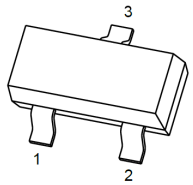
SOT-23 Plastic-Encapsulate MOSFETS

2N7002A N-Channel MOSFET

$V_{(BR)DSS}$	$R_{DS(on)}$TYP	I_D
60V	500mΩ@10V	0.45A
	600mΩ@5V	

SOT-23



1. GATE
2. SOURCE
3. DRAIN

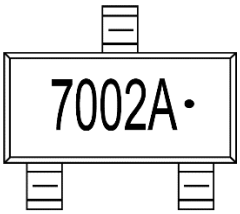
FEATURE

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

APPLICATIONS

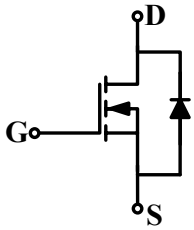
- Load Switch for Portable Devices
- DC/DC Converter

MARKING



7002A=Device code
Solid dot = Green molding compound device.

EQUIVALENT CIRCUIT



ABSOLUTE MAXIMUM RATINGS(T_a=25℃ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D①	0.45	A
Pulsed Drain Current	I_{DM}②	1.8	A
Power Dissipation	P_D⑤	357	mW
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$⑤	350	℃/W
Operating Junction and Storage Temperature Range	T_J,T_{stg}	-55~+150	℃

MOSFET ELECTRICAL CHARACTERISTICS

T_J=25℃ unless otherwise specified

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)\ DSS}$	V_{GS} = 0V, I_D =250μA	60			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =60V, V_{GS} =0V			1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±20V, V_{DS} =0V			±100	nA
Gate-threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	1.0	1.6	2.5	V
Drain-source on-state resistance③	$R_{DS(on)}$	V_{GS} =10V, I_D =500mA		500	750	mΩ
		V_{GS} =5V, I_D =50mA		600	900	mΩ
Diode forward voltage③	V_{SD}	I_S=115mA, V_{GS} = 0V			1.2	V
Dynamic Characteristics④						
Input capacitance	C_{iss}	V_{DS} =25V, V_{GS} =0V, f =1MHz		35		pF
Output capacitance	C_{oss}			5		
Reverse transfer capacitance	C_{rss}			2.7		
Gate resistance	R_g	f =1MHz		15		Ω
Switching Characteristics④						
Turn-on delay time	$t_{d(on)}$	V_{DD}=25V, V_{GS}=10V, R_L=50Ω, R_G=25Ω, I_D=500mA		1.3		ns
Turn-on rise time	t_r			2.7		
Turn-off delay time	$t_{d(off)}$			6.4		
Turn-off fall time	t_f			3.6		

Notes:

1.Limited only by maximum temperature allowed.

2.P_W ≤10μs. Limited only by maximum temperature allowed.

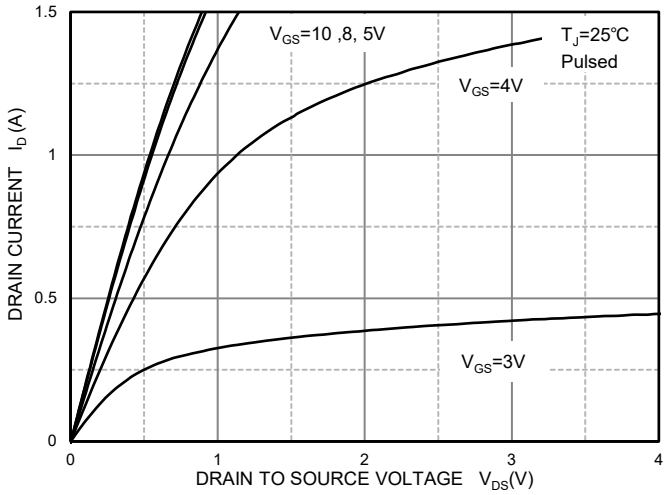
3.Pulse Test : Pulse Width ≤400μs, duty cycle ≤2%.

4.Guaranteed by design, not subject to production.

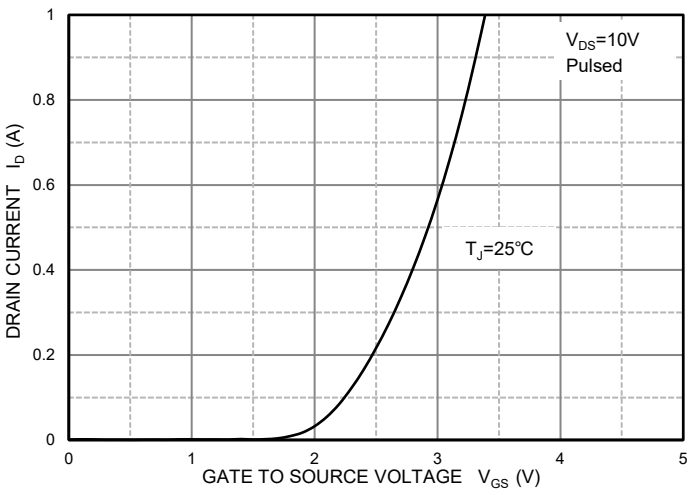
5.The value of $R_{\theta JA}$ is measured with the device mounted on 1 in^2 FR-4 board with 2oz. single-sided Copper, in a still air environment with T_a=25°C.

Typical Characteristics

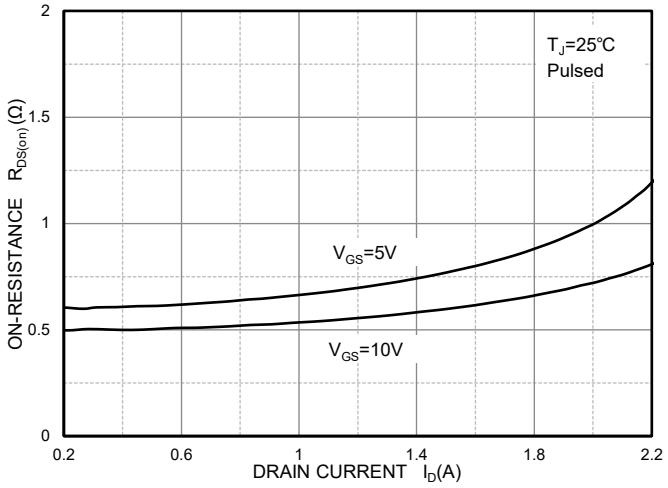
Output Characteristics



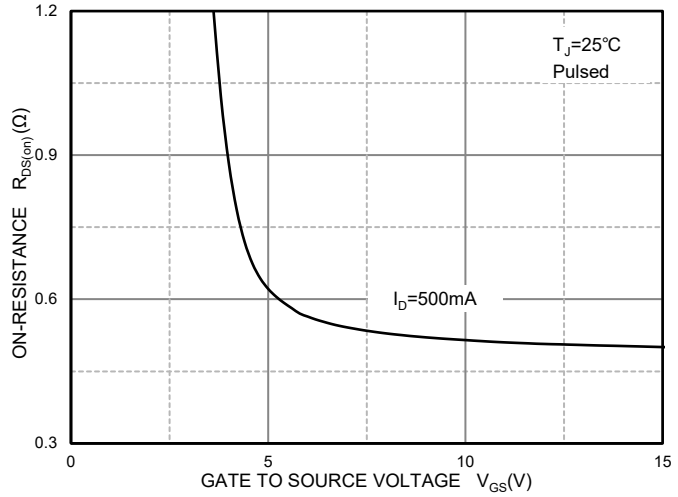
Transfer Characteristics



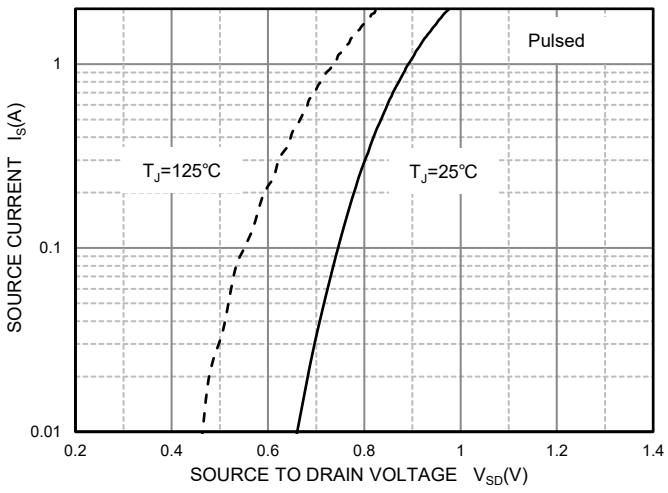
On Resistance vs. Drain Current



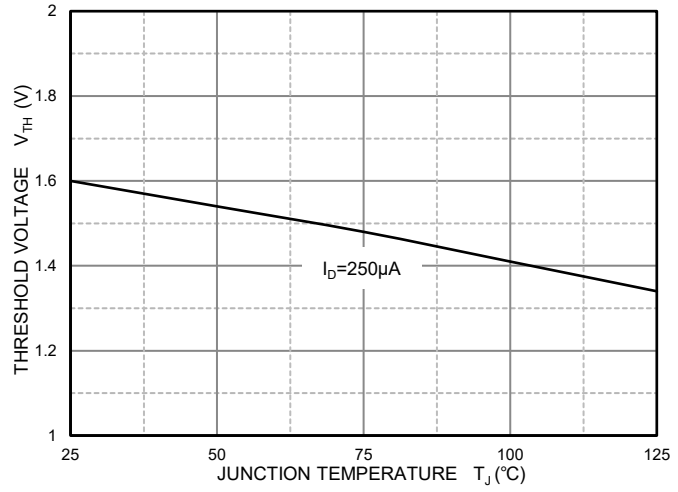
On Resistance vs. Gate-Source Bias



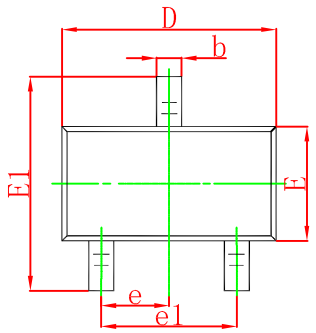
Source-Drain Diode Forward Characteristics

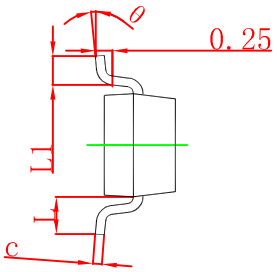


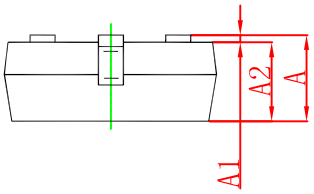
Threshold Voltage vs. Temperature



SOT-23 Package Outline Dimensions

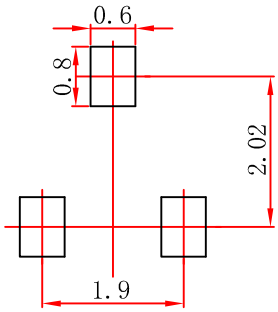






Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
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°

SOT-23 Suggested Pad Layout



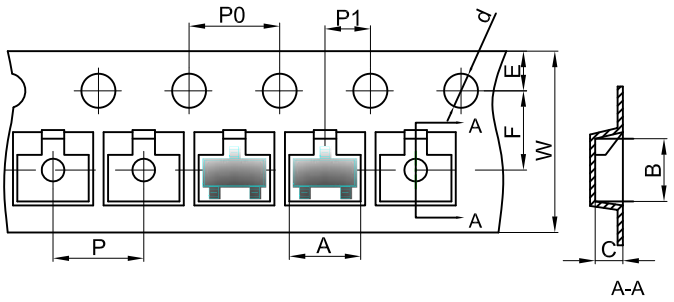
Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.

NOTICE

SZCJ reserves the right to make modifications,enhan nts,improvements,corrections or other es without further notice to any product herein. SZCJ does not assume any liability arising out of the application or use of any product described h

SOT-23 Tape and Reel

SOT-23 Embossed Carrier Tape

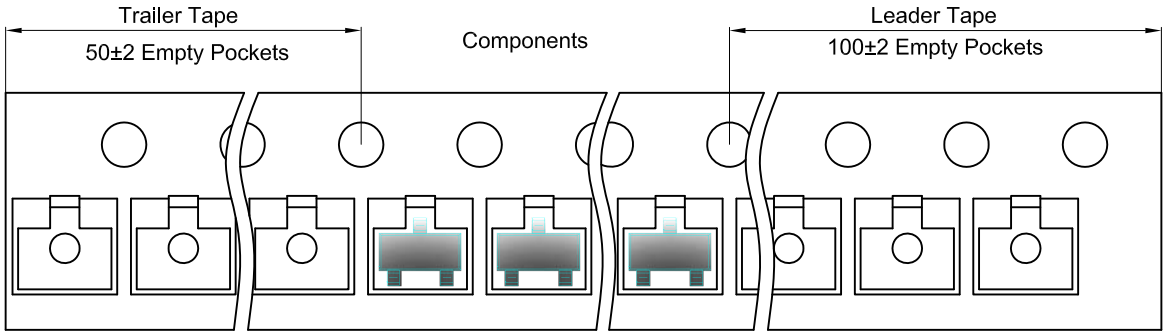


Packaging Description:

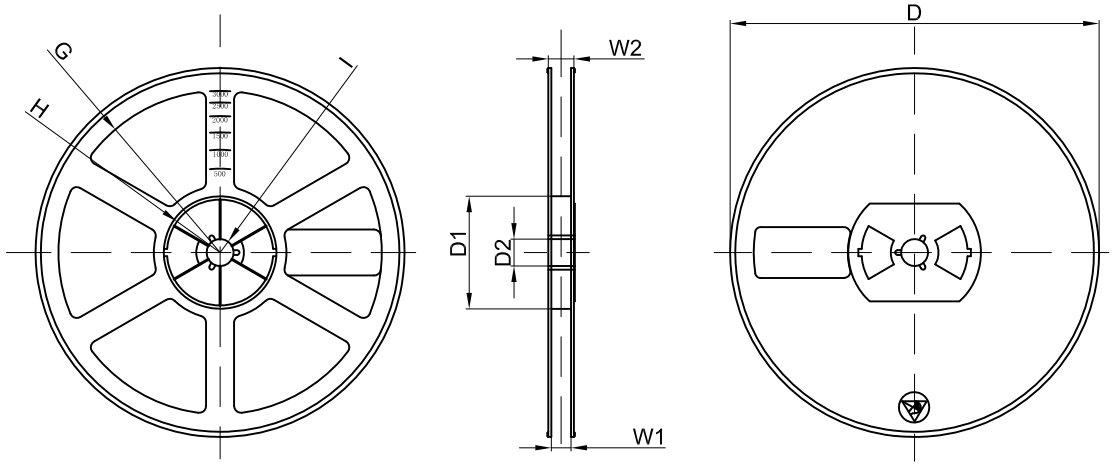
SOT-23 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 3,000 units per 7" or 17.8cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

SOT-23 Tape Leader and Trailer



SOT-23 Reel



Dimensions are in millimeter								
Reel Option	D	D1	D2	G	H	I	W1	W2
7"Dia	Ø178.00	54.40	13.00	R78.00	R25.60	R6.50	9.50	12.30

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
3000 pcs	7 inch	45,000 pcs	203×203×195	180,000 pcs	438×438×220	