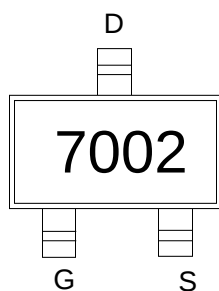


Features

- High density cell design for low $R_{DS(ON)}$
- Voltage controlled small signal switch
- Rugged and reliable
- High saturation current capability

Application

- Load Switch for Portable Devices
- DC/DC Converter



7002: Device code

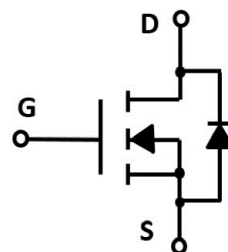
Marking and pin assignment

Product Summary

V_{DS}	$R_{DS(ON)}$ MAX	I_D MAX
60V	5 Ω @10V	0.3A
	7 Ω @5V	



SOT-323 top view



Schematic diagram



Pb-Free



Halogen-Free

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

Symbol	Parameter	Rating	Unit
Common Ratings (TC=25°C Unless Otherwise Noted)			
V_{DS}	Drain-Source Breakdown Voltage	60	V
V_{GS}	Gate-Source Voltage	± 20	V
T_J	Maximum Junction Temperature	150	°C
T_{STG}	Storage Temperature Range	-50 to 155	°C
I_S	Diode Continuous Forward Current	$T_C=25^\circ\text{C}$ 0.3	A

Mounted on Large Heat Sink

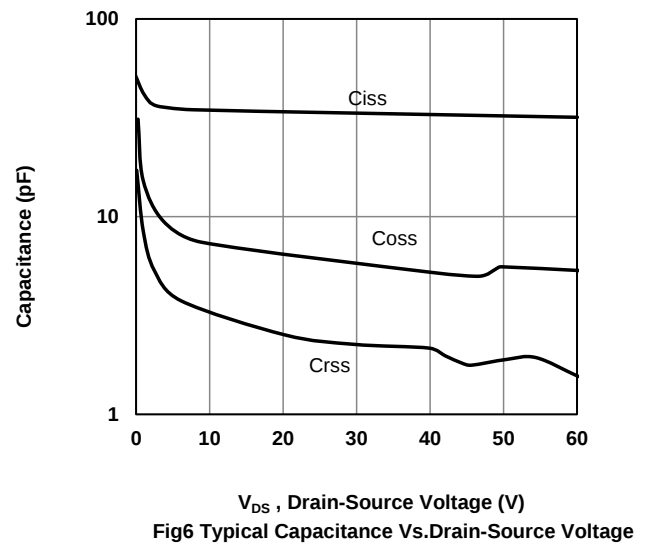
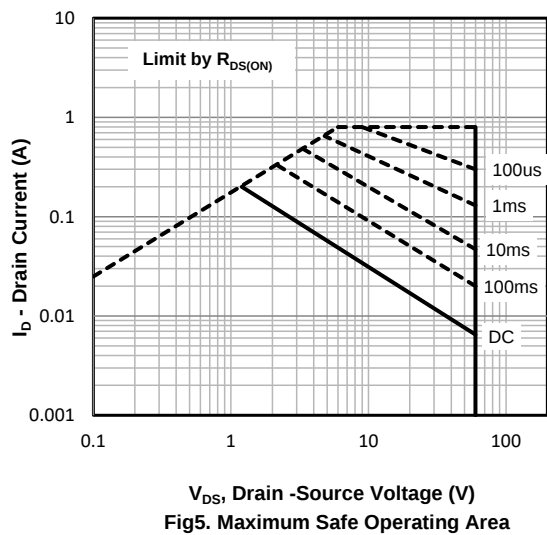
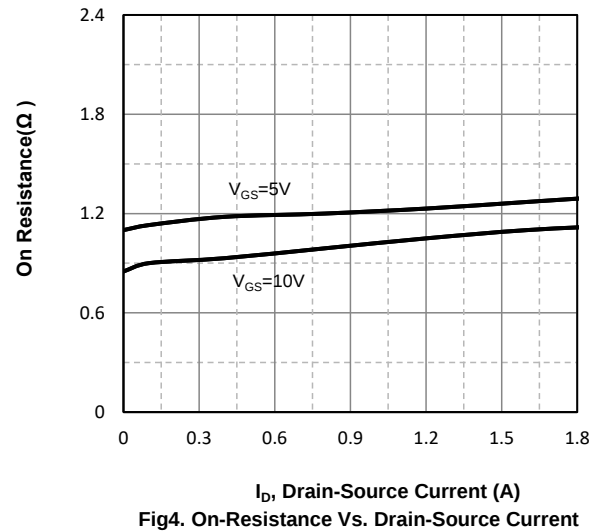
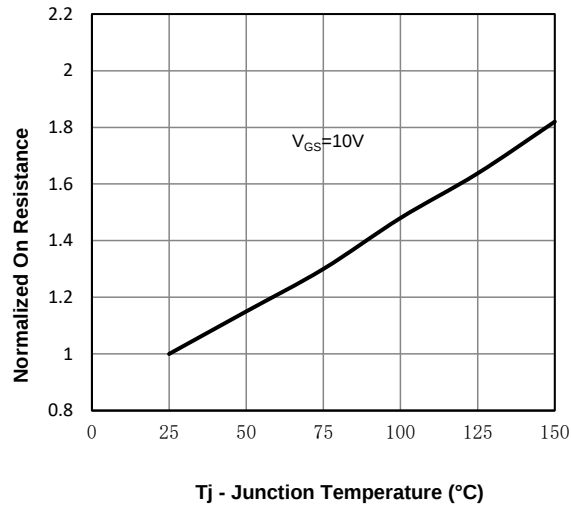
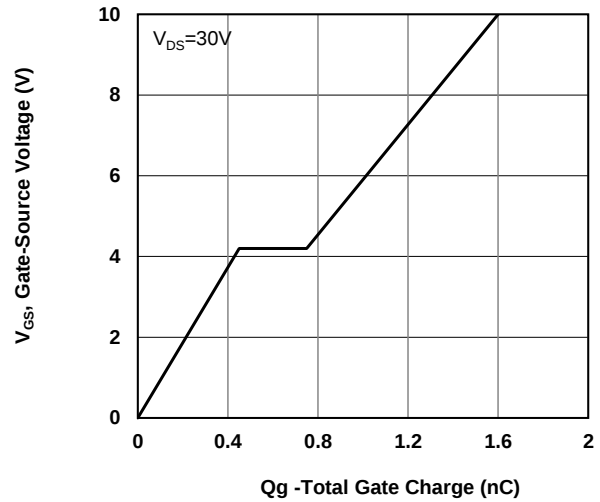
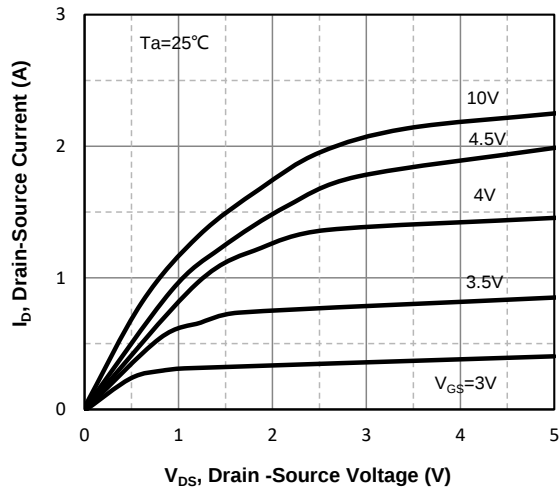
I_{DM}	Pulse Drain Current Tested	$T_C=25^\circ\text{C}$ 1.2	A
I_D	Continuous Drain Current	$T_C=25^\circ\text{C}$ 0.3	A
P_D	Maximum Power Dissipation	$T_C=25^\circ\text{C}$ 0.2	W
$R_{\theta JA}$	Thermal Resistance Junction-to-Ambient	625	°C/W

Ordering Information (Example)

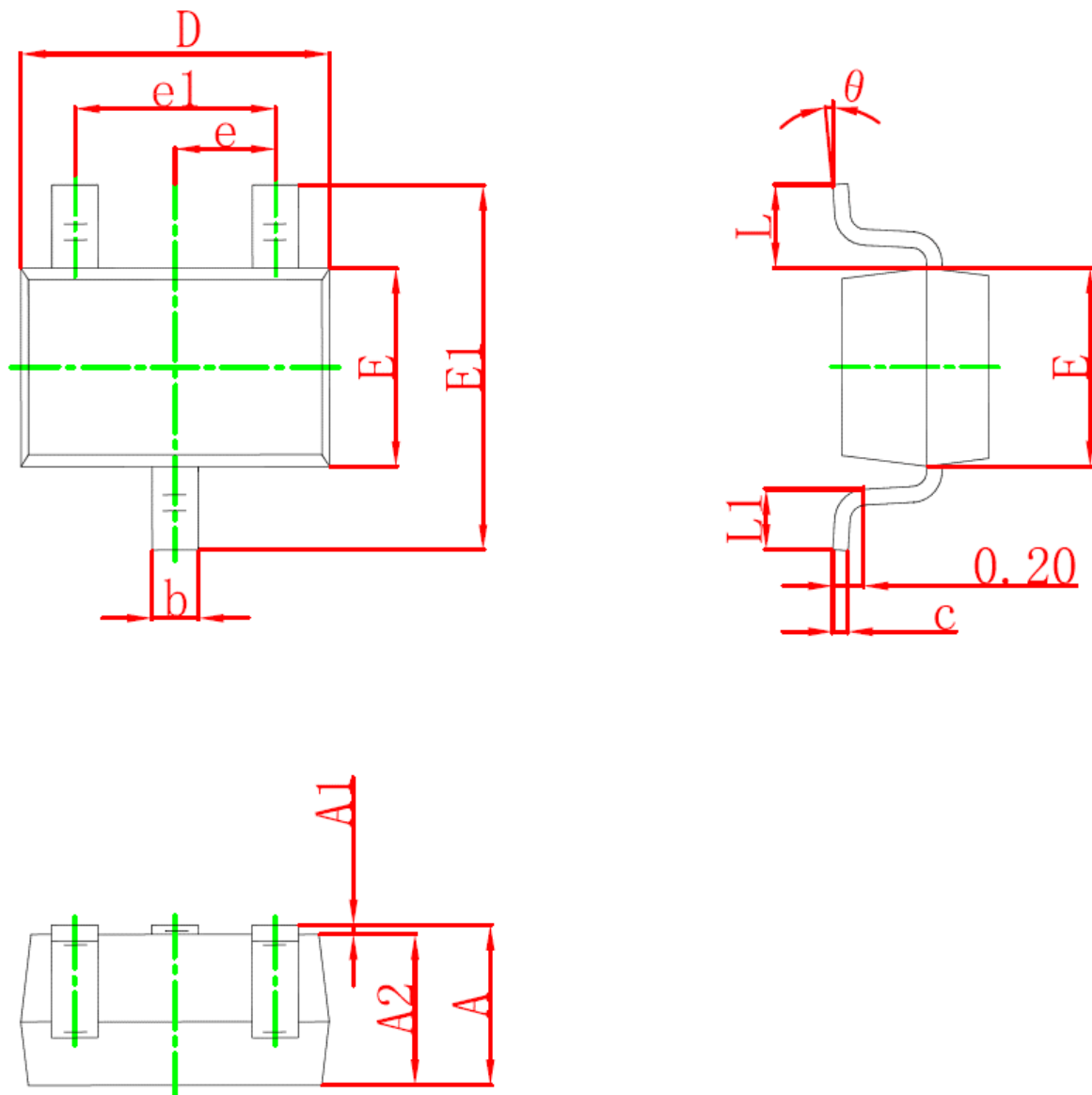
Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
2N7002W	SOT-323	7002	3,000	45,000	180,000	7" reel

Electrical Characteristics (TJ=25°C unless otherwise noted)						
Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
BV _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	60	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =60V, V _{GS} =0V	--	--	1	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±20V, V _{DS} =0V	--	--	±100	nA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	1.0	1.6	2.5	V
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =10V, I _D =500mA	--	0.85	5.0	Ω
		V _{GS} =5V, I _D =50mA	--	1.0	7.0	Ω
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
C _{ISS}	Input Capacitance	V _{DS} =30V, V _{GS} =0V, f=1MHz	--	27	--	pF
C _{OSS}	Output Capacitance		--	2.75	--	pF
C _{RSS}	Reverse Transfer Capacitance		--	2	--	pF
Switching Characteristics						
Q _g	Total Gate Charge	V _{DS} =30V, I _D =1A, V _{GS} =10V	--	1.7	--	nC
Q _{gs}	Gate-Source Charge		--	0.57	--	nC
Q _{gd}	Gate-Drain Charge		--	0.3	--	nC
Q _{rr}	Reverse Recovery Charge	I _F =1A, di/dt=100A/us	--	4	--	nC
t _{rr}	Reverse Recovery Time		--	14	--	nS
t _{d(on)}	Turn-on Delay Time	V _{DD} =30V, I _D =1A, V _{GS} =10V, R _G =3Ω	--	4	--	nS
t _r	Turn-on Rise Time		--	19	--	nS
t _{d(off)}	Turn-Off Delay Time		--	12	--	nS
t _f	Turn-off fall Time		--	24	--	nS
Source- Drain Diode Characteristics						
V _{SD}	Forward on voltage	Tj=25°C, Is=0.3A	--	--	1.2	V

Typical Operating Characteristics



SOT-323 Package information



Symbol	Dimensions in Millimeters(mm)		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.200	0.400	0.008	0.016
c	0.080	0.150	0.003	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650TYP		0.026TYP	
e1	1.200	1.400	0.047	0.055
L	0.525REF		0.021REF	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°