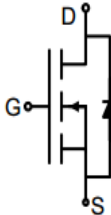
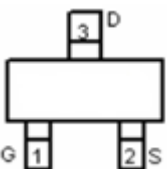
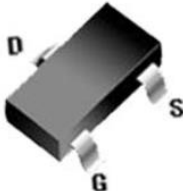


N-Channel Enhancement Mode Power MOSFET

Description The 1002 uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge. It can be used in a wide variety of applications.		 Schematic diagram	
General Features • V_{DS} 100V • I_D (at $V_{GS} = 10V$) 2A • $R_{DS(ON)}$ (at $V_{GS} = 10V$) < 250mΩ • $R_{DS(ON)}$ (at $V_{GS} = 4.5V$) < 260mΩ • 100% Avalanche Tested • RoHS Compliant		 Marking and pin assignment	
Application • Power switch • DC/DC converters		 SOT-23	
Device	Package	Marking	Packaging
1002	SOT-23	1002	3000pcs/Reel

Absolute Maximum Ratings $T_C = 25^\circ\text{C}$, unless otherwise noted

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	100	V
Continuous Drain Current	I_D	2	A
Pulsed Drain Current (note1)	I_{DM}	8	A
Gate-Source Voltage	V_{GS}	± 20	V
Power Dissipation	P_D	1.3	W
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 To 150	$^\circ\text{C}$

Thermal Resistance

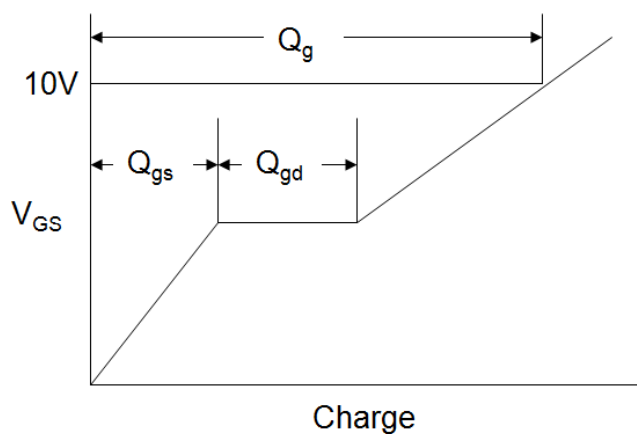
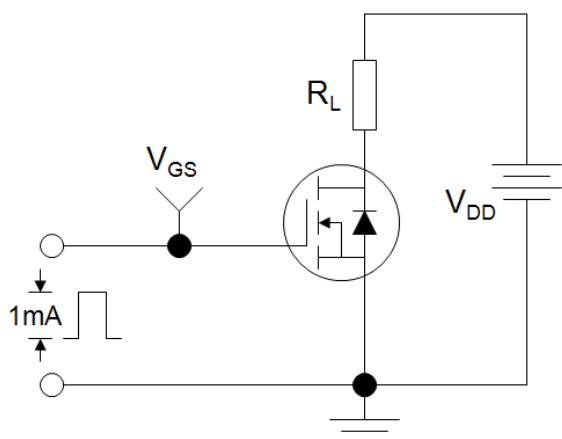
Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-Ambient	R_{thJA}	96	$^\circ\text{C/W}$

Specifications T _J = 25°C, unless otherwise noted						
Parameter	Symbol	Test Conditions	Value			Unit
			Min.	Typ.	Max.	
Static Parameters						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	100	--	--	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 80V, V _{GS} = 0V	--	--	1	uA
Gate-Source Leakage	I _{GSS}	V _{GS} = ±20V	--	--	±100	nA
Gate-Source Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	1	1.6	3	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 2A	--	200	250	mΩ
		V _{GS} = 4.5V, I _D = 1A	--	223	260	
Dynamic Parameters						
Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = 10V, f = 1.0MHz	--	387	--	pF
Output Capacitance	C _{oss}		--	31	--	
Reverse Transfer Capacitance	C _{rss}		--	28	--	
Total Gate Charge	Q _g	V _{DS} = 50V, I _D = 5A, V _{GS} = 10V	--	10	--	nC
Gate-Source Charge	Q _{gs}		--	1.9	--	
Gate-Drain Charge	Q _{gd}		--	2	--	
Turn-on Delay Time	t _{d(on)}	V _{DD} = 50V, I _D = 1.3A, R _G = 1Ω	--	4	--	ns
Turn-on Rise Time	t _r		--	18	--	
Turn-off Delay Time	t _{d(off)}		--	13	--	
Turn-off Fall Time	t _f		--	28	--	
Drain-Source Body Diode Characteristics						
Continuous Body Diode Current	I _S	T _C = 25°C	--	--	2	A
Body Diode Voltage	V _{SD}	T _J = 25°C, I _{SD} = 2A, V _{GS} = 0V	--	--	1.2	V
Reverse Recovery Time	trr	I _S = 2A, V _{GS} = 0V di/dt=100A/us	--	36	--	nS
Reverse Recovery Charge	Qrr		--	15	--	nC

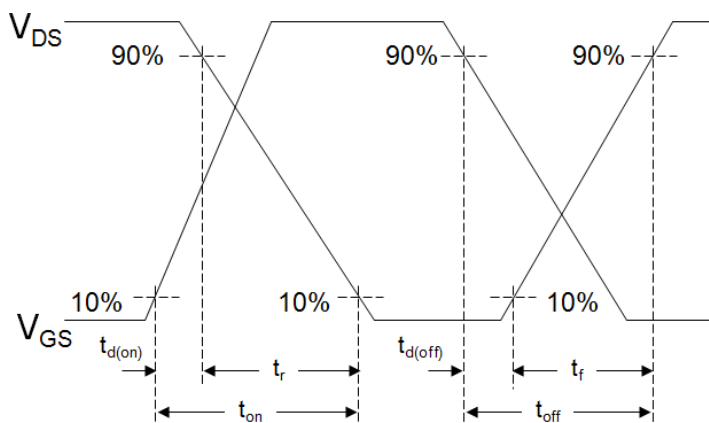
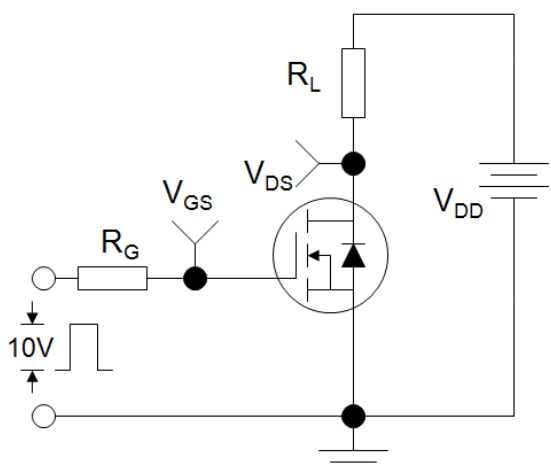
Notes

1. Repetitive Rating: Pulse width limited by maximum junction temperature
2. Identical low side and high side switch with identical R_G

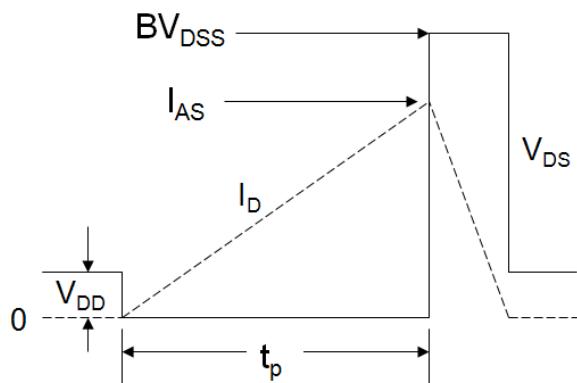
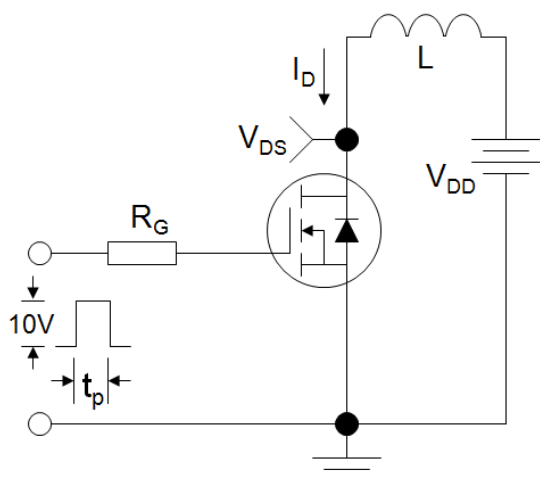
Gate Charge Test Circuit



Switch Time Test Circuit



EAS Test Circuit



Typical Characteristics $T_J = 25^\circ\text{C}$, unless otherwise noted

Figure 1. Output Characteristics

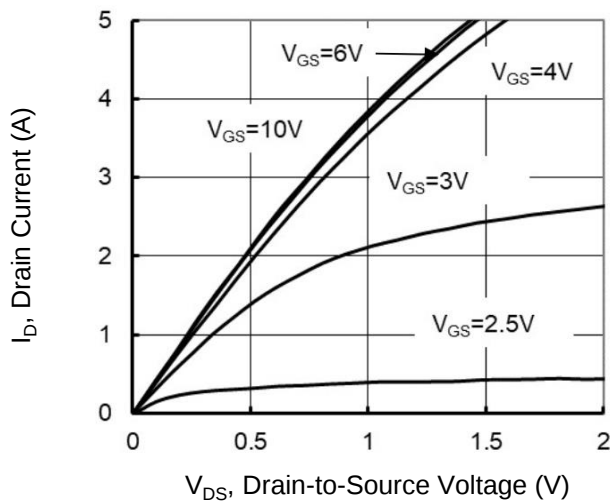


Figure 2. Transfer Characteristics

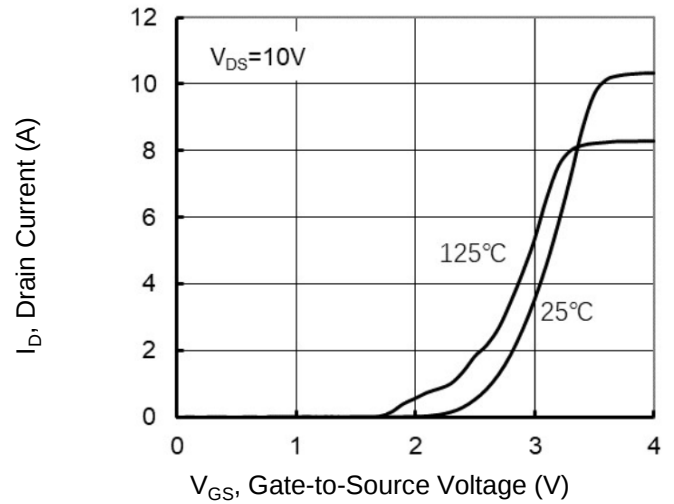


Figure 3. Gate Charge

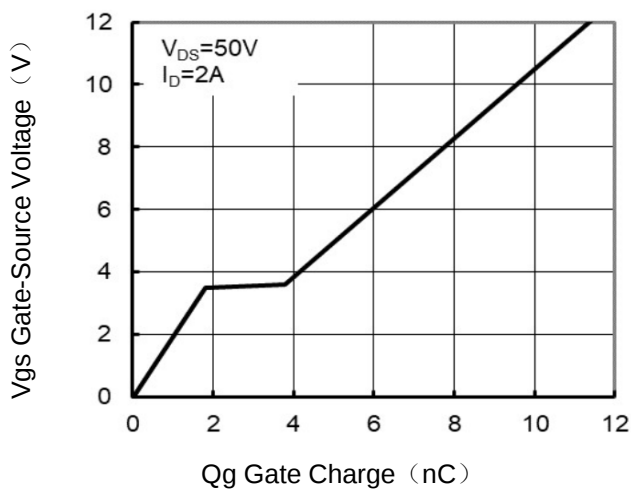


Figure 4. Drain Source On Resistance

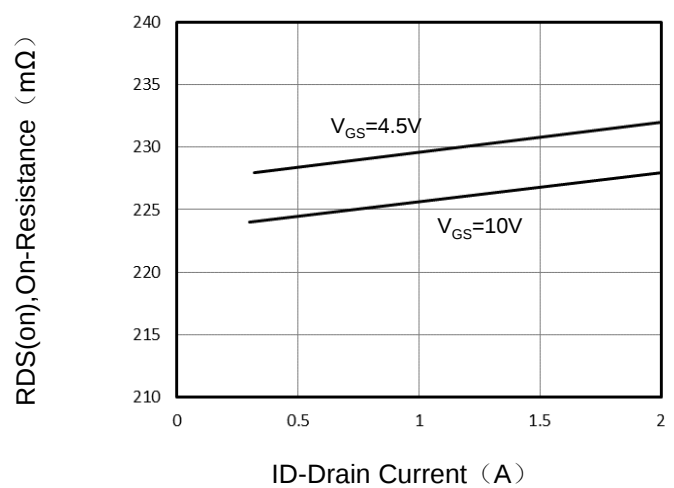


Figure 5. Capacitance

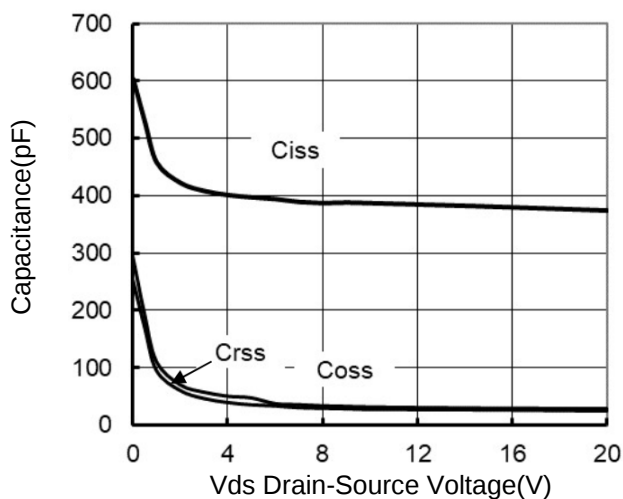
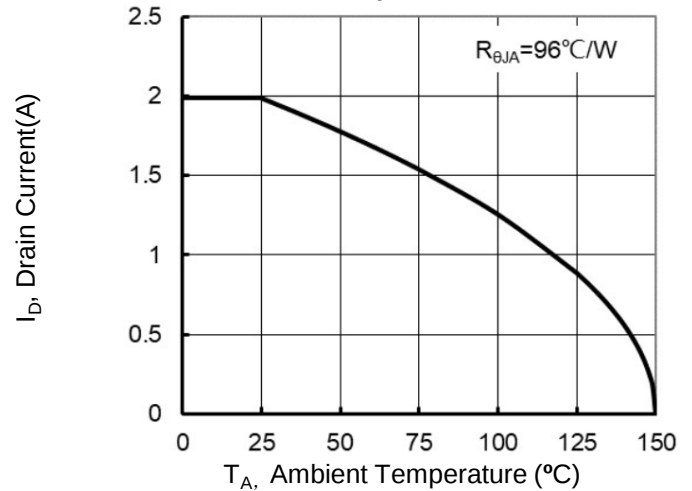


Figure 6. Maximum Continuous Drain Current vs Ambient Temperature



Typical Characteristics $T_J = 25^\circ\text{C}$, unless otherwise noted

Figure 7. Drain-Source On-Resistance

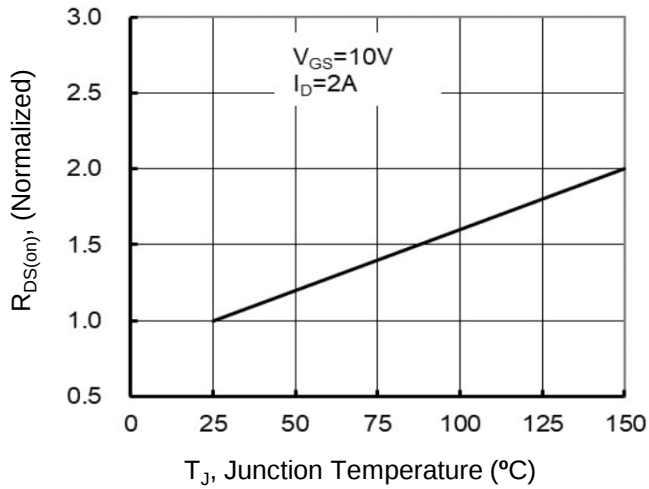


Figure 8. Safe Operation Area

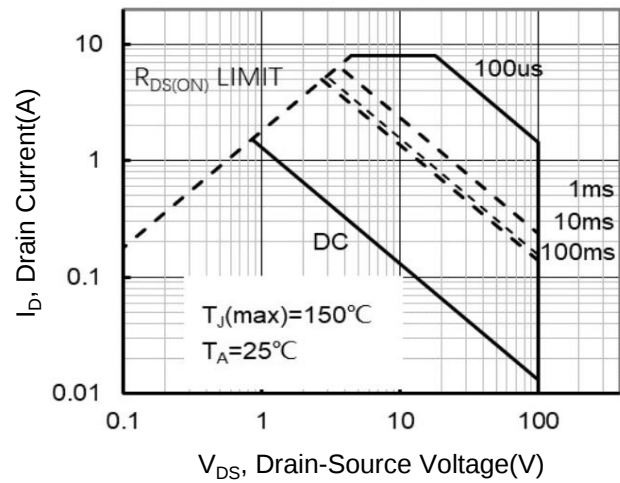
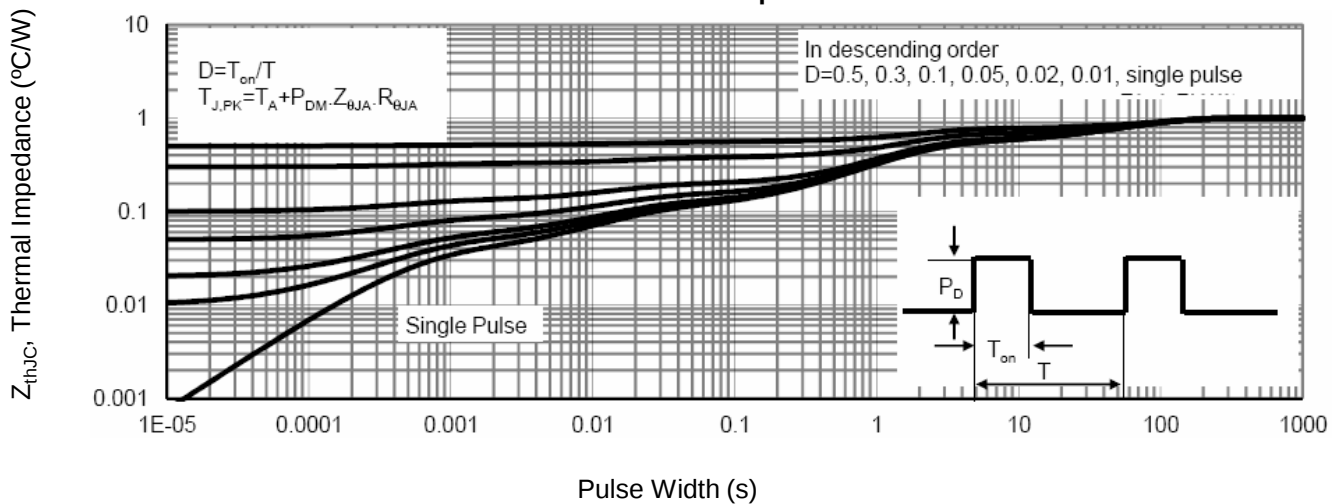
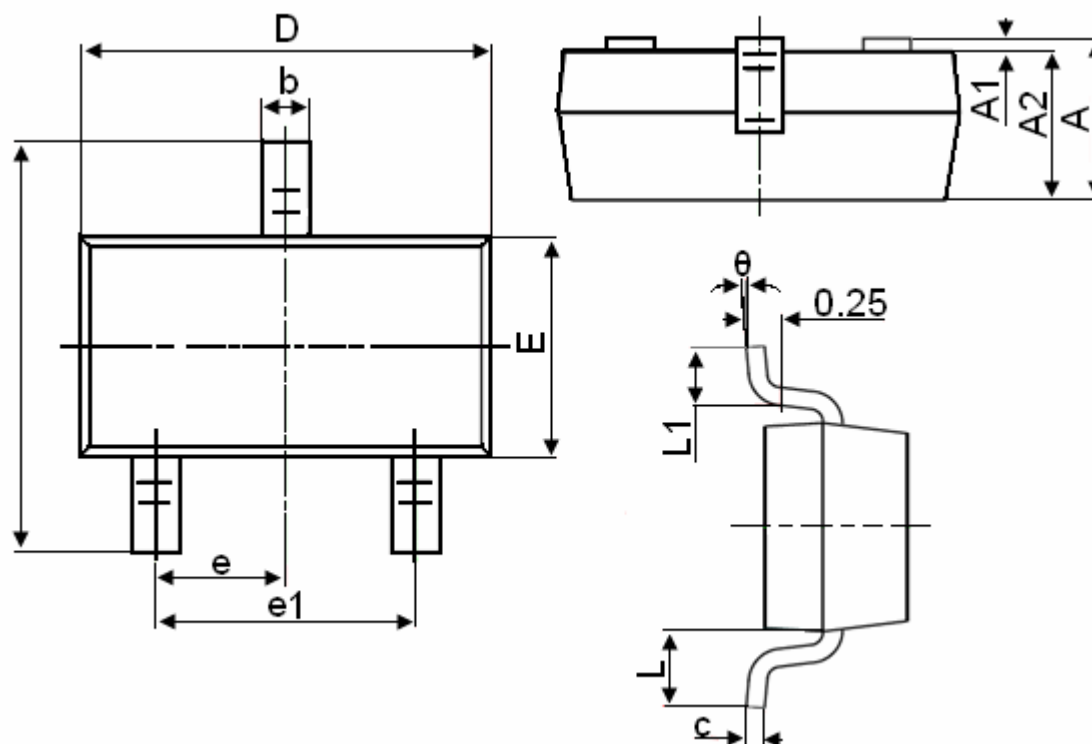


Figure 9. Normalized Maximum Transient Thermal Impedance



SOT-23 Package Information



Symbol	Dimensions in Millimeters	
	MIN.	MAX.
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
E1	2.250	2.550
e	0.950TYP	
e1	1.800	2.000
L	0.550REF	
L1	0.300	0.500
θ	0°	8°