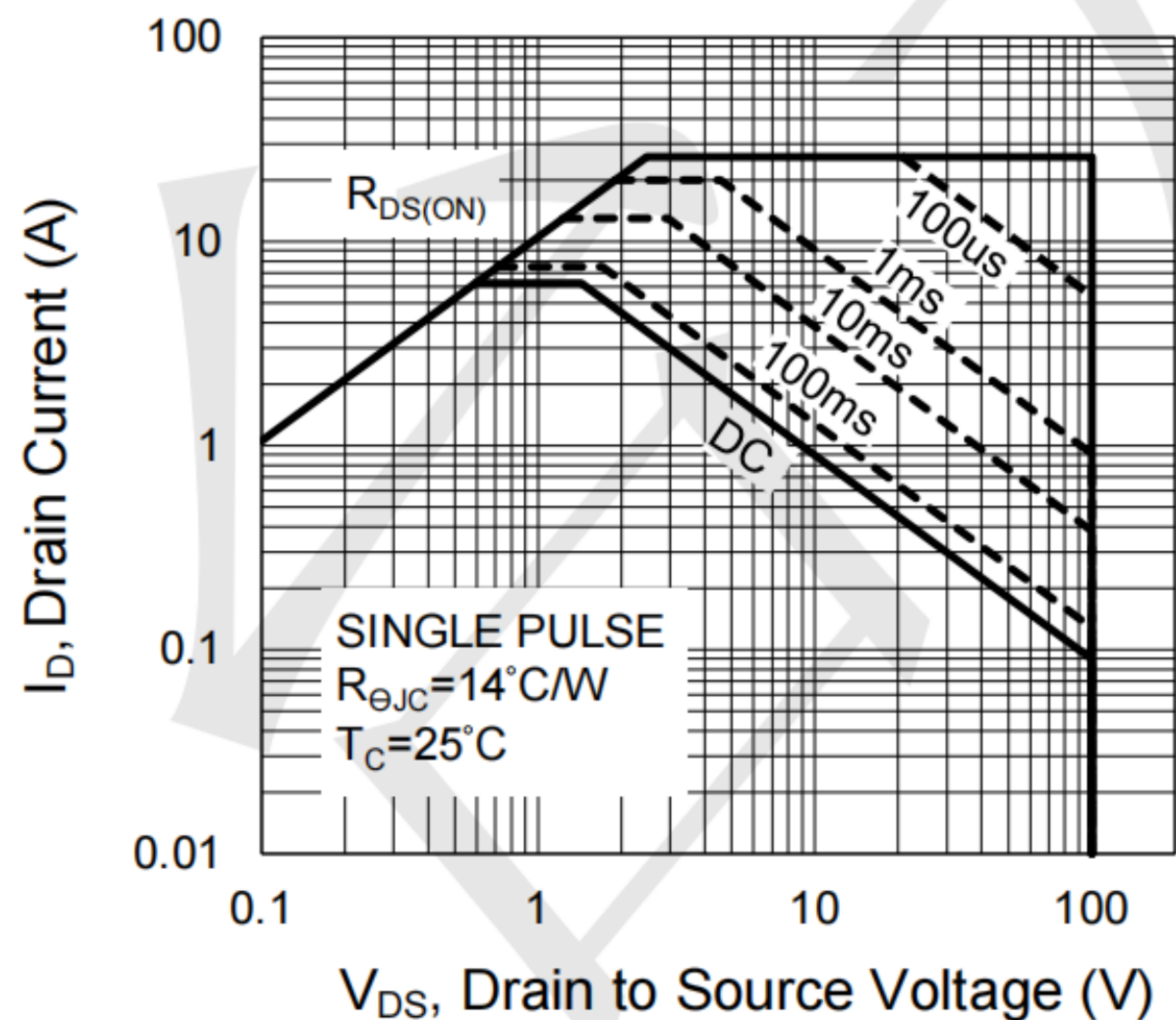
On-Resistance vs. Junction Temperature



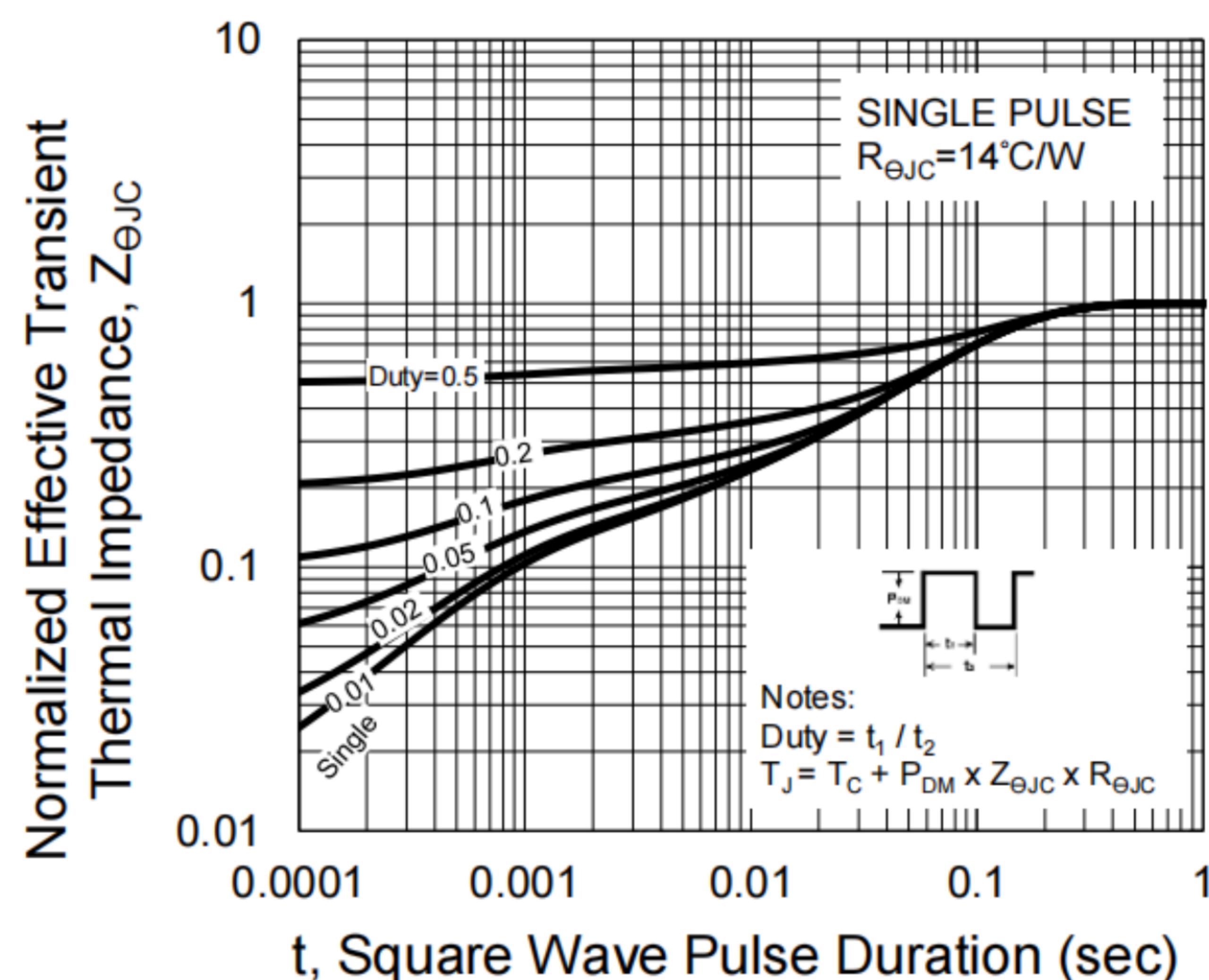
Threshold Voltage vs. Junction Temperature



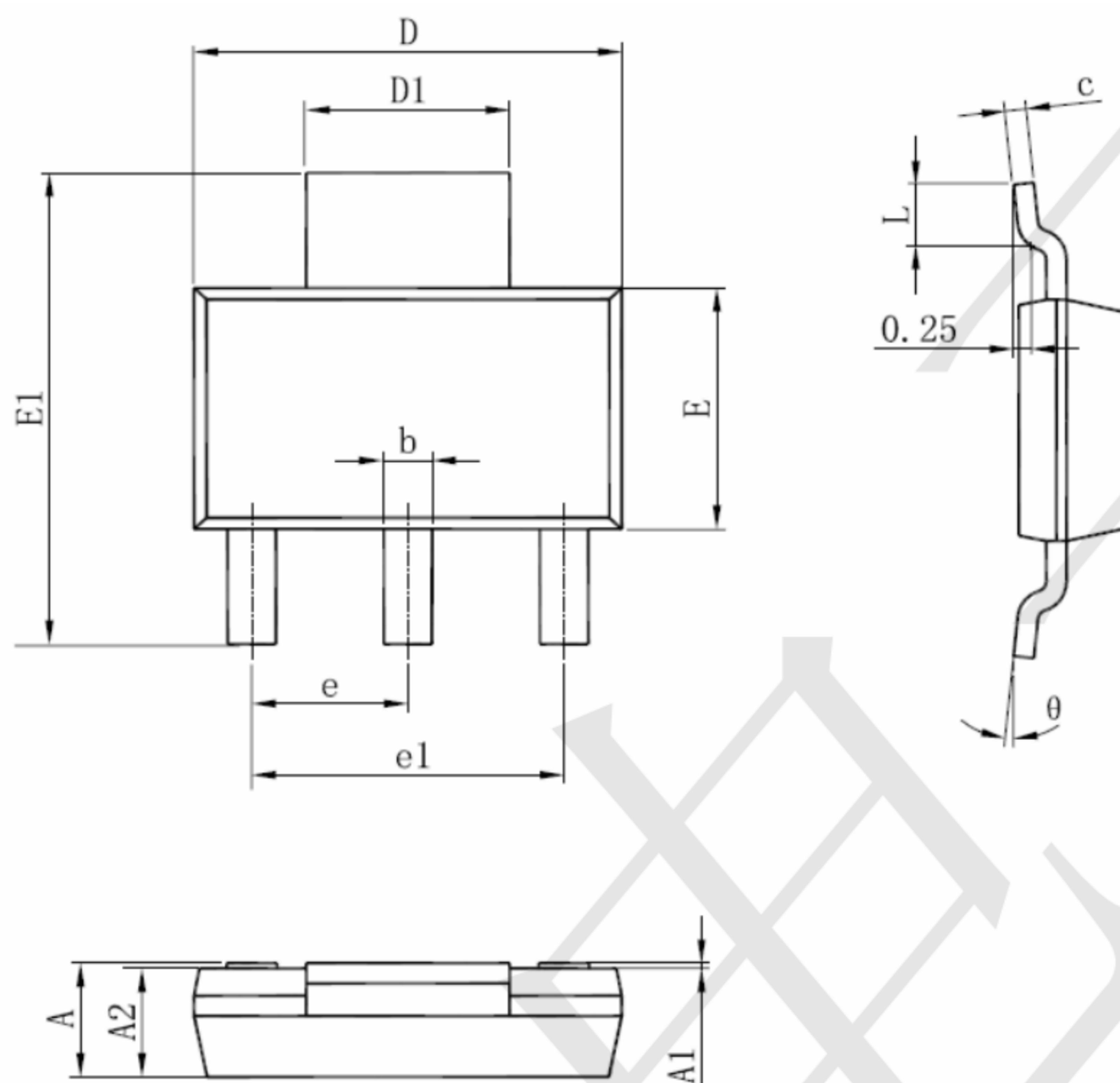
Maximum Safe Operating Area



Normalized Thermal Transient Impedance Curve



SOT-223 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.520	1.800	0.060	0.071
A1	0.000	0.100	0.000	0.004
A2	1.500	1.700	0.059	0.067
b	0.660	0.820	0.026	0.032
c	0.250	0.350	0.010	0.014
D	6.200	6.400	0.244	0.252
D1	2.900	3.100	0.114	0.122
E	3.300	3.700	0.130	0.146
E1	6.830	7.070	0.269	0.278
e	2.300(BSC)		0.091(BSC)	
e1	4.500	4.700	0.177	0.185
L	0.900	1.150	0.035	0.045
θ	0°	10°	0°	10°