

Features

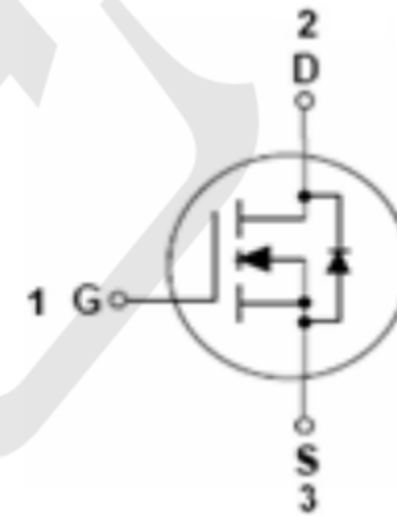
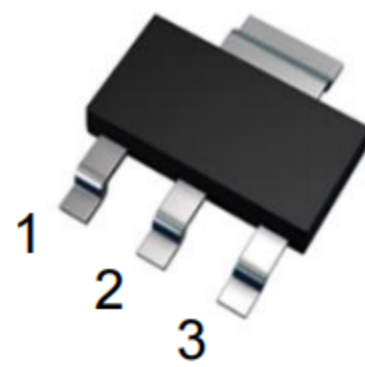
- Super low gate charge
- Green device available
- Excellent C_{dv} / d_t effect decline
- Advanced high cell density trench technology

Mechanical Data

- Case: SOT-223
- Molding compound, UL flammability classification rating 94V-0
- Terminals: Matte tin plated leads, solderable per MIL-STD-202, Method 208

Circuit Diagram

SOT223



Absolute Maximum Ratings (T_{amb}=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-to-Source Voltage	V_{DSS}	600	V
Gate-to-Source Voltage	V_{GSS}	±30	V
Continuous Drain Current	I_D	2	A
Continuous Drain Current (T _A = 100°C)		1.26	A
Pulsed Drain Current	I_{DM}	8	A
Single Pulse Avalanche Energy *1	E_{AS}	75	mJ

Thermal Characteristic

Parameter	Symbol	Value	Unit
Power Dissipation (T _A = 25°C)	P_D	3	W
Thermal Resistance Junction-to-Air	$R_{\theta JA}$	41.7	°C/W
Operating Junction Temperature Range	T_J	-55 ~ +150	°C
Storage Temperature Range	T_{STG}	-55 ~ +150	°C

Electrical Characteristics (TA=25°C unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
V _{DSS}	Drain-Source Breakdown Voltage	V _{GS} = 0V, I _D = 250μA	600	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = 600V, V _{GS} = 0V	-	-	10	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} = ±30V, V _{DS} = 0V	-	-	±100	nA
On Characteristics						
R _{DS(ON)}	Static Drain-Source On-resistance *2	V _{GS} = 10V, I _D = 1A	-	3.9	5	Ω
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = 250μA	2	3	4	V
R _G	Gate Resistance	V _{GS} = 0V, f = 1MHz	-	23.6	-	Ω
Dynamic Characteristics						
C _{ISS}	Input Capacitance	V _{GS} = 0V	-	359	-	pF
C _{OSS}	Output Capacitance	V _{DS} = 25V	-	48	-	
C _{RSS}	Reverse Transfer Capacitance	f = 1.0MHz	-	17	-	
Switching Characteristics						
t _{d(ON)}	Turn-on Delay Time	V _{DD} = 300V R _G = 25Ω I _D = 2.4A	-	10	-	ns
t _r	Turn-on Rise Time		-	25	-	
t _{d(OFF)}	Turn-Off Delay Time		-	20	-	
t _f	Turn-Off Fall Time		-	25	-	
Q _G	Total Gate-Charge	V _{DD} = 480V	-	7.8	-	nC
Q _{GS}	Gate to Source Charge	V _{GS} = 10V	-	1.7	-	
Q _{GD}	Gate to Drain (Miller) Charge	I _D = 2.4A	-	2.3	-	
Source-Drain Diode Characteristics						
V _{SD}	Diode Forward Voltage *2	I _{SD} = 2A, V _{GS} = 0V	-	-	1.2	V
t _{rr}	Reverse Recovery Time	I _{SD} = 2.4A, V _{GS} = 0V	-	503	-	ns
Q _{rr}	Reverse Recovery Charge	dI/dt = 100A/μs	-	1838	-	nC

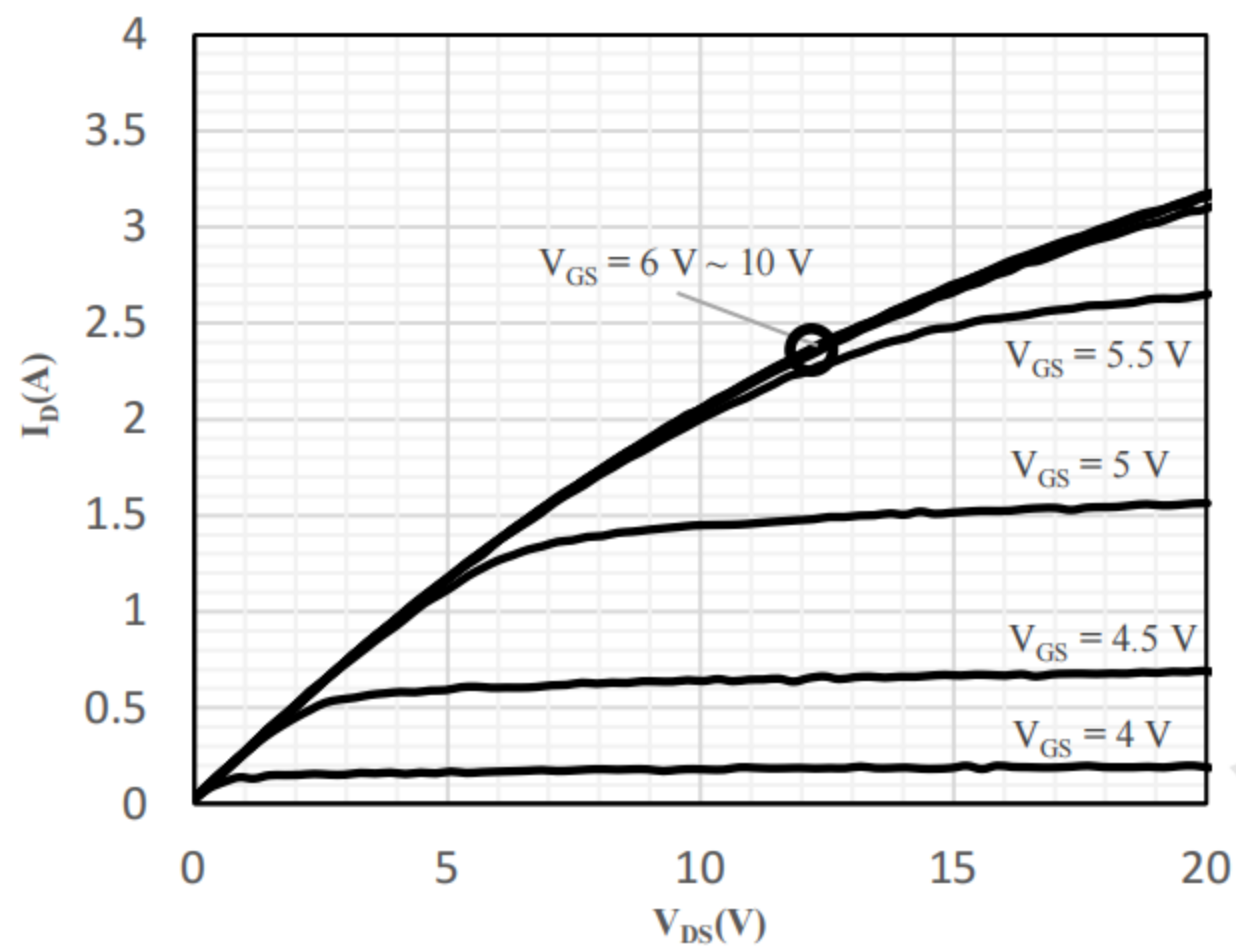


Fig 1 Typical Output Characteristics

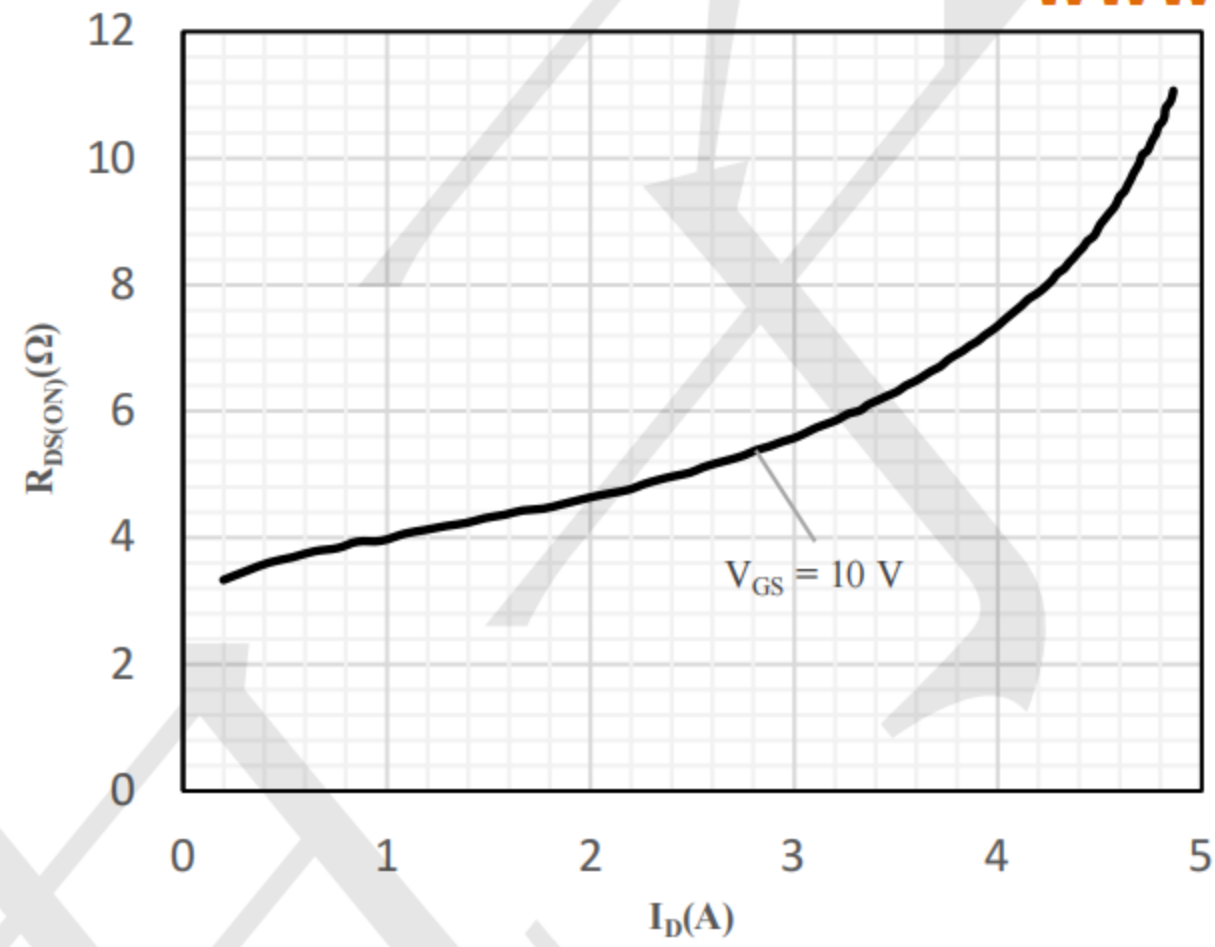


Fig 2 On-Resistance vs. Drain Current

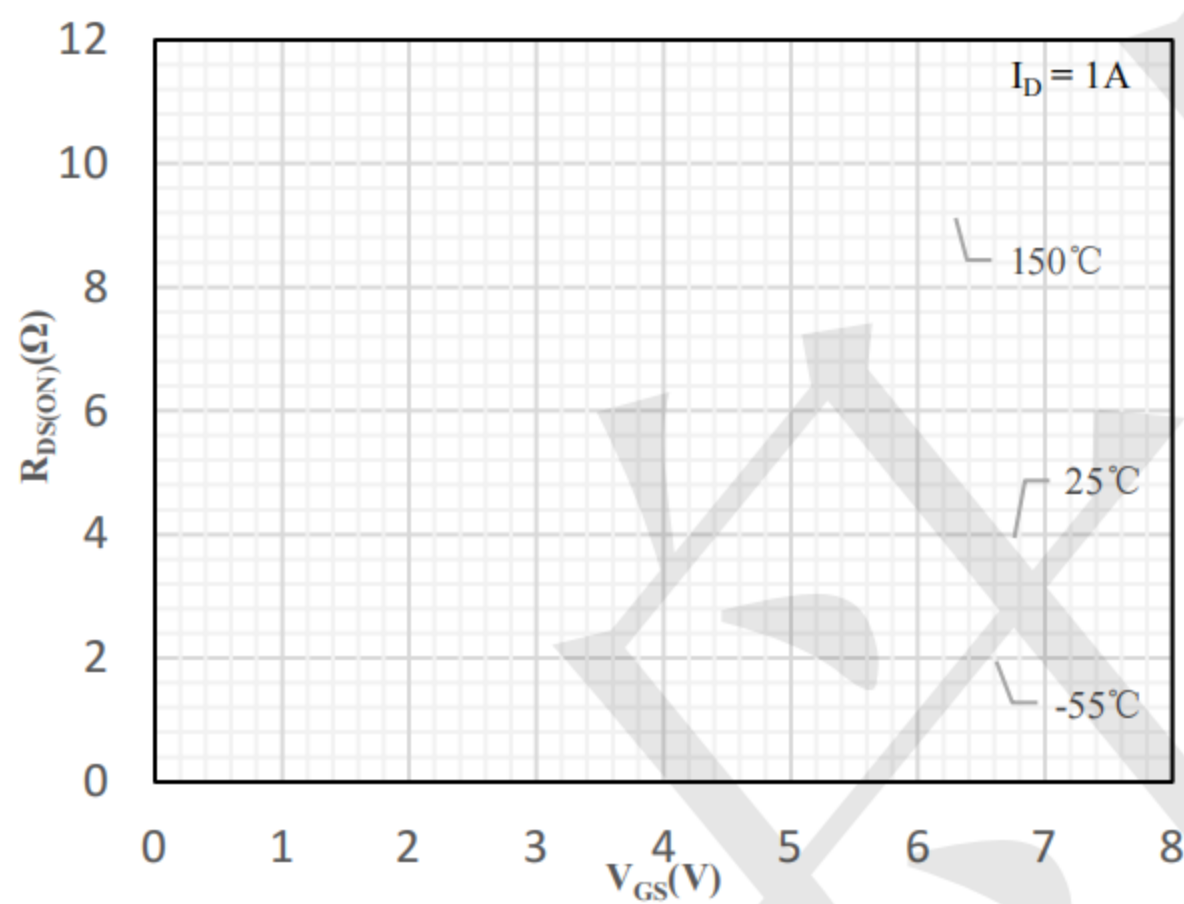


Fig 3 On-Resistance vs. Gate-Source Voltage

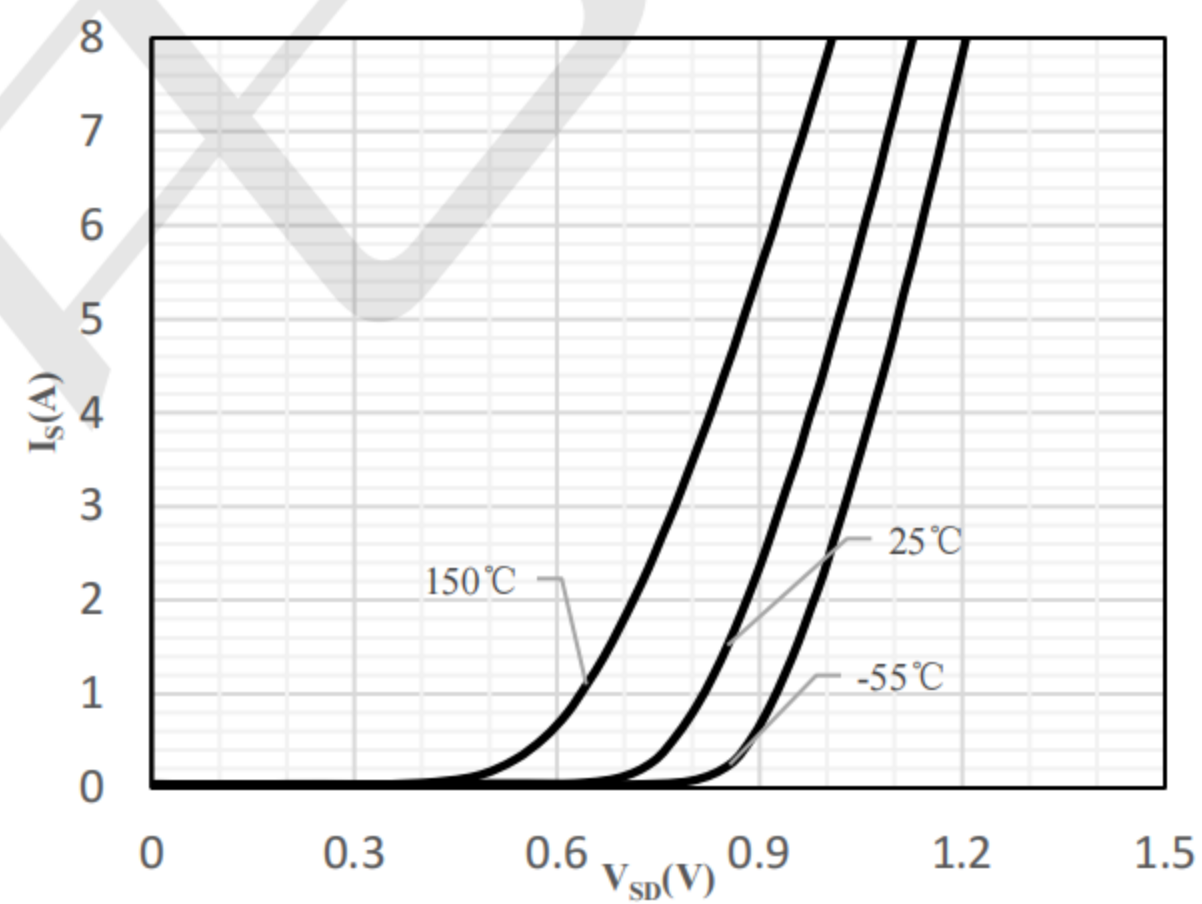


Fig 4 Body-Diode Characteristics

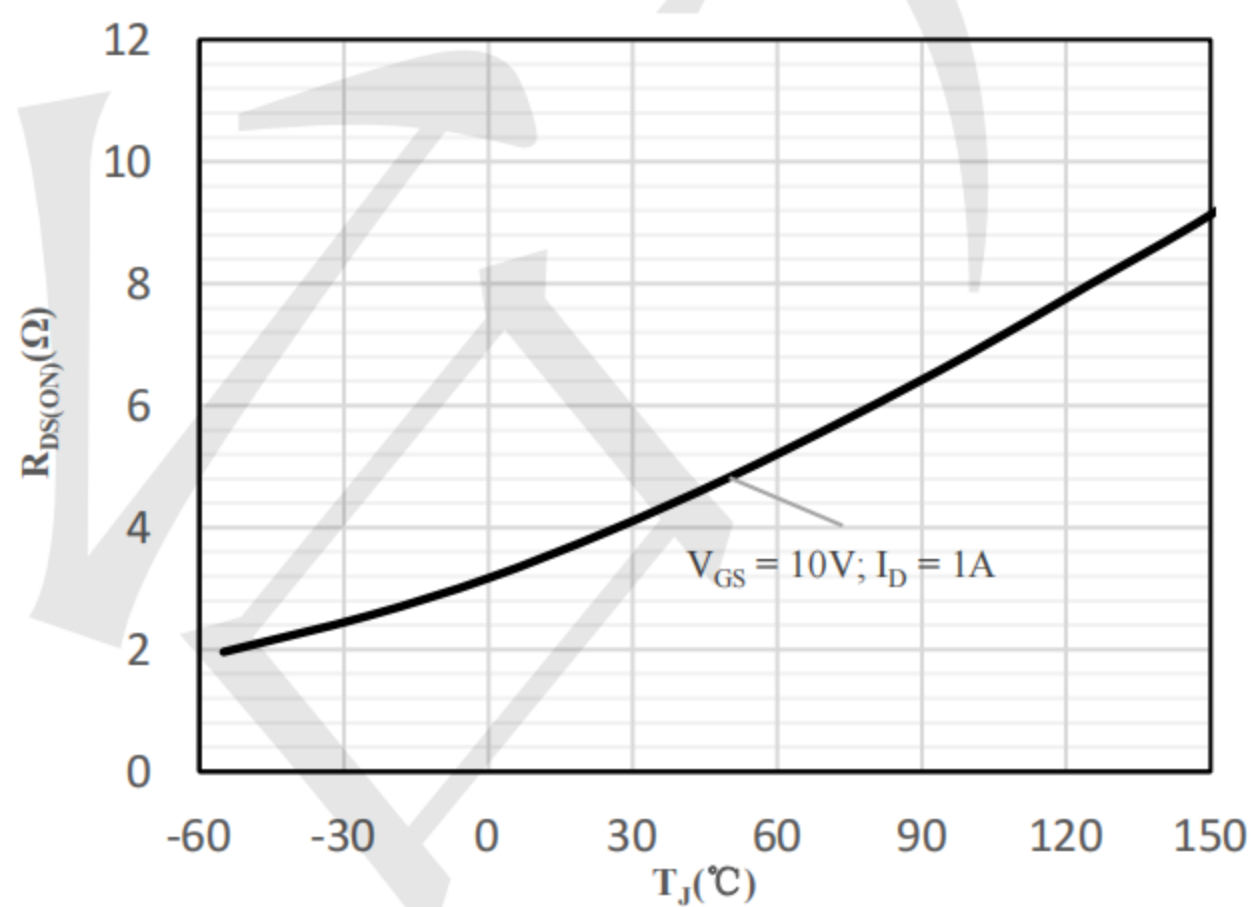


Fig 5 On-Resistance vs. Junction Temperature

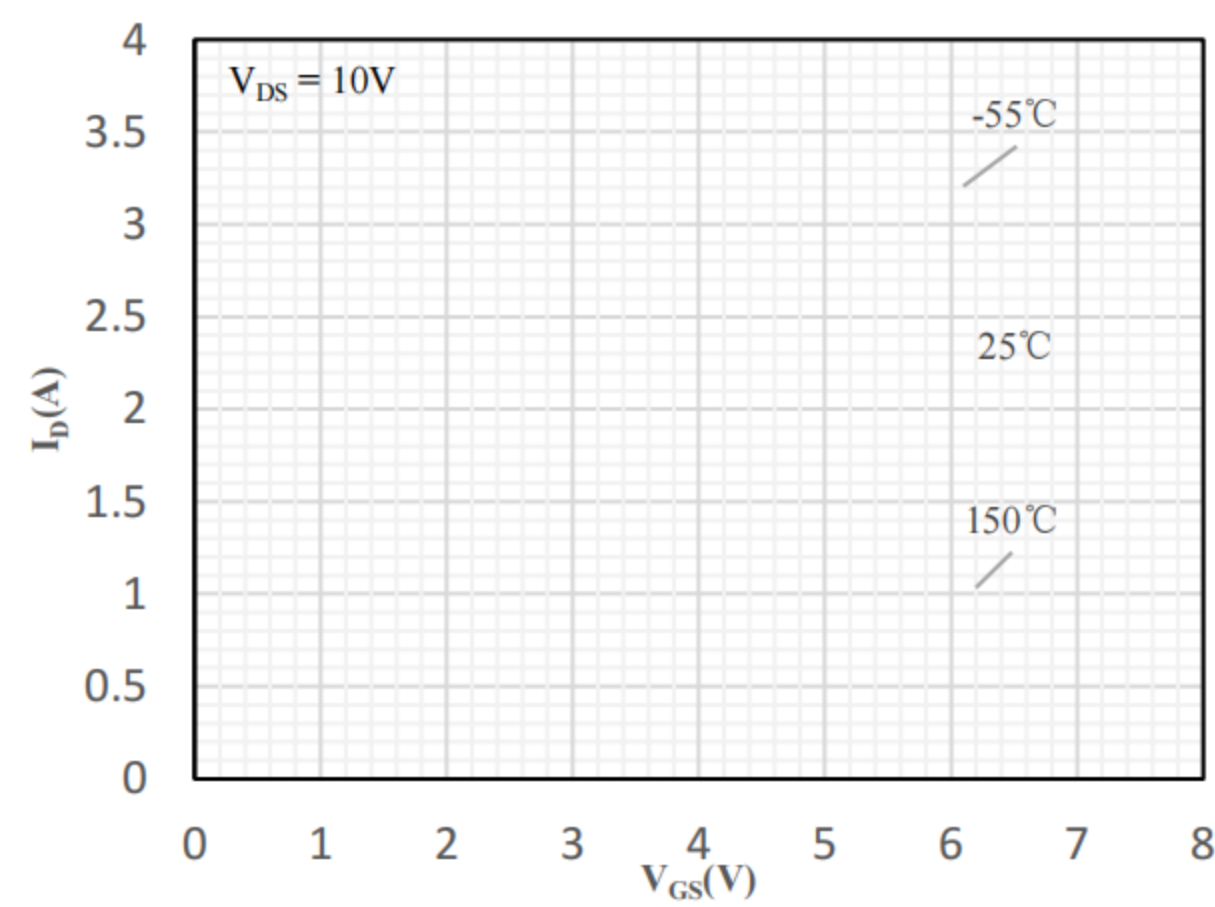


Fig 6 Transfer Characteristics

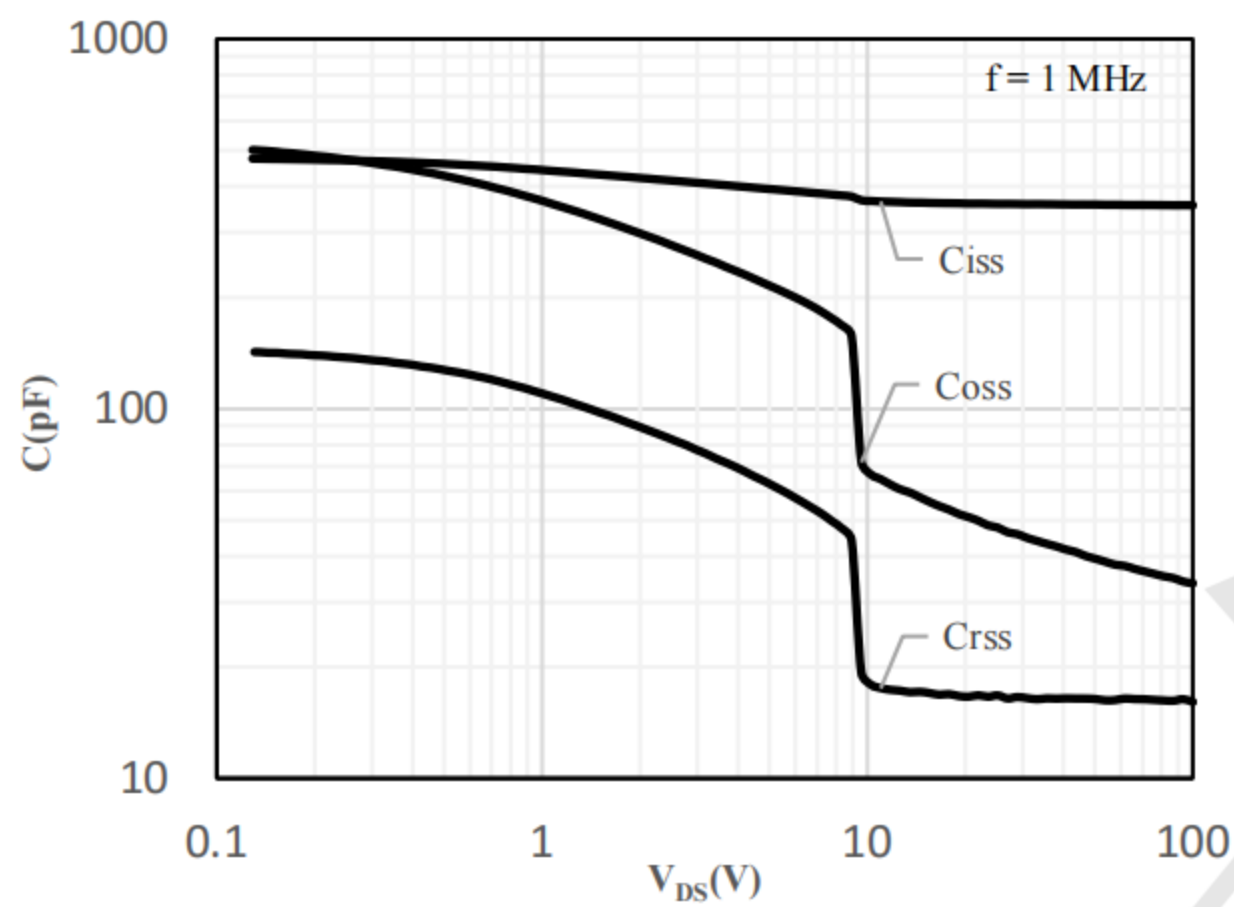


Fig 7 Capacitance Characteristics

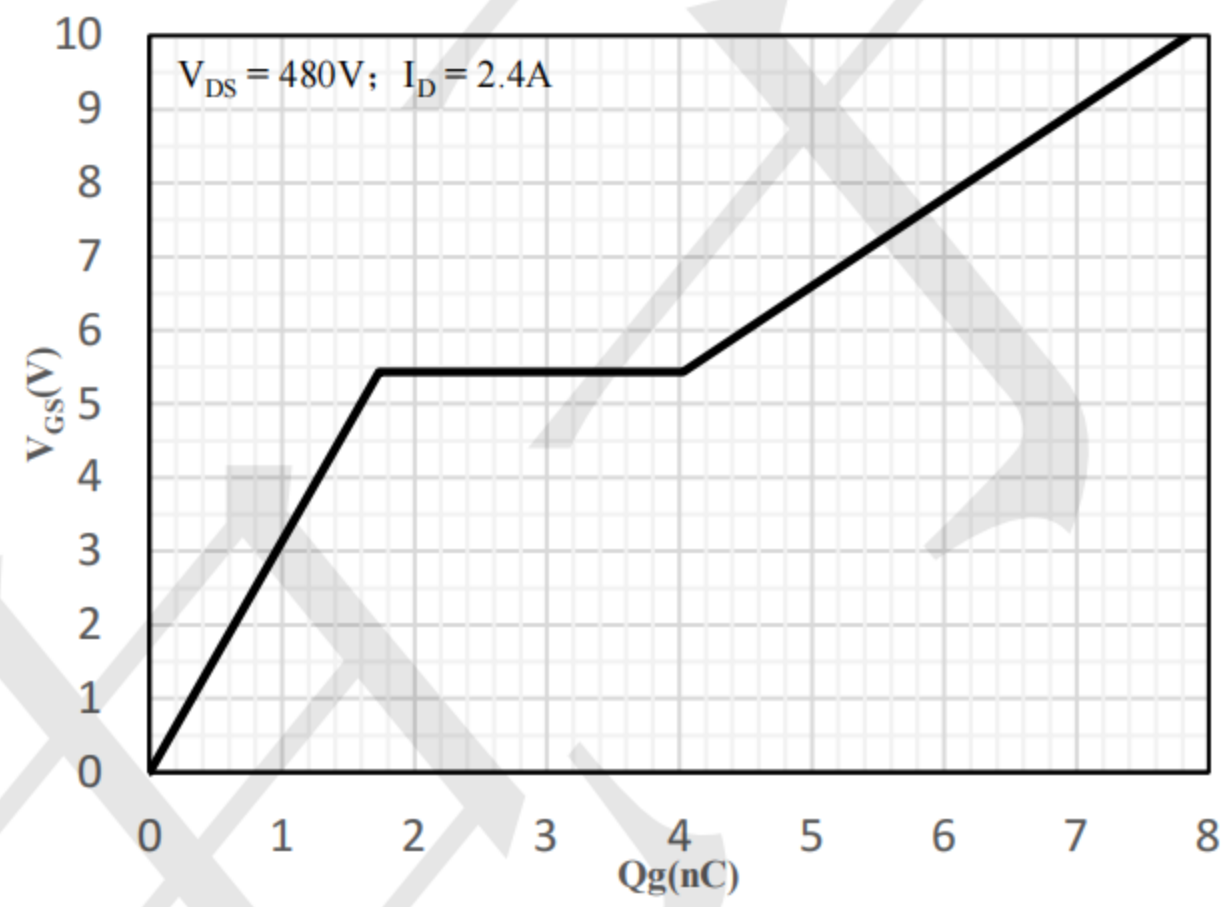


Fig 8 Gate-Charge Characteristics

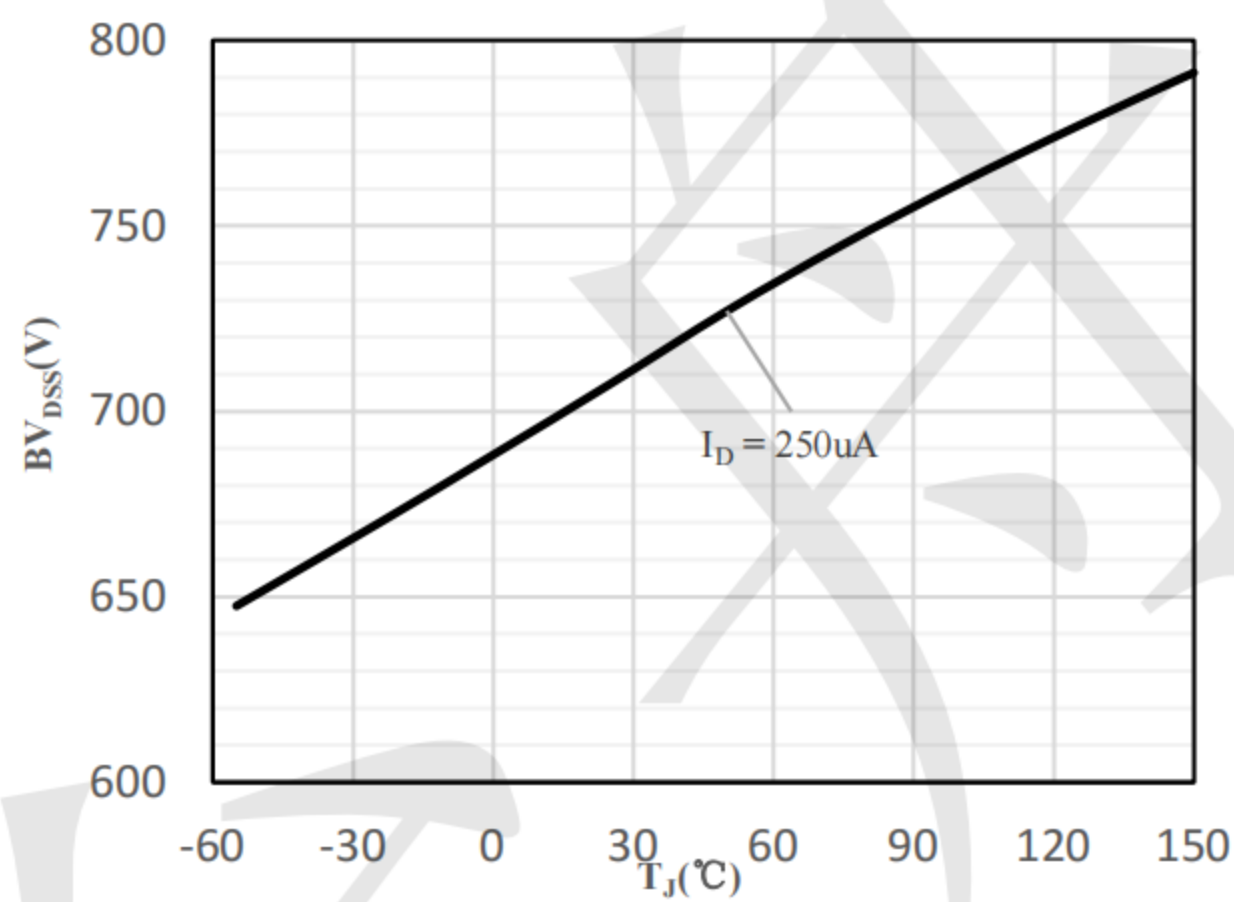


Fig 9 Breakdown Voltage vs. Junction Temperature

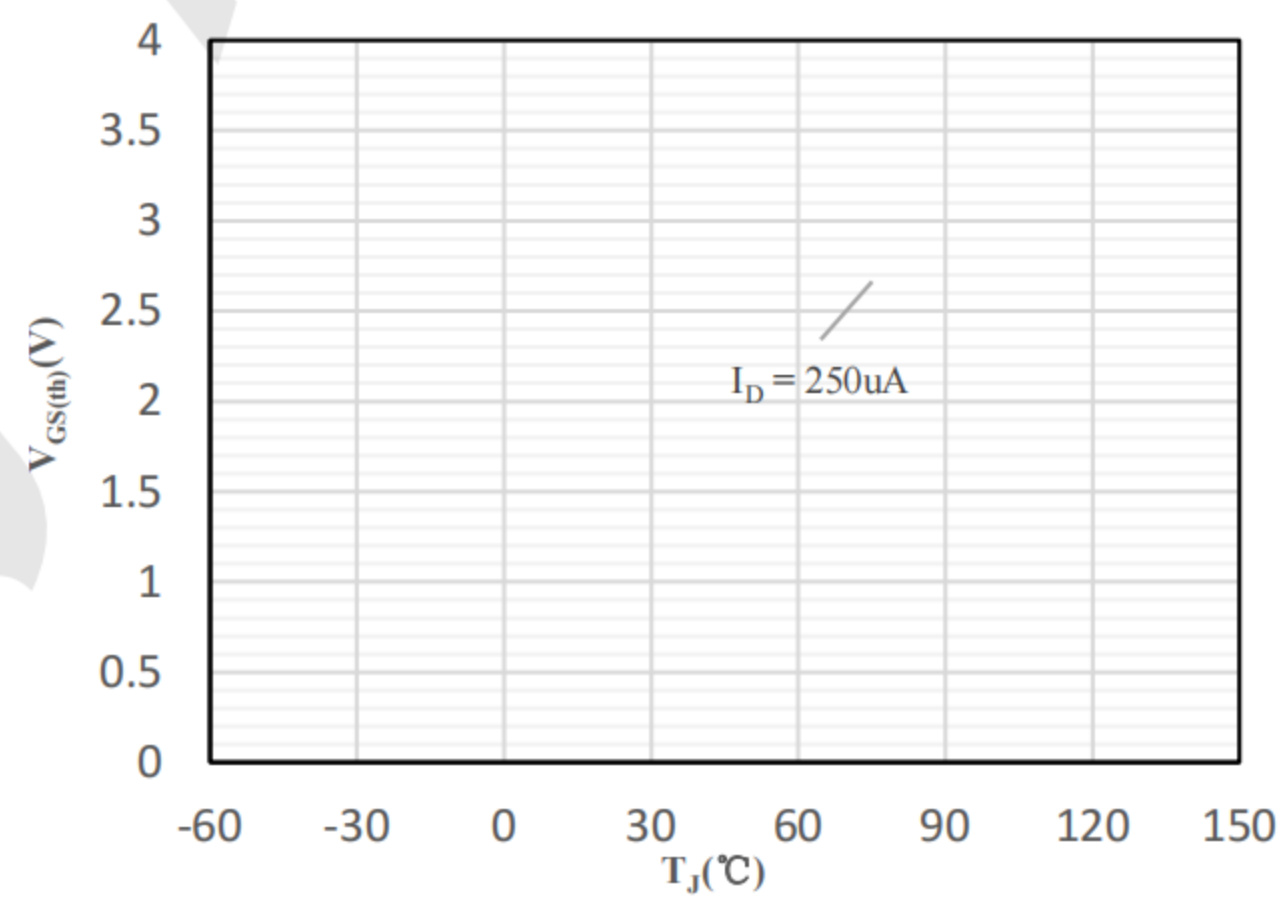
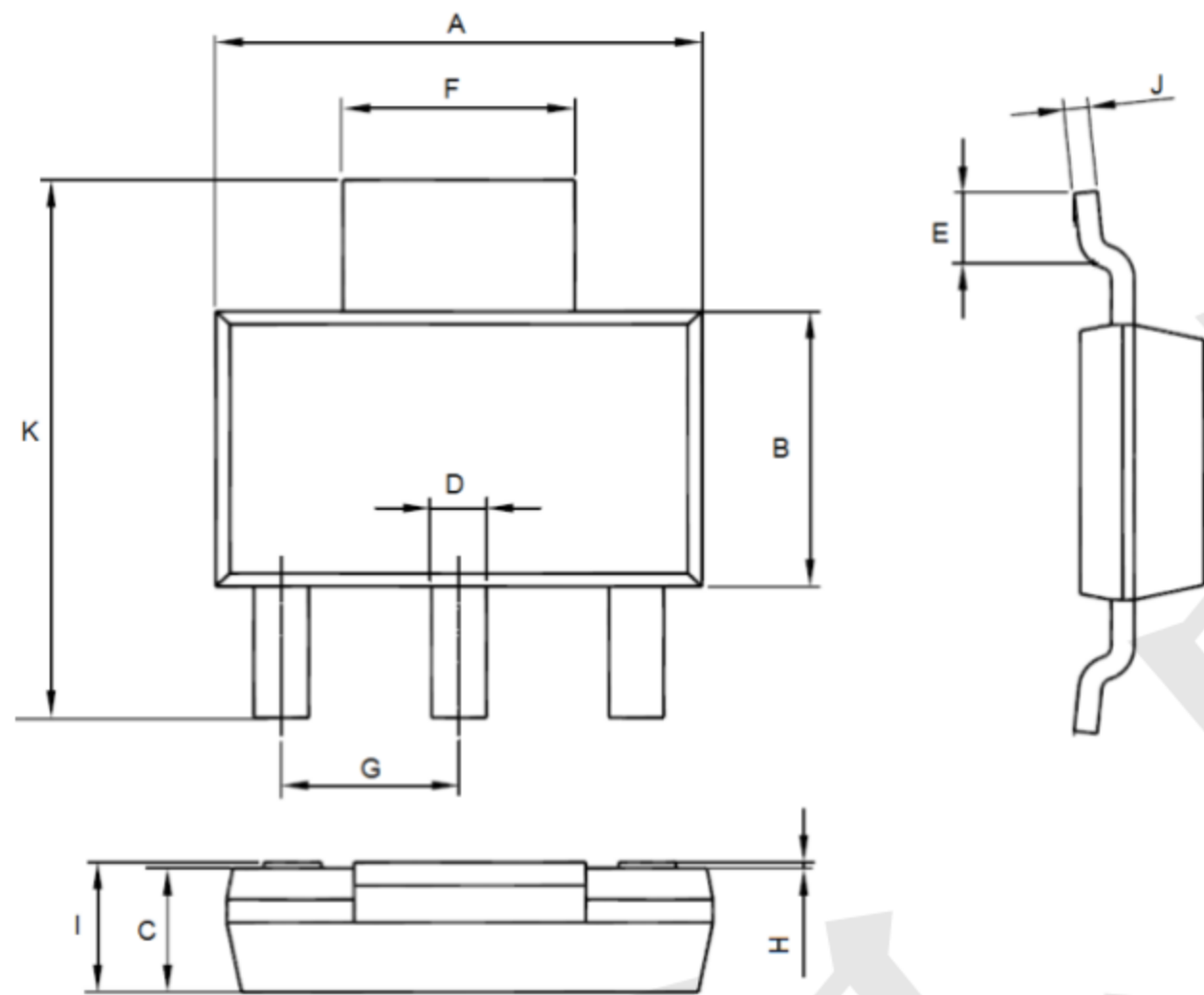


Fig 10 $V_{GS(th)}$ vs. Junction Temperature

Outline Drawing - SOT223



SOT-223		
Dim	Min	Max
A	6.10	6.50
B	3.30	3.70
C	1.50	1.70
D	0.66	0.82
E	0.90	1.15
F	2.90	3.10
G	2.20	2.40
H	0.02	0.10
I	1.52	1.80
J	0.20	0.40
K	6.70	7.30

