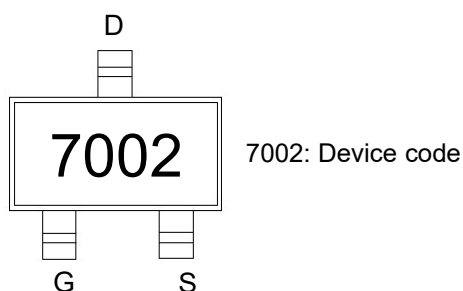


Features

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

Application

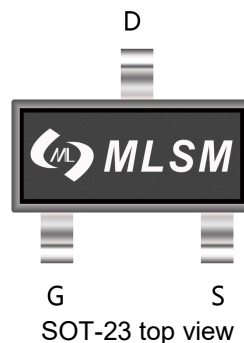
- Load Switch for Portable Devices
- DC/DC Converter



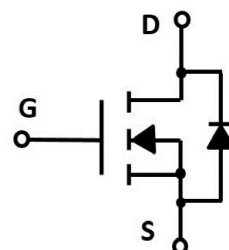
Marking and pin assignment

Product Summary

V_{DS}	$R_{DS(ON)} \text{ MAX}$	$I_D \text{ MAX}$
60V	2.5Ω@10V	0.34A
	3.0Ω@5V	



SOT-23 top view



Schematic diagram



Pb-Free



Halogen-Free

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

Symbol	Parameter	Rating	Unit
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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	Tc=25°C	0.34	A

Mounted on Large Heat Sink

I_{DM}	Pulse Drain Current Tested	$T_c=25^\circ\text{C}$	0.8	A
I_D	Continuous Drain Current	$T_c=25^\circ\text{C}$	0.34	A
P_D	Maximum Power Dissipation	$T_c=25^\circ\text{C}$	0.225	W
$R_{\theta JA}$	Thermal Resistance Junction-to-Ambient		357	°C/W

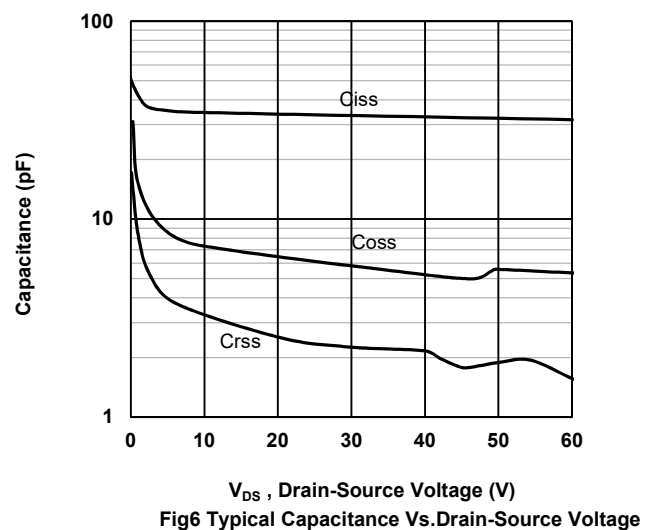
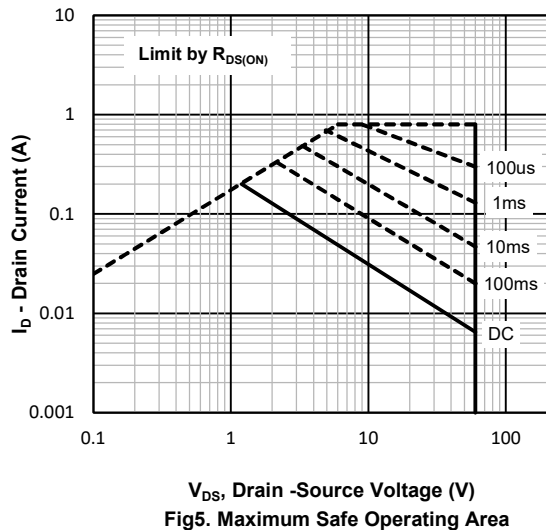
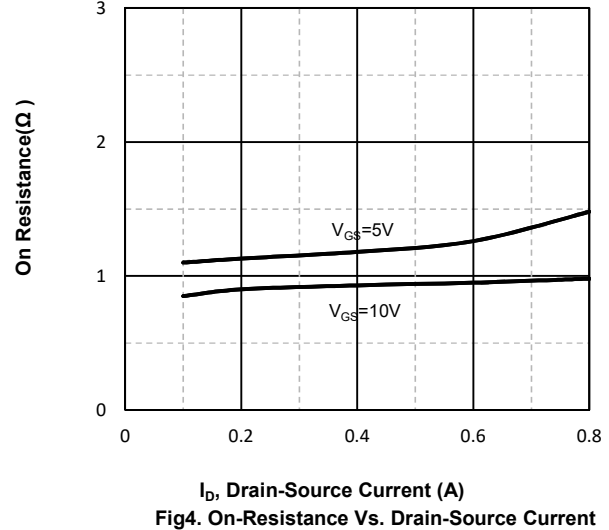
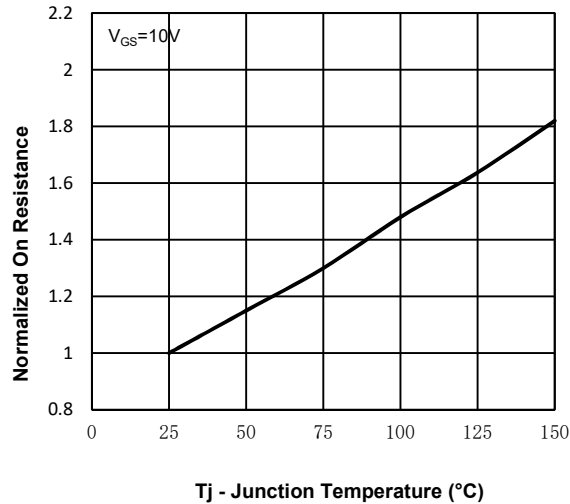
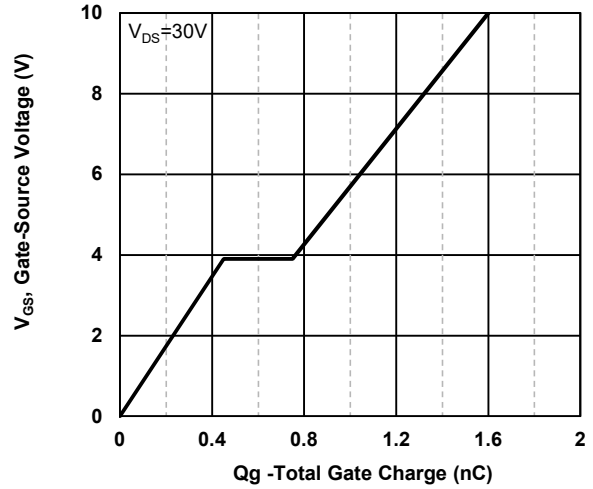
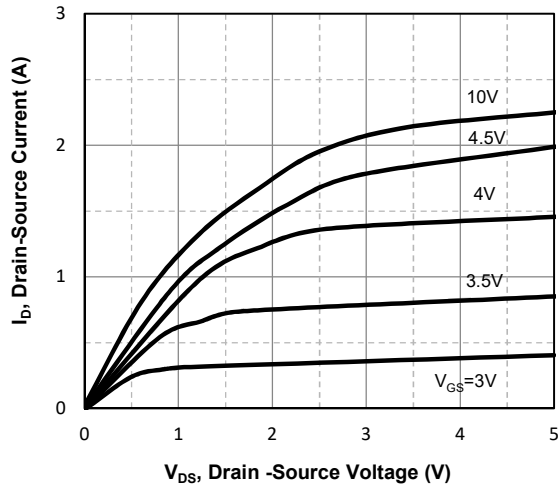
Ordering Information (Example)

Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
2N7002	SOT-23	7002	3,000	45,000	180,000	7"reel

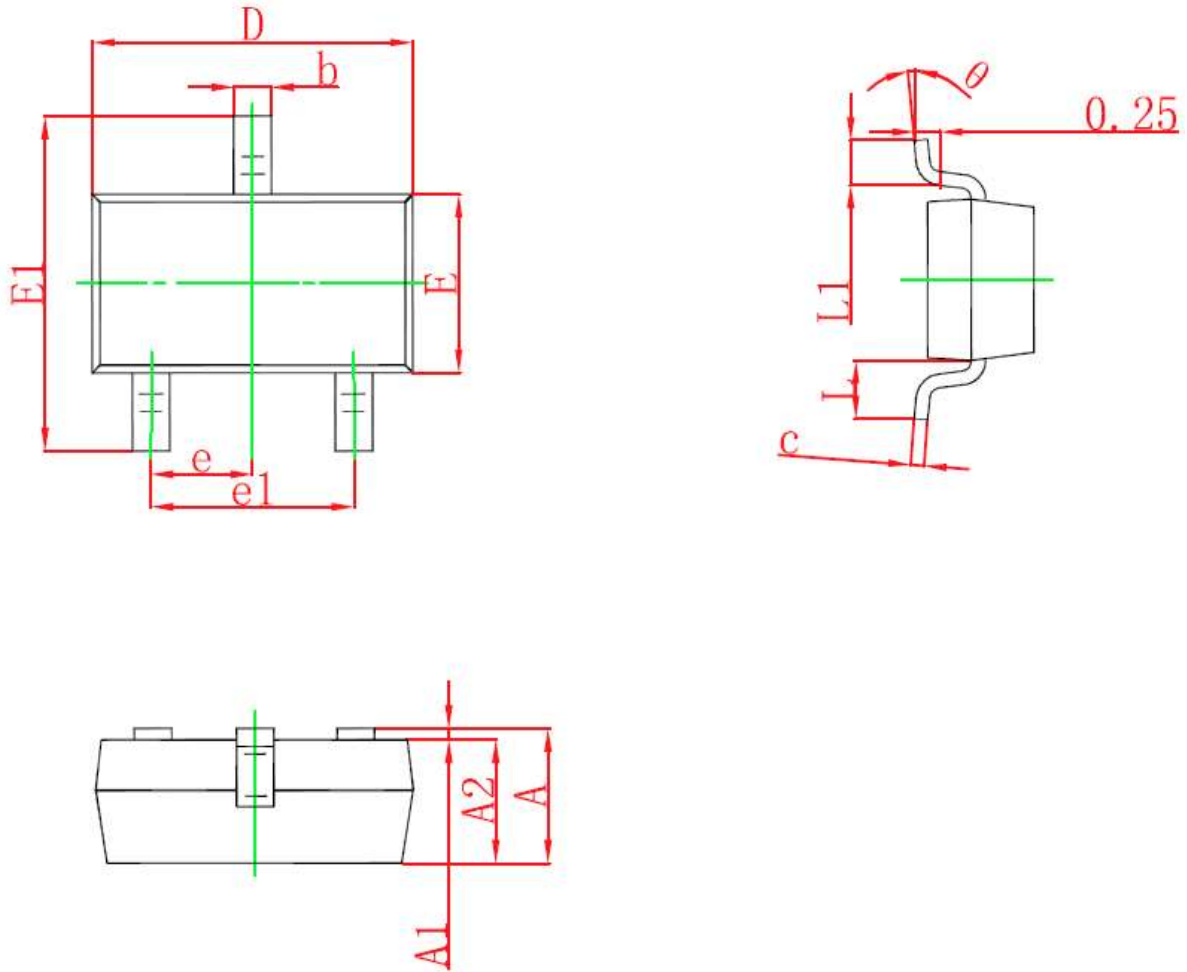
Electrical Characteristics (T_J=25°C unless otherwise noted)

Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
BV(BR)DSS	Drain-Source Breakdown Voltage	VGS=0V, ID=250μA	60	--	--	V
IDSS	Zero Gate Voltage Drain Current	VDS=60V, VGS=0V	--	--	1	μA
IGSS	Gate-Body Leakage Current	VGS=±20V, VDS=0V	--	--	±100	nA
VGS(th)	Gate Threshold Voltage	VDS=VGS, ID=250μA	1.0	1.6	2.5	V
RDS(on)	Drain-Source On-State Resistance	VGS=10V, ID=0.5A	--	0.85	2.5	Ω
		VGS=5V, ID=0.05A	--	1.0	3.0	Ω
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
CISS	Input Capacitance	VDS=30V, VGS=0V, f=1MHz	--	27	--	pF
COSS	Output Capacitance		--	2.75	--	pF
CRSS	Reverse Transfer Capacitance		--	2	--	pF
Switching Characteristics						
Qg	Total Gate Charge	VDS=30V, ID=0.34A, VGS=10V	--	1.7	--	nC
Qgs	Gate-Source Charge		--	0.57	--	nC
Qgd	Gate-Drain Charge		--	0.3	--	nC
td(on)	Turn-on Delay Time	VDD=30V, ID=0.34A, VGS=10V, RG=3Ω	--	4	--	nS
tr	Turn-on Rise Time		--	19	--	nS
td(off)	Turn-Off Delay Time		--	12	--	nS
tf	Turn-off fall Time		--	24	--	nS
Source- Drain Diode Characteristics						
VSD	Forward on voltage	Tj=25°C, Is=0.34A	--	--	1.2	V

Typical Operating Characteristics



SOT-23 Package information



Symbol	Dimensions in Millimeters(mm)		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E1	2.250	2.550	0.088	0.100
E	1.200	1.400	0.047	0.055
e	0.950TYP		0.037TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°