Features

VDS = 20V

- RDS(ON) =300mΩ (typ.) @ VGS= 2.5V
- RDS(ON) =250mΩ (typ.) @ VGS= 4.5V
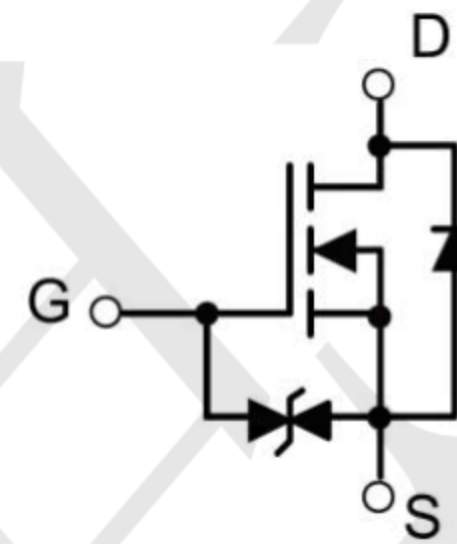- ESD Protected up to 2KV

Application

- Load/Power Switching
- Interfacing Switching
- Battery Management for Ultra Small Portable Electronics
- Logic Level Shift

Package and Pin Configuration

SOT323

Circuit diagram

Marking: 21P

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

TECH PUBLIC Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	±8	V
Continuous Drain Current	I_D	0.9	A
Pulsed Drain Current (t=300μs) [1]	I_{DM}	1.5	A
Power Dissipation [2]	P_D	0.35	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	357	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55~ +150	℃

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

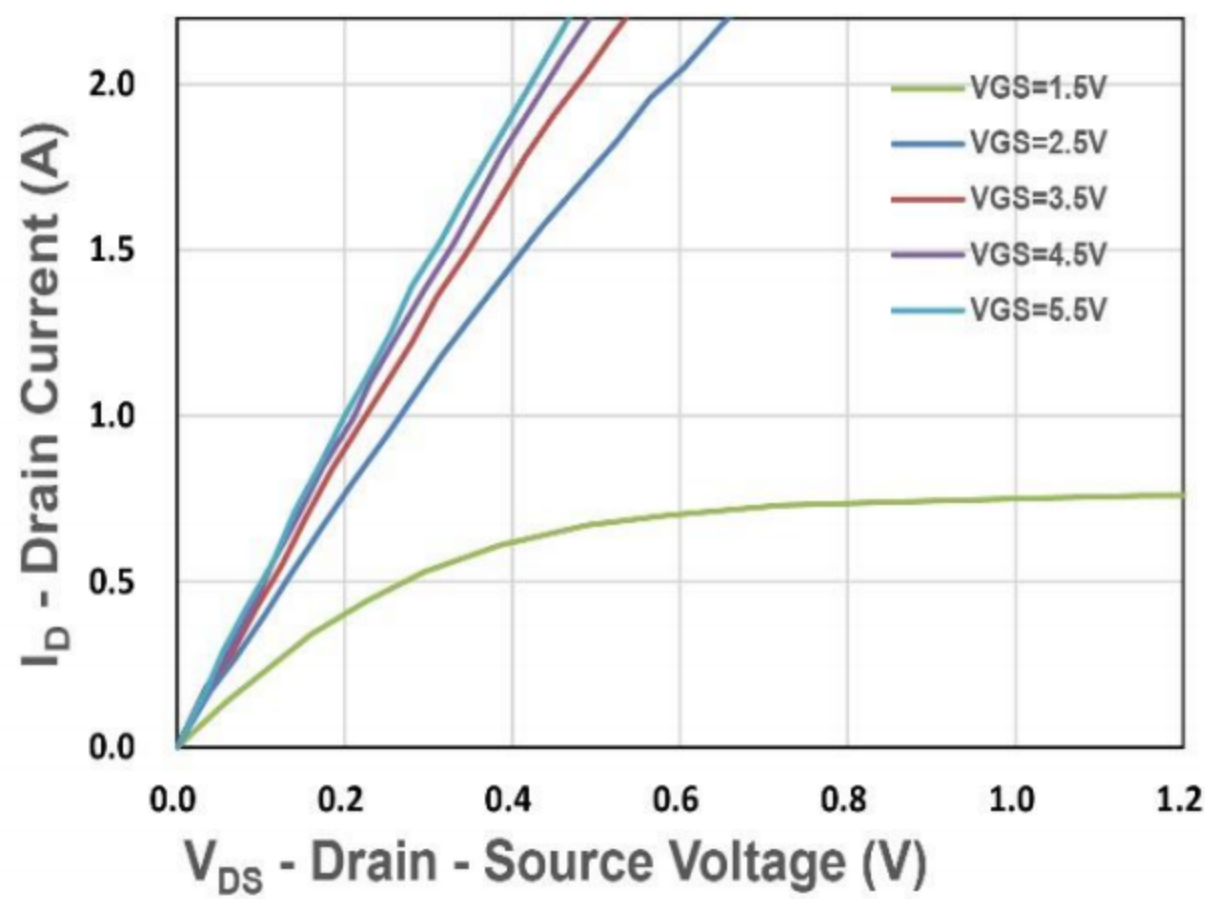| TECH PUBLIC Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =250µA	20	25		V
Zero gate voltage drain current	I_{DSS}	V_{DS} =20V, V_{GS} = 0V			1	µA
Gate-body leakage current	I_{GSS}	V_{GS} =±18V, V_{DS} = 0V			±10	µA
Gate threshold voltage[3]	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250µA	0.5	0.7	1.1	V
Drain-source on-resistance[3]	$R_{DS(on)}$	V_{GS} =4.5V, I_D =500mA		250	400	mΩ
		V_{GS} =2 5V I_D =500mA		300	500	
Forward tranconductance	g_{FS}	V_{DS} =10V, I_D =500mA			1.2	S
Dynamic characteristics[4]						
Input Capacitance	C_{iss}	V_{DS} =10V, V_{GS} =0V, f =1MHz		45		pF
Output Capacitance	C_{oss}			9		
Reverse Transfer Capacitance	C_{rss}			6		
Switching Characteristics[4]						
Turn-on delay time	$t_{d(on)}$	V_{DD}=10V, I_D=500mA, V_{GS}=4.5V, R_G=6Ω		20		ns
Turn-on rise time	t_r			90		
Turn-off delay time	$t_{d(off)}$			750		
Turn-off fall time	t_f			400		
Source-Drain Diode characteristics						
Diode Forward voltage[3]	V_{DS}	I_S=0.15A, V_{GS} = 0V			1.3	V

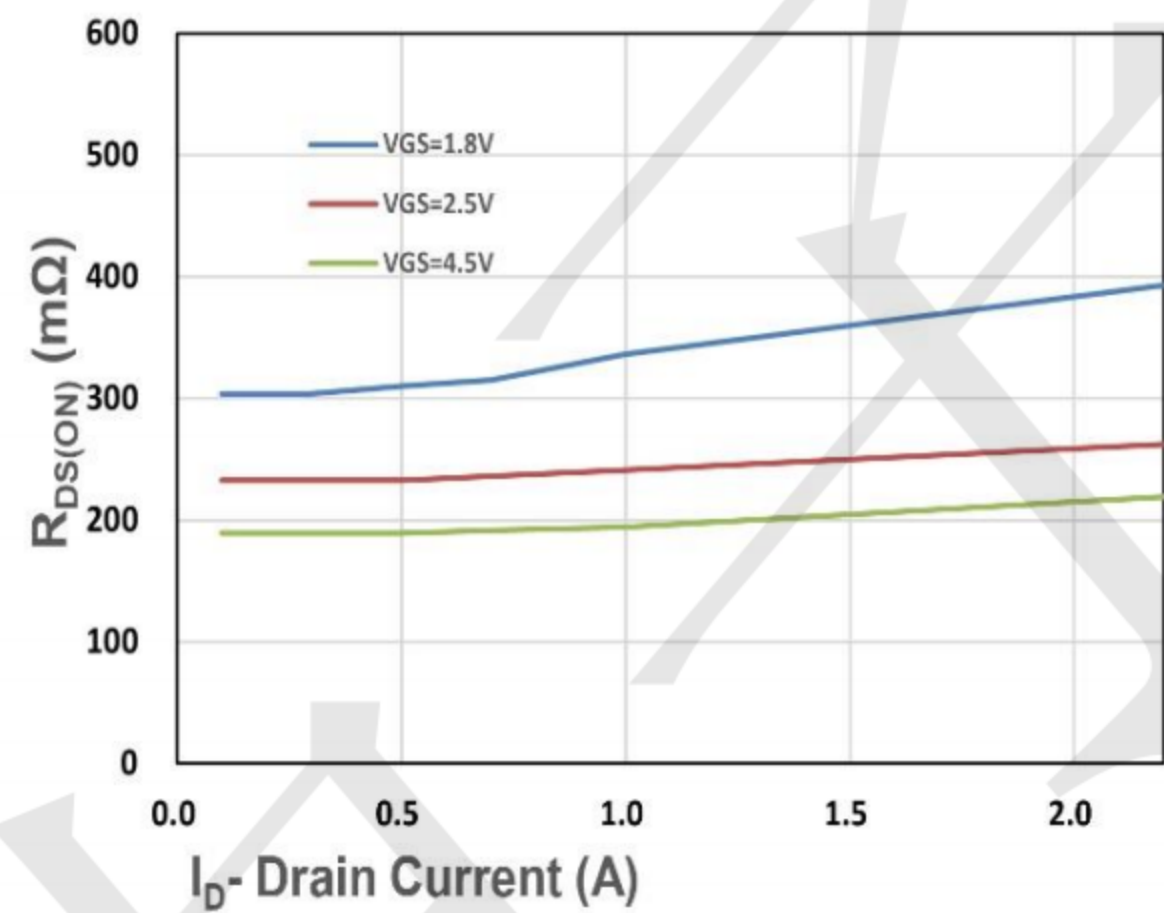# Characteristic Curves

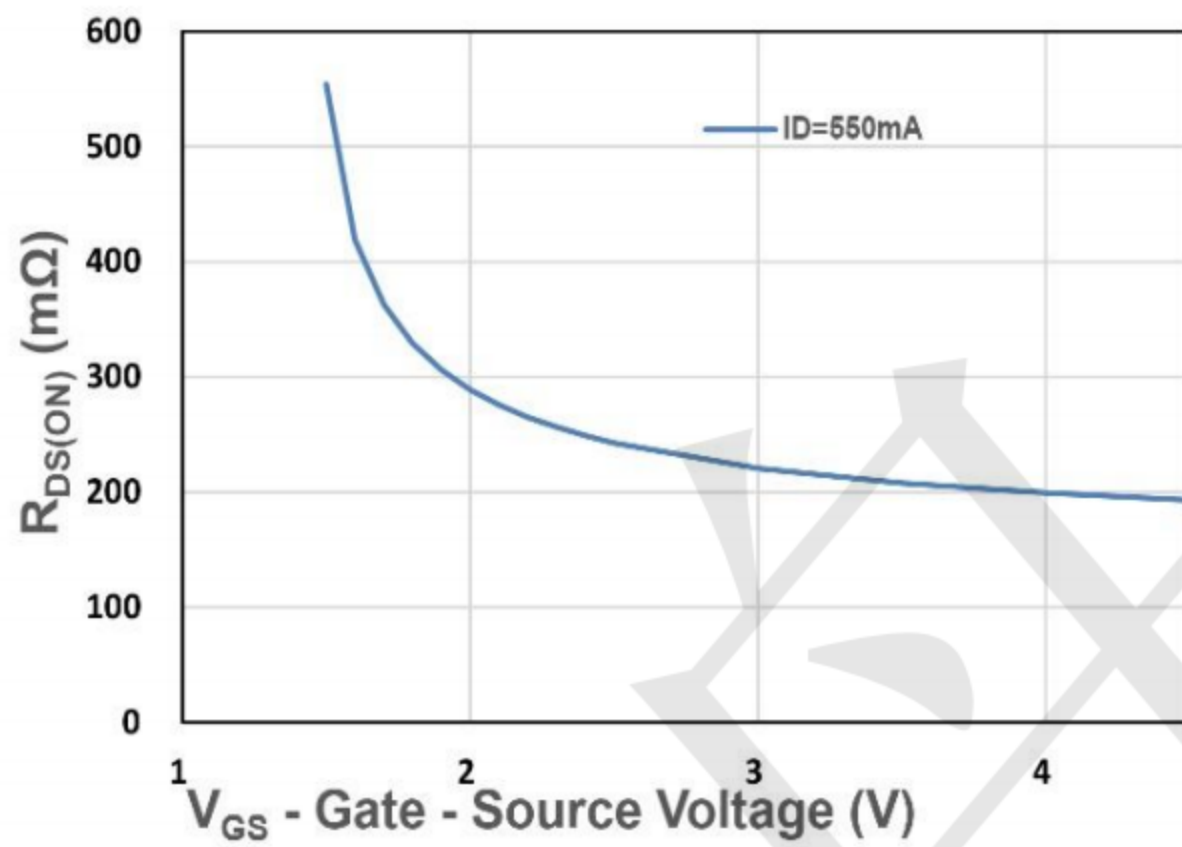Figure 1. Output Characteristics

Figure 2. On-Resistance vs. ID

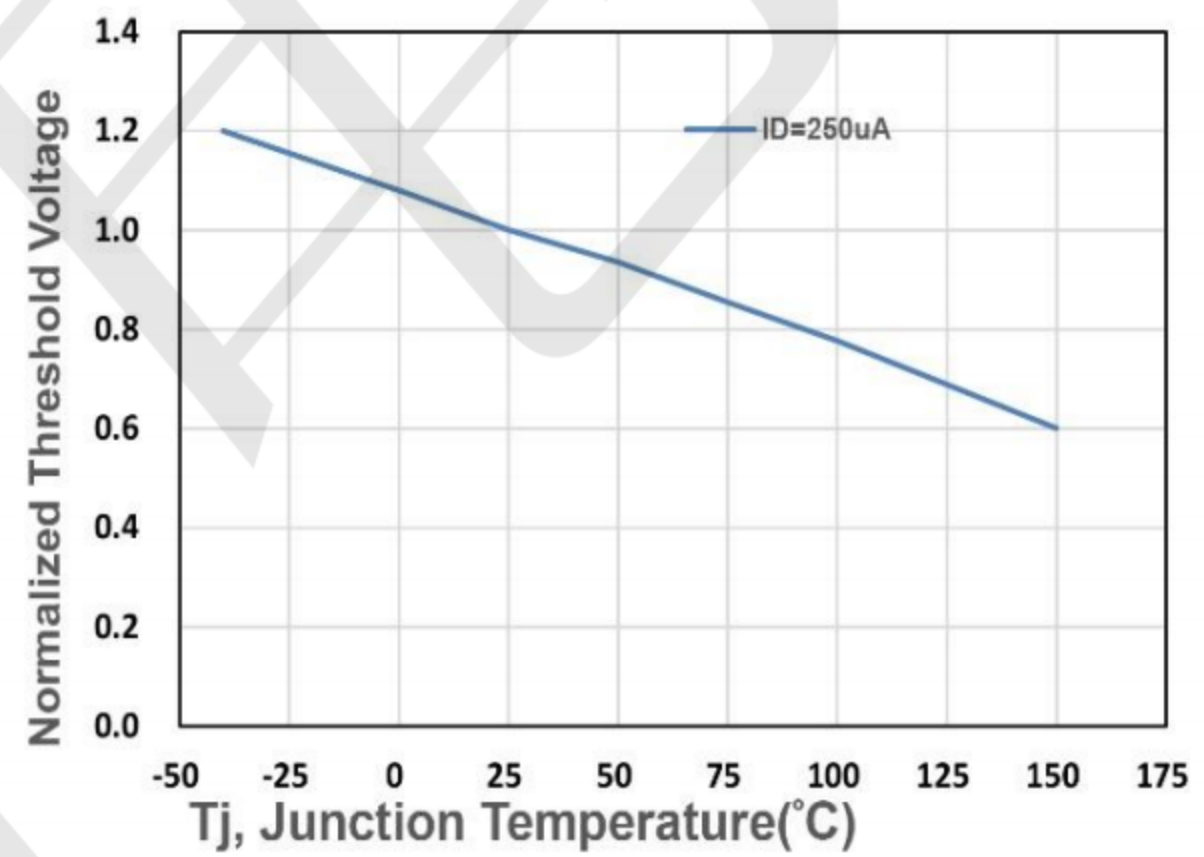Figure 3. On-Resistance vs. VGS

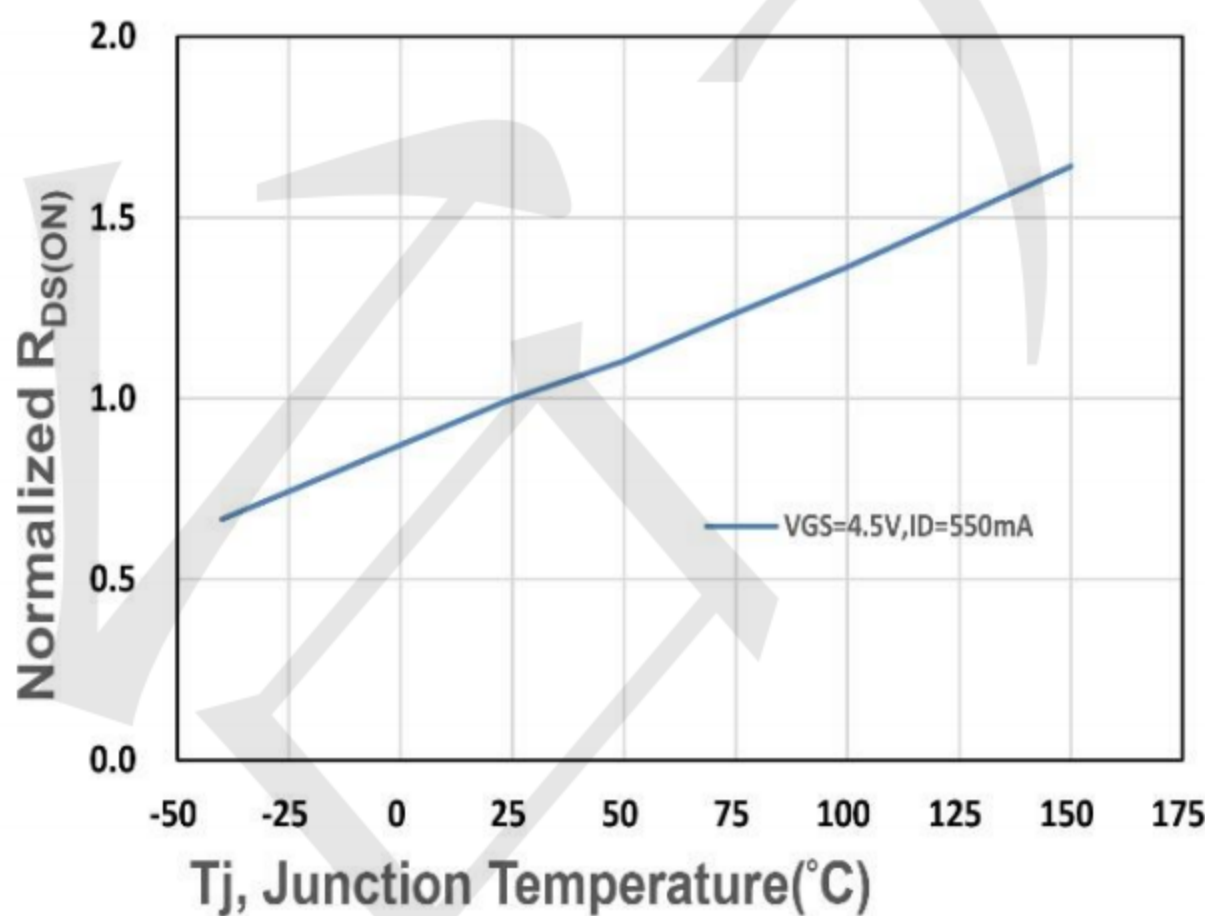Figure 4. Gate Threshold Voltage
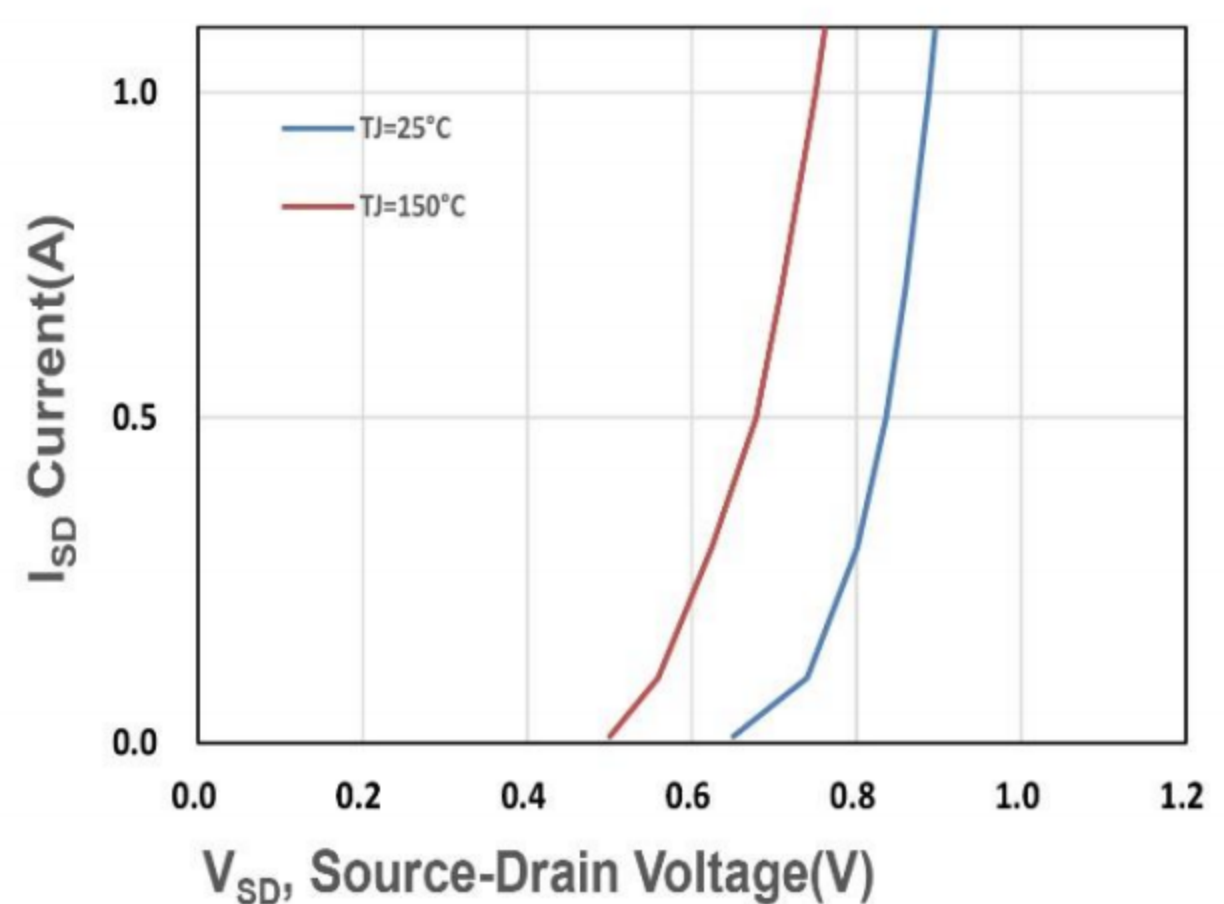

Figure 5. Drain-Source On Resistance
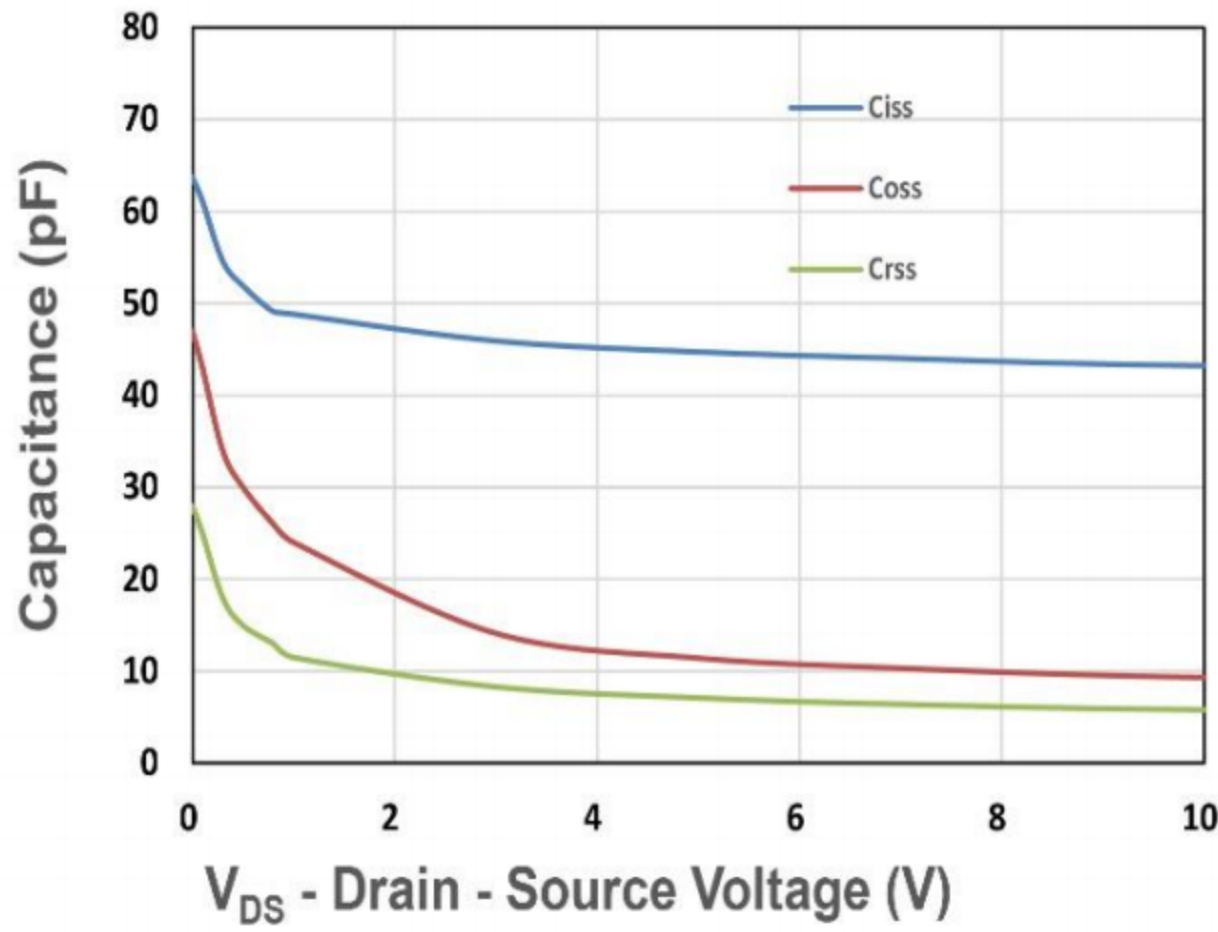

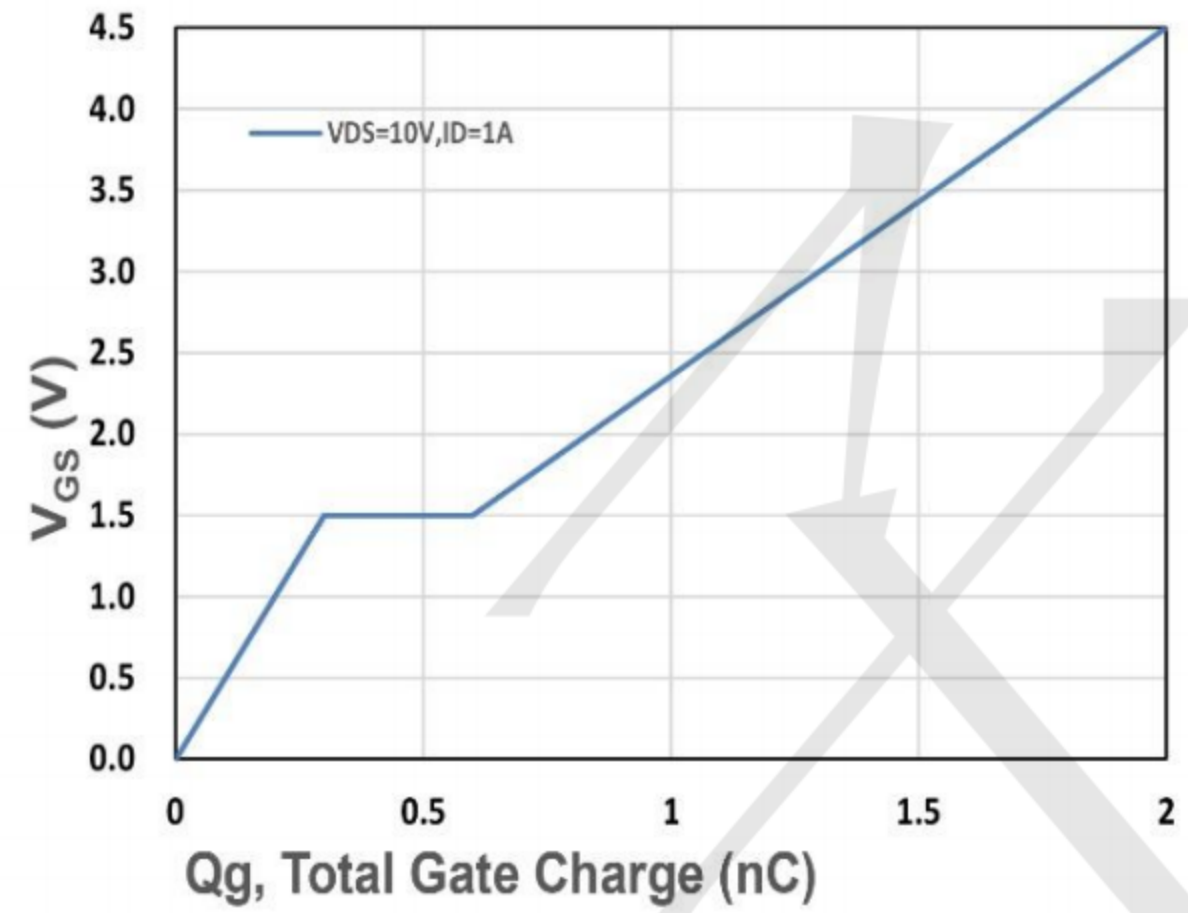Figure 6. Source-Drain Diode Forward

Figure 7. Capacitance
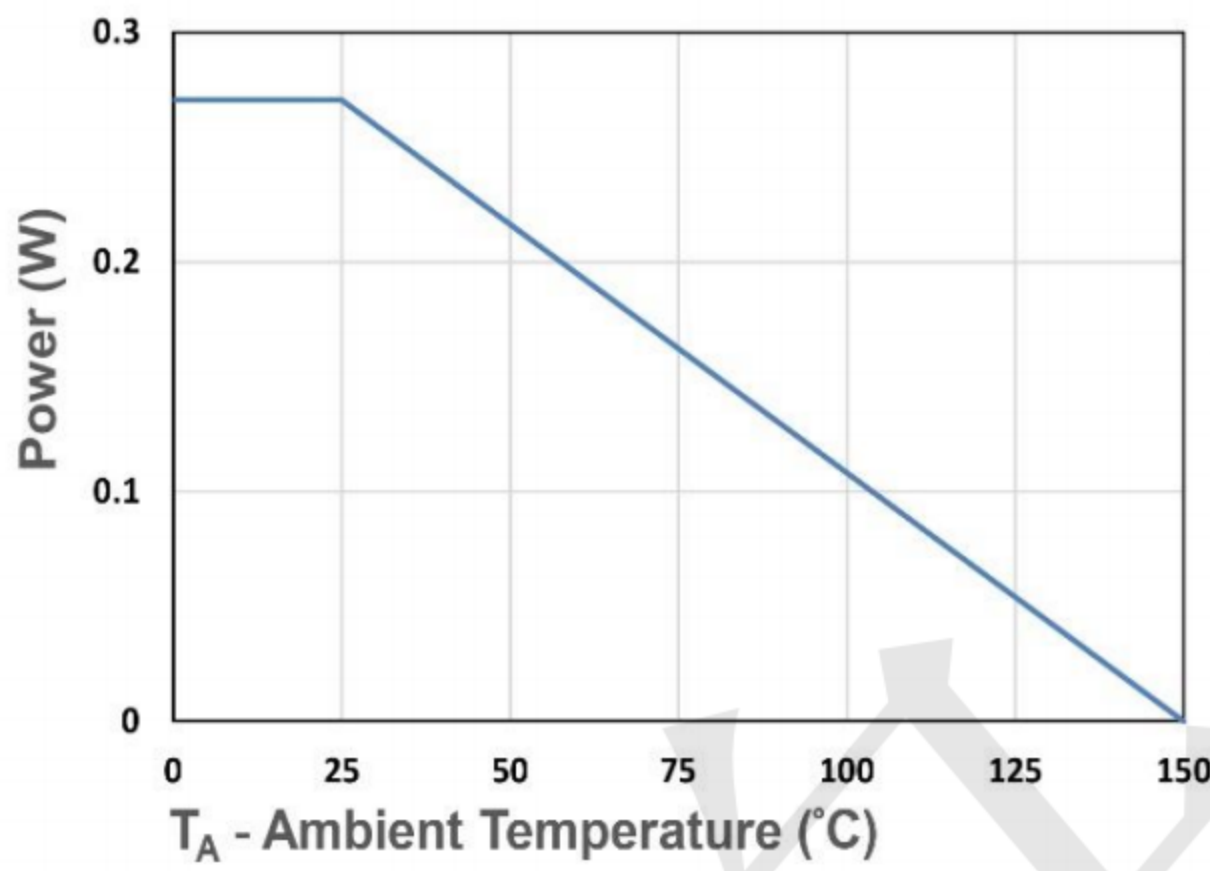

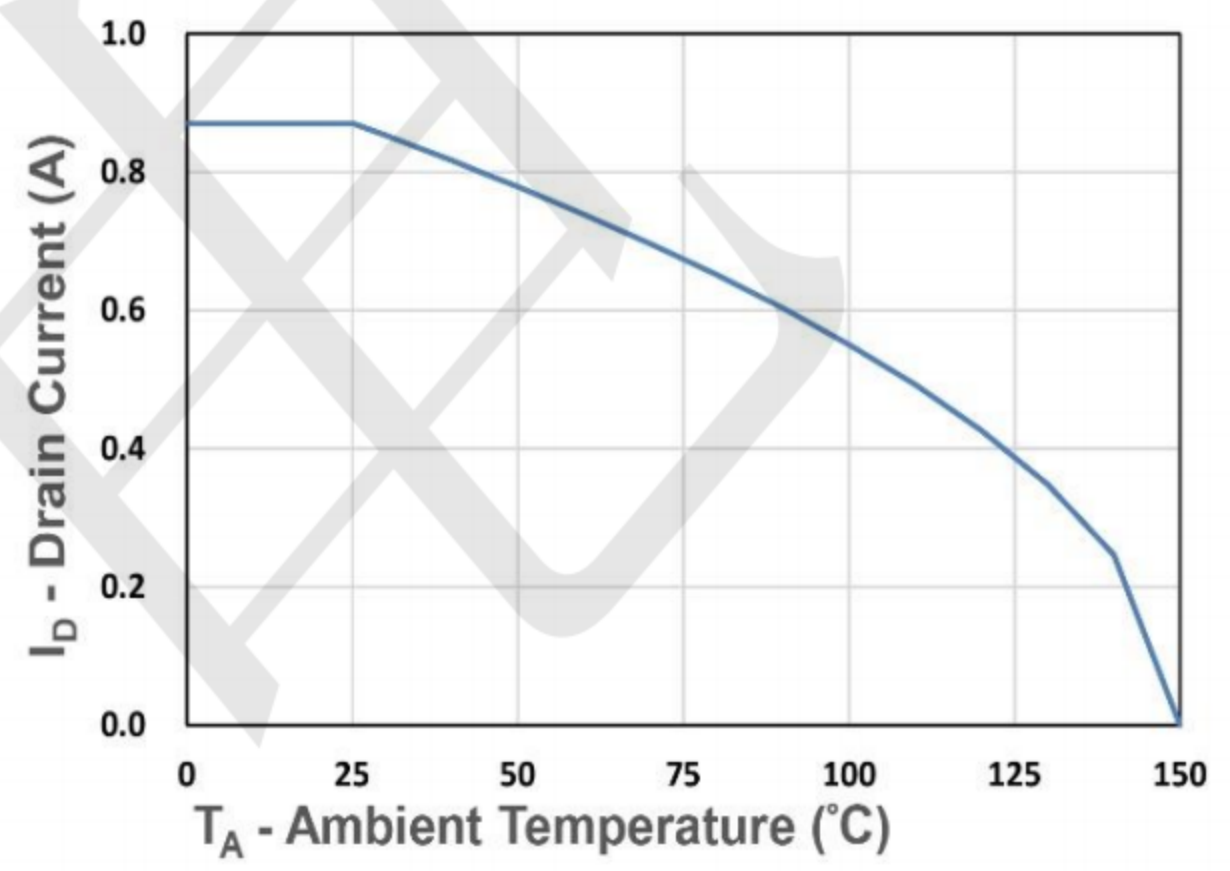Figure 8. Gate Charge Characteristics

Figure 9. Power Dissipation

Figure 10. Drain Current
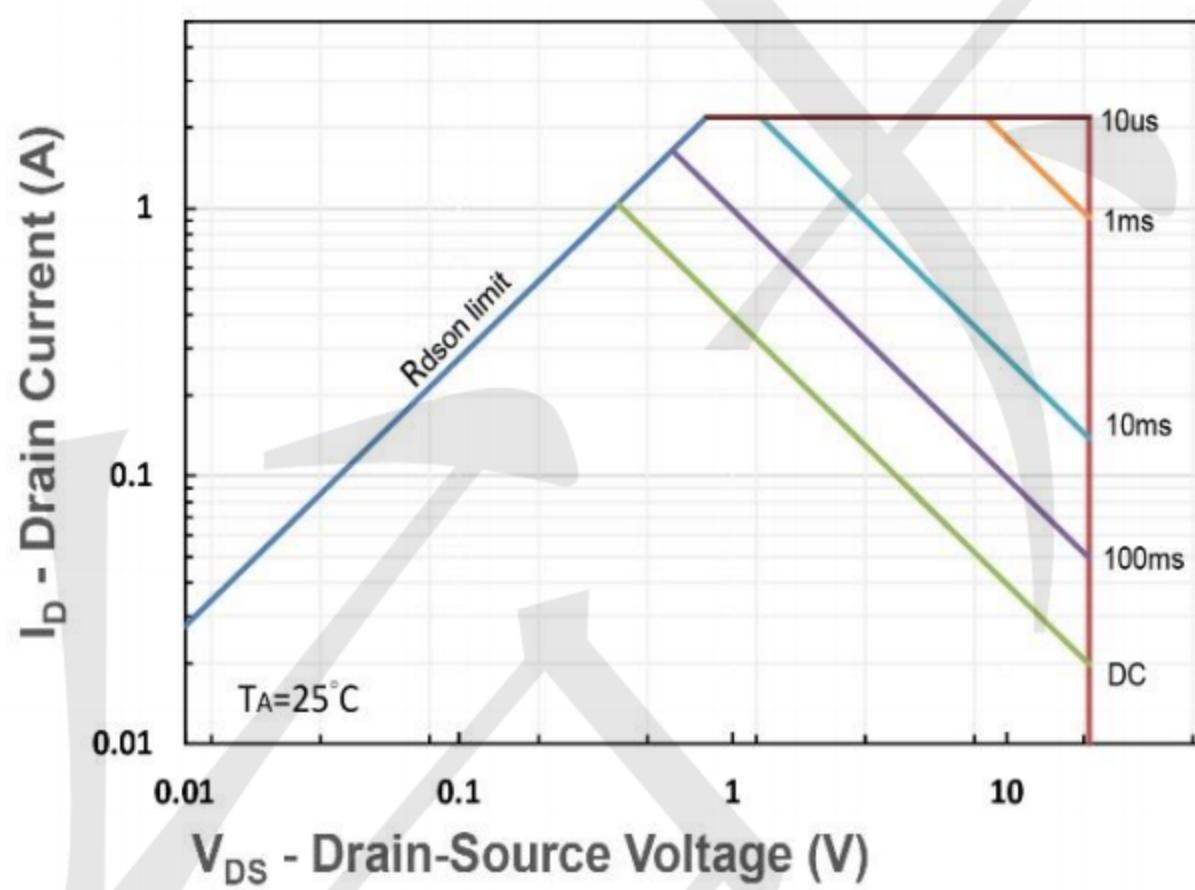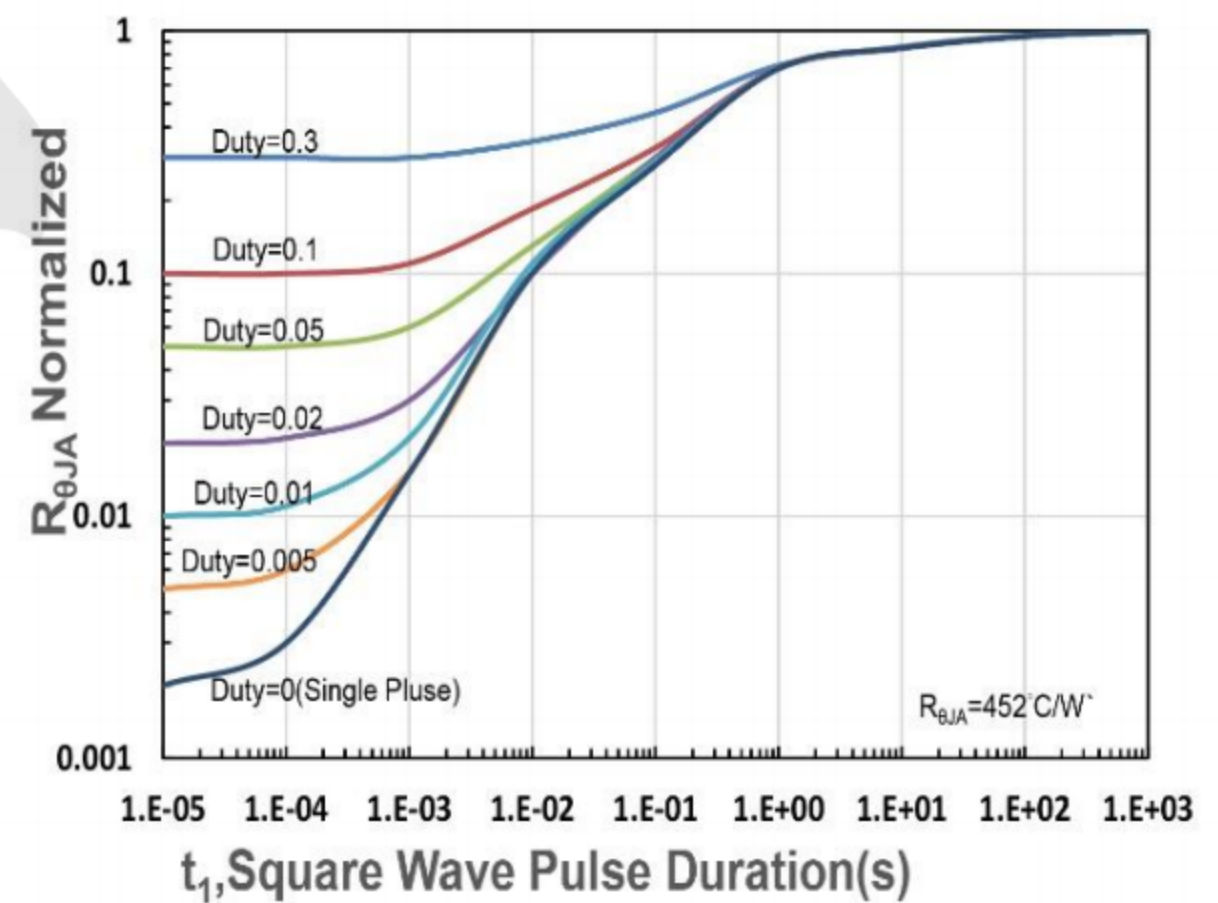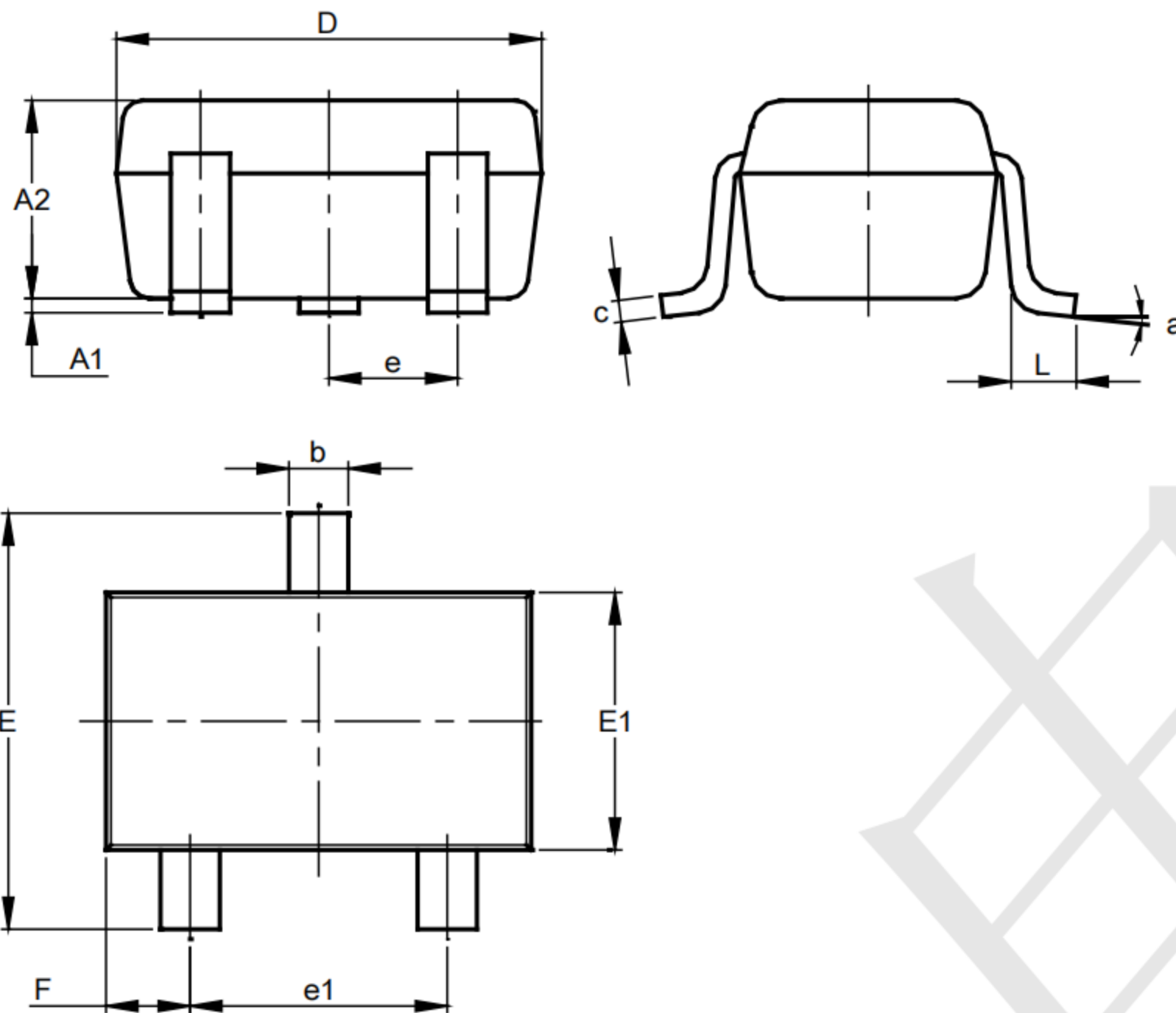

Figure 11. Safe Operating Area
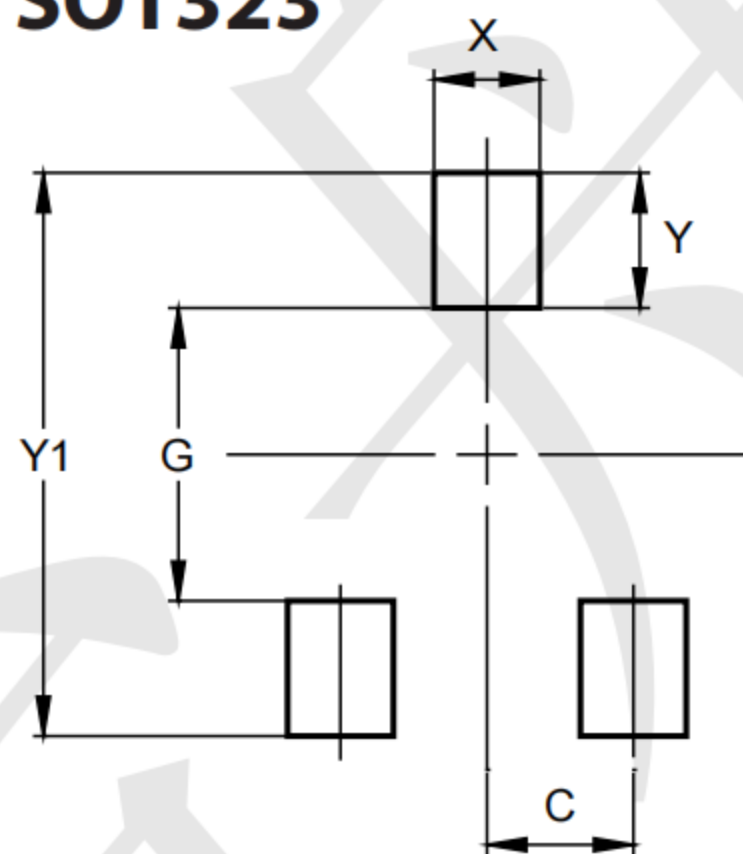

Figure 12. RθJA Transient Thermal Impedance

Outline Drawing - SOT323(SC70-3)

SOT323			
Dim	Min	Max	Typ
A1	0.00	0.10	0.05
A2	0.90	1.00	0.95
b	0.25	0.40	0.30
c	0.10	0.18	0.11
D	1.80	2.20	2.15
E	2.00	2.20	2.10
E1	1.15	1.35	1.30
e	0.650 BSC		
e1	1.20	1.40	1.30
F	0.375	0.475	0.425
L	0.25	0.40	0.30
a	0°	8°	--
All Dimensions in mm			

Land Pattern - SOT323

Dimensions	Value (in mm)
C	0.650
G	1.300
X	0.470
Y	0.600
Y1	2.500