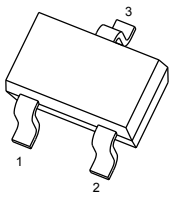
SHENZHEN JTD ELECTRONICS CO.,LTD

SOT-323 Plastic-Encapsulate MOSFETS

2N7002KW **N-Channel MOSFET**

$V_{(BR)DSS}$	$R_{DS(on)}$MAX	I_D
60 V	2.5Ω@10V	340mA
	3Ω@4.5V	

SOT-323



1. GATE
2. SOURCE
3. DRAIN

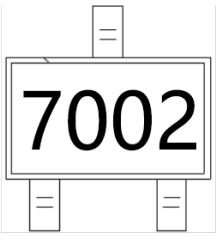
FEATURE

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

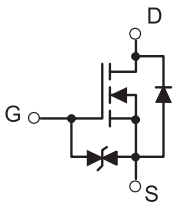
APPLICATION

- Load Switch for Portable Devices
- DC/DC Converter

MARKING



Equivalent Circuit



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

Symbol	Parameter	Value	Unit
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	Continuous Drain Current	340	mA
I_{DM}	Pulsed Drain Current(note1)	800	mA
P_D	Power Dissipation	0.2	W
T_J,T_{stg}	Operation Junction and Storage Temperature Range	-55~+150	℃
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	625	℃/W

MOSFET ELECTRICAL CHARACTERISTICS

T_a=25℃ unless otherwise specified

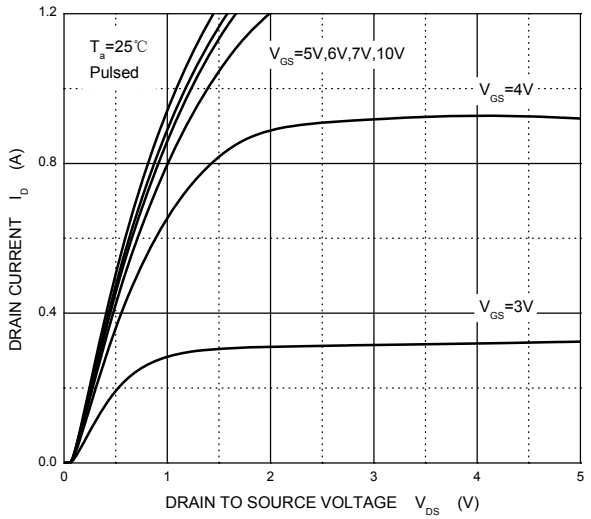
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
STATIC PARAMETERS						
Drain-source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	60			V
GateThreshold Voltage (note 2)	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =1mA	1	1.3	2.5	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} =48V,V_{GS} = 0V			1	μA
Gate-Source Leakage Current	I_{GSS}	V_{GS} =±20V, V_{DS} = 0V			±10	μA
Drain-Source On-Resistance (note 2)	$R_{DS(on)}$	V_{GS} =4.5V, I_D =200mA		1.1	3	Ω
		V_{GS} =10V, I_D =500mA		0.9	2.5	Ω
DYNAMIC PARAMETERS (note 3)						
Input Capacitance	C_{iss}	V_{DS} =10V,V_{GS} =0V,f =1MHz			40	pF
Output Capacitance	C_{oss}				30	pF
Reverse Transfer Capacitance	C_{rss}				10	pF
SWITCHING PARAMETERS(note 3)						
Turn-on Delay Time	$t_{d(on)}$	V_{GS}=10V,V_{DD}=50V, R_G=50Ω			10	ns
Turn-off Delay Time	$t_{d(off)}$	R_{GS}=50Ω, R_L=250Ω			15	ns
Reverse Recovery Time	t_{rr}	V_{GS}=0V,I_S=300mA,V_R=25V, dIs/dt=-100A/us		30		ns
Recovered Charge	Qr	V_{GS}=0V,I_S=300mA,V_R=25V dIs/dt=-100A/us		30		nC
GATE-SOURCE ZENER DIODE						
Gate-Source Breakdown Voltage	BV_{GSO}	Igs=±1mA(Open Drain)	±21.5		±30	V
DRAIN-SOURCE DIODE						
Diode Forward Voltage(note 2)	V_{SD}	I_S=300mA, V_{GS} = 0V			1.5	V
Continuous Diode Forward Current	I_S				0.2	A
Pulsed Diode Forward Current(note1)	I_{SM}				0.53	A

Notes :

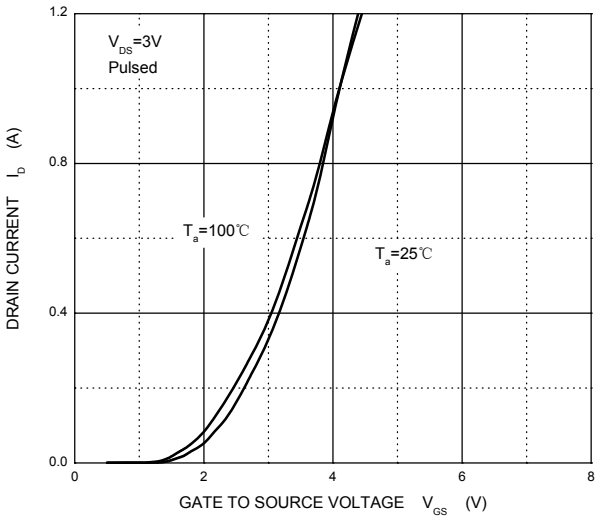
1. Repetitive rating：Pluse width limited by junction temperature.
2. Pulse Test : Pulse width≤300μs, duty cycle≤2%.
3. Guaranteed by design, not subject to production testing.

Typical Characteristics

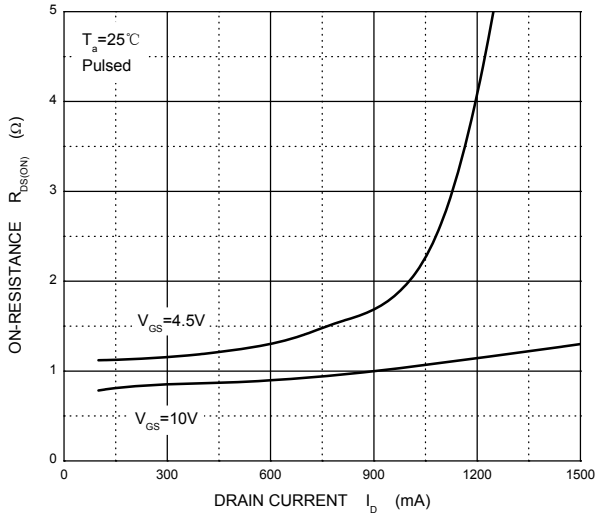
Output Characteristics



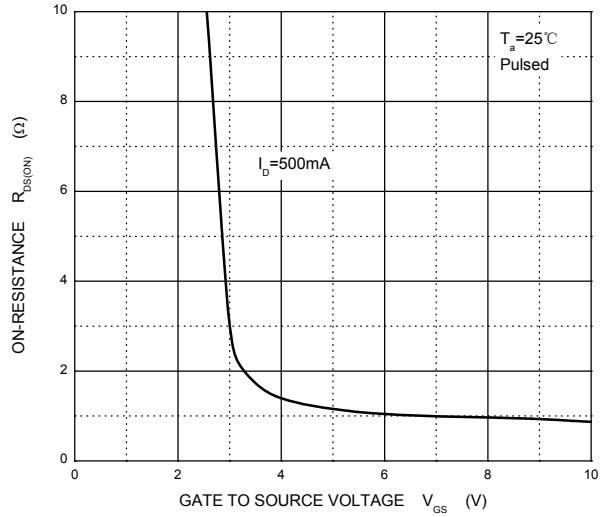
Transfer Characteristics



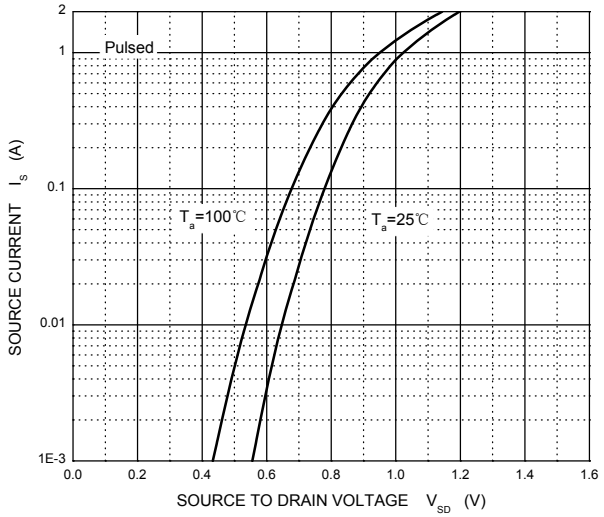
$R_{DS(ON)}$ —— I_D



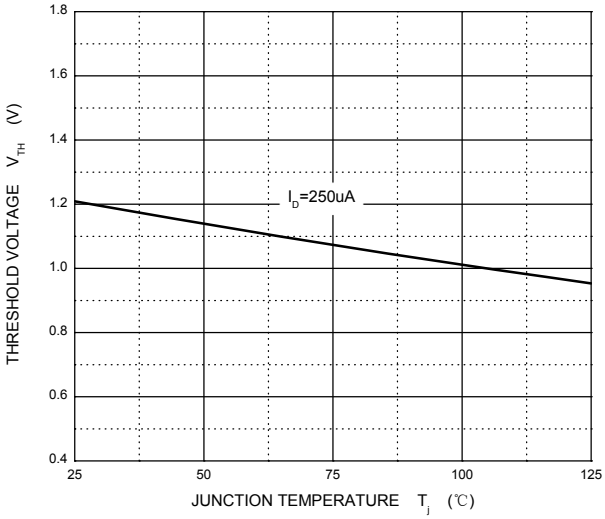
$R_{DS(ON)}$ —— V_{GS}



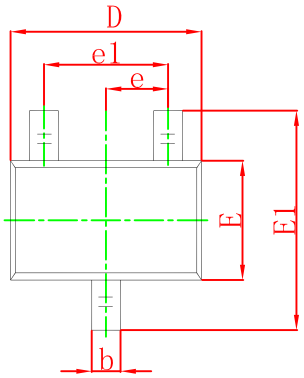
I_S —— V_{SD}

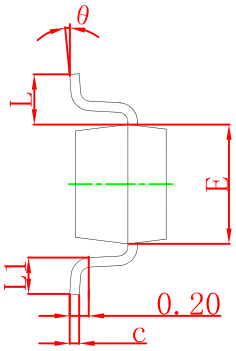


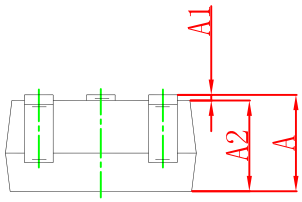
Threshold Voltage



SOT-323 Package Outline Dimensions

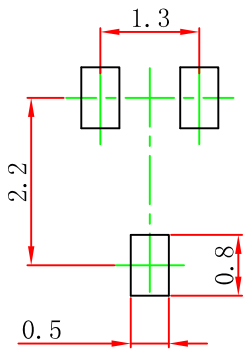






Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.200	0.400	0.008	0.016
c	0.080	0.150	0.003	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650 TYP		0.026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

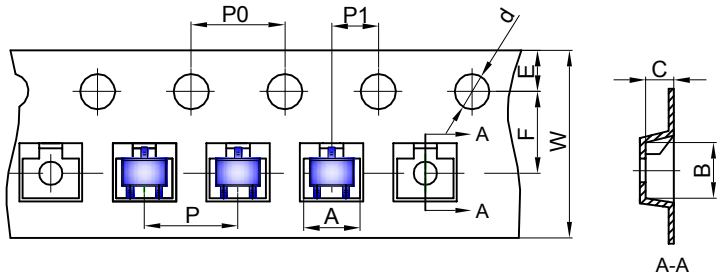
SOT-323 Suggested Pad Layout



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

SOT-323 Tape and Reel

SOT-323 Embossed Carrier Tape

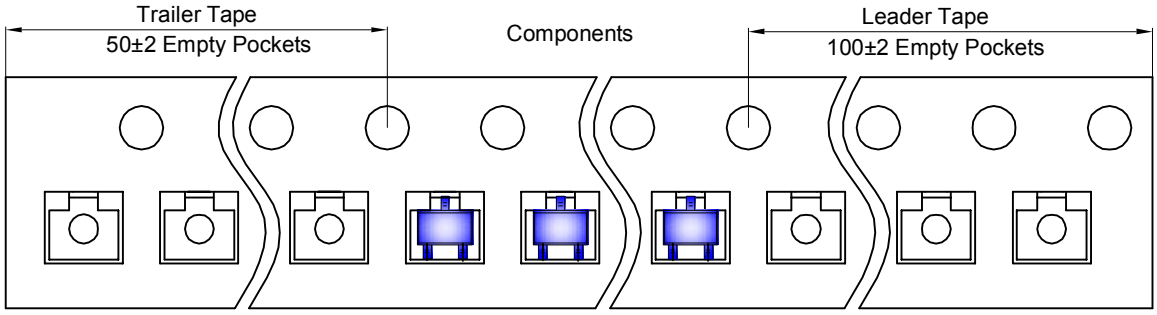


Packaging Description:

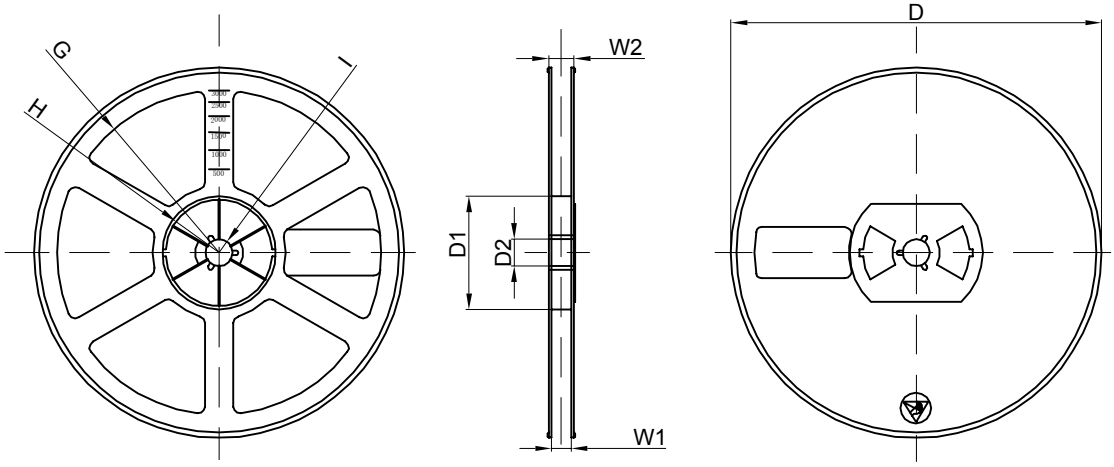
SOT-323 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts 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-323	2.25	2.55	1.19	Ø1.55	1.75	3.50	4.00	4.00	2.00	8.00

SOT-323 Tape Leader and Trailer



SOT-323 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	