

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
650V	$6.5\Omega@10V$	2A

Feature

- Self-aligned planar technology
- Low conduction losses
- Small package

Application

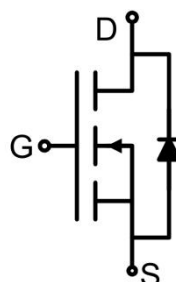
- LED

Package

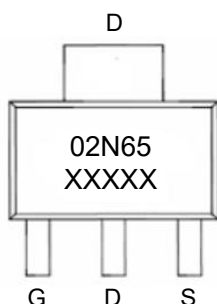


SOT-223

Circuit diagram



Marking



Absolute maximum ratings (Tc=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage (V _{GS} =0V)	V _{DS}	650	V
Gate-Source Voltage	V _{GS}	±30	V
Continuous Drain Current	I _D	2	A
Pulsed Drain Current ¹⁾	I _{DM}	6	A
Single Pulse Avalanche Energy	E _{AS}	50	mJ
Power Dissipation	P _D	25	W
Thermal Resistance from Junction to Case	R _{θJC}	4	°C/W
Junction Temperature	T _J	150	°C
Storage Temperature	T _{STG}	-55 ~ +150	°C

Electrical characteristics (T_J=25 °C, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250μA	650			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =650V, V _{GS} =0V			1	μA
Gate-body leakage current	I _{GSS}	V _{GS} =±30V, V _{DS} =0V			±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	2	3	4	V
Drain-source on-resistance	R _{DS(on)}	V _{GS} =10V, I _D =0.5A		4.5	6.5	Ω
Dynamic characteristics ²⁾						
Input Capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V, f =1MHz		310		pF
Output Capacitance	C _{oss}			39		
Reverse Transfer Capacitance	C _{rss}			6		
Total Gate Charge	Q _g	V _{DD} =300V, V _{GS} =10V, I _D =2A		8		nC
Gate-Source Charge	Q _{gs}			1.2		
Gate-Drain Charge	Q _{gd}			5		
Turn-on delay time	t _{d(on)}	V _{DD} =300V, I _D =2A, R _G =25Ω		7.8		nS
Turn-on rise time	t _r			3.3		
Turn-off delay time	t _{d(off)}			23		
Turn-off fall time	t _f			59		
Source-Drain Diode characteristics						
Diode Forward Current	I _S	T _C =25℃			2	A
Diode Forward voltage	V _{SD}	V _{GS} =0V, I _{SD} =0.8A			1.5	V
Reverse Recovery Time	t _{rr}	V _{GS} =0V, I _S =2A, di _F /dt =100A/us		80		nS
Reverse Recovery Charge	Q _{rr}			1.8		μC

Notes:

1) The data tested by surface mounted on a 1 inch² FR-4 board with 20Z copper.

2) Guaranteed by design, not subject to production

Typical Characteristics

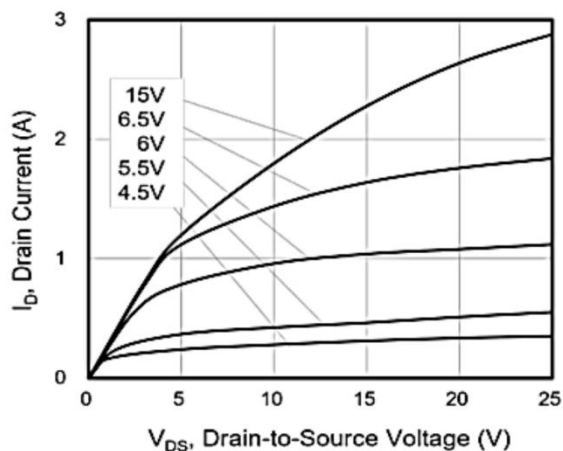


Figure 1. Output Characteristics ($T_J = 25^\circ\text{C}$)

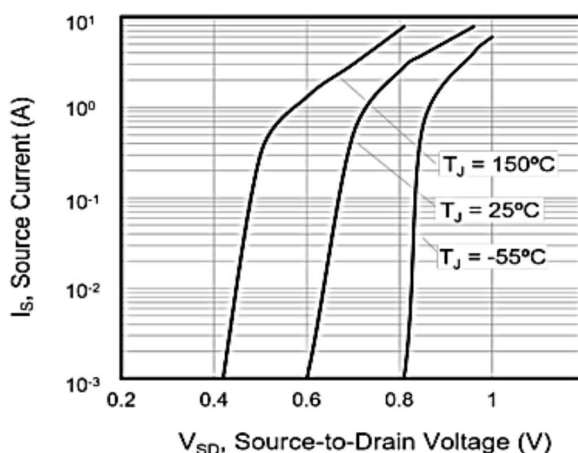


Figure 2. Body Diode Forward Voltage

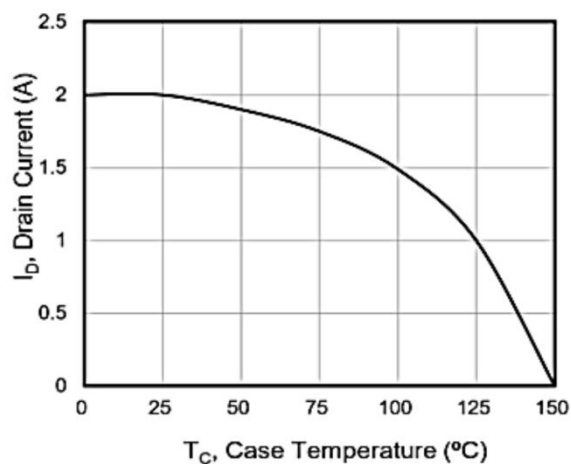


Figure 3. Drain Current vs. Temperature

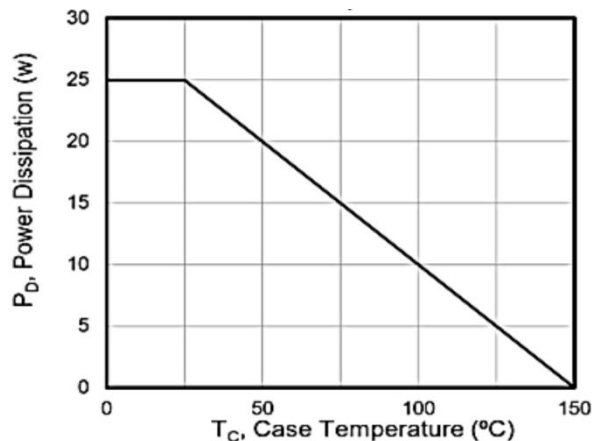


Figure 4. BV DSS Variation vs. Temperature

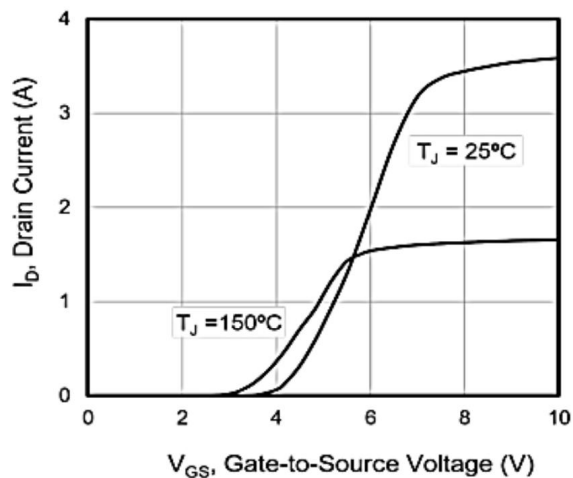


Figure 5. Transfer Characteristics

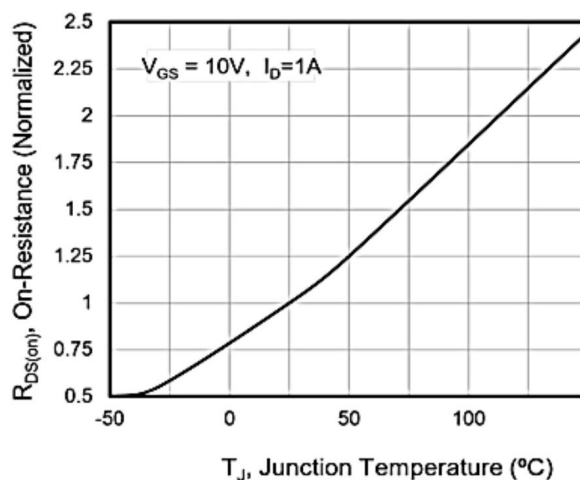


Figure 6. On-Resistance vs. Temperature

Typical Characteristics

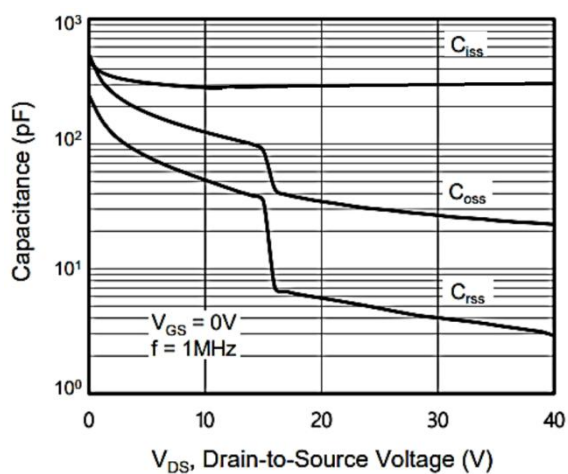


Figure 7. Capacitance

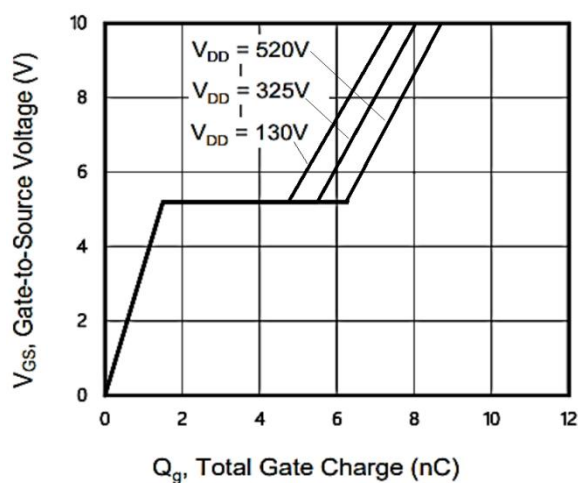


Figure 8. Gate Charge

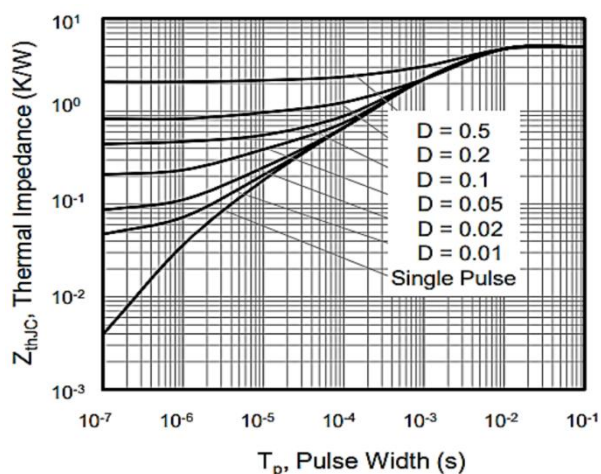
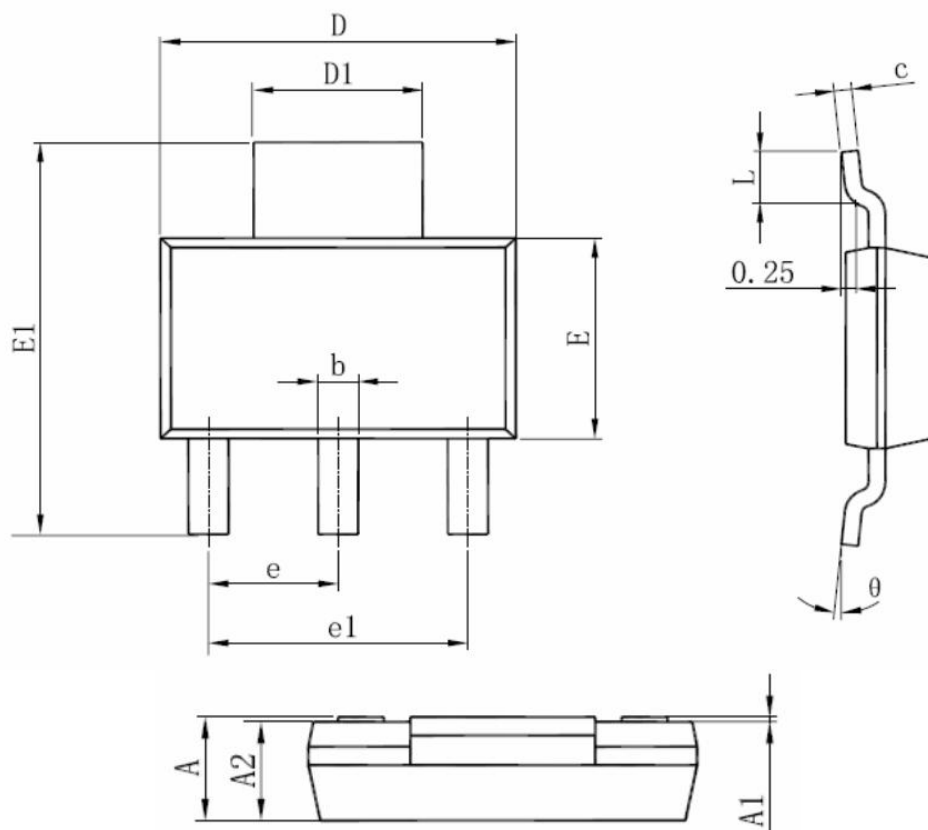


Figure 9. Transient Thermal Impedance

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	0.120	0.000	0.005
A2	1.450	1.750	0.057	0.069
b	0.600	0.820	0.024	0.032
c	0.240	0.350	0.010	0.014
D	6.200	6.500	0.244	0.256
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°