

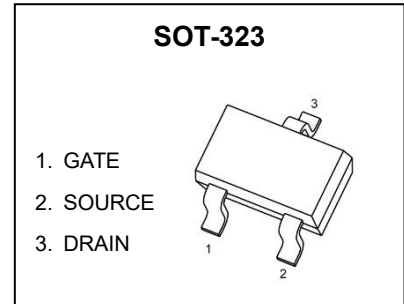


SOT-323 Plastic-Encapsulate MOSFET

CJ3139KWA P-Channel MOSFET

Key Performance Parameters

V _{BR(DSS)}	R _{DS(on)} TYP	I _D
-20V	312mΩ@-4.5V	-0.83A
	406mΩ@-2.5V	
	550mΩ@-1.8V	



DESCRIPTION

This advanced technology has been especially tailored to minimize on-state resistance, provide superior switching performance.

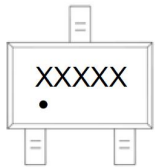
FEATURES

- Battery switch
- Load switch
- High density cell design for ultra low R_{DS(ON)}

APPLICATIONS

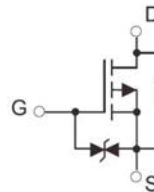
- SMPS and general purpose applications
- Hard switched and high frequency circuits
- Uninterruptible Power Supply

MARKING



XXXXX = 39KWA
 Solid dot = Green molding compound device.

EQUIVALENT CIRCUIT



ABSOLUTE MAXIMUM RATINGS (T_J=25°C unless otherwise specified)

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V _{DS}	-20	V
Gate-Source Voltage		V _{GS}	±10	V
Continuous Drain Current	T _A =25°C	I _D ^⑤	-0.83	A
	T _A =75°C		-0.64	
Pulsed Drain Current		I _{DM} ^{①②}	-3.32	A
Power Dissipation		P _D ^{①⑤}	0.44	W
Operating Junction and Storage Temperature Range		T _J , T _{stg}	-55~+150	°C

Thermal Characteristics

Parameter		Symbol	Value		Unit
			Typ	Max	
Thermal Resistance from Junction to Ambient	t≤10s	R _{θJA} ^⑤	230	285	°C/W
	Steady State		265	330	°C/W

Typical Characteristics

ELECTRICAL CHARACTERISTICS (T_J=25°C unless otherwise specified)

Static Characteristics

Parameter	Symbol	Test Condition	Value			Unit	
			Min	Typ	Max		
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =-250μA	-20	-	-	V	
Zero gate voltage drain current	I _{DSS}	V _{DS} =-20V, V _{GS} =0V	T _J =25°C	-	-	-1.0	μA
			T _J =125°C	-	-	-100	
Gate-body leakage current	I _{GSS}	V _{GS} =±10V, V _{DS} =0V	-	-	±20	μA	
Gate-threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-0.35	-0.75	-1.10	V	
Static drain-source on-state resistance	R _{DS(on)} ^③	V _{GS} =-4.5V, I _D =-1A	T _J =25°C	-	312	450	mΩ
			T _J =125°C	-	422	610	
		V _{GS} =-2.5V, I _D =-0.8A	-	406	600		
		V _{GS} =-1.8V, I _D =-0.5A	-	550	940		
Forward transconductance	g _{FS}	V _{DS} =-3V, I _D =-0.54A	-	1.7	-	S	

Dynamic Characteristics^④

Input capacitance	C _{iss}	V _{GS} =0V, V _{DS} =-16V, f=1MHz	-	67	-	pF
Output capacitance	C _{oss}		-	18	-	
Reverse transfer capacitance	C _{rss}		-	10	-	
Total gate charge	Q _g	V _{GS} =-2.5V, V _{DS} =-10V, I _D =-1A	-	0.50	-	nC
Total gate charge	Q _g	V _{GS} =-4.5V, V _{DS} =-10V, I _D =-1A	-	0.92	-	
Gate charge at threshold	Q _{G(th)}		-	0.11	-	
Gate-source charge	Q _{gs}		-	0.24	-	
Gate-drain charge	Q _{gd}		-	0.14	-	
Turn-on delay time	t _{d(on)}	V _{DD} =-10V, V _{GS} =-5V, I _D =-0.2A, R _g =10Ω	-	1.6	-	ns
Turn-on rise time	t _r		-	9.4	-	
Turn-off delay time	t _{d(off)}		-	84	-	
Turn-off fall time	t _f		-	134	-	

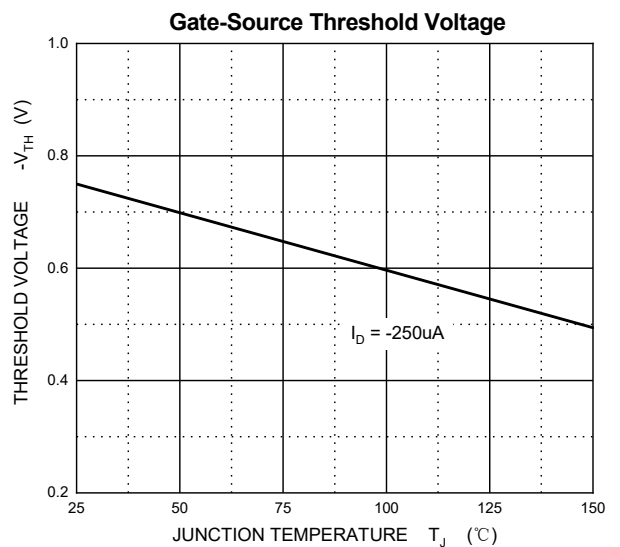
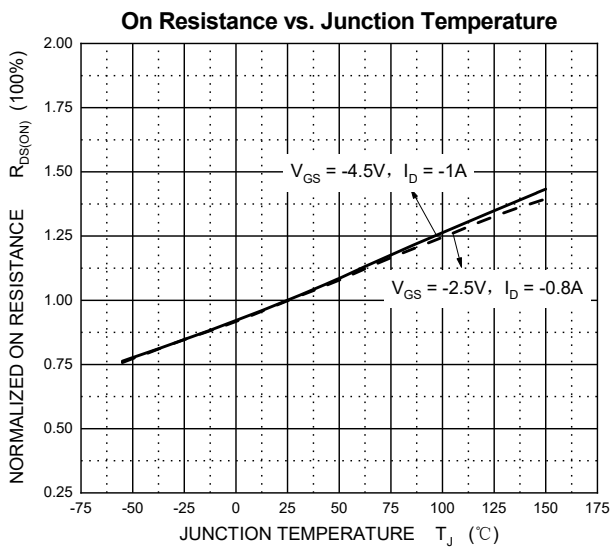
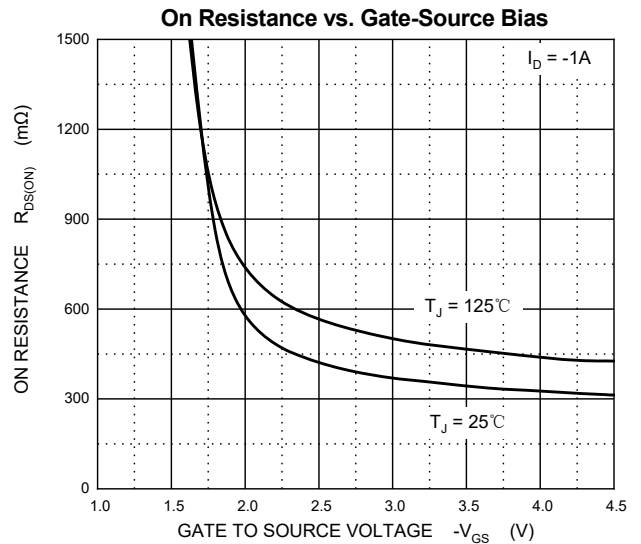
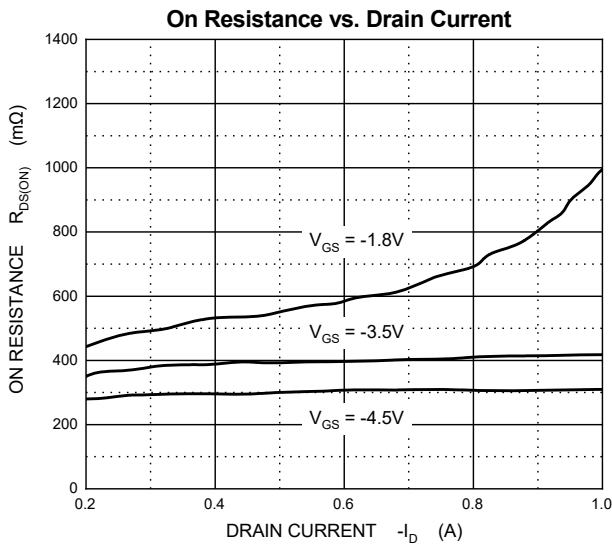
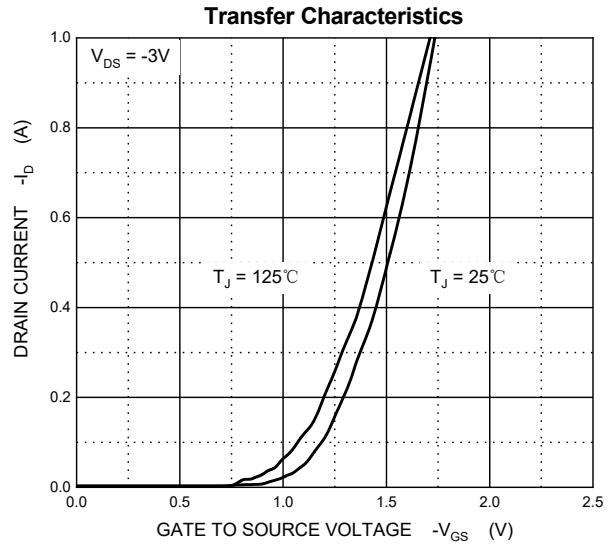
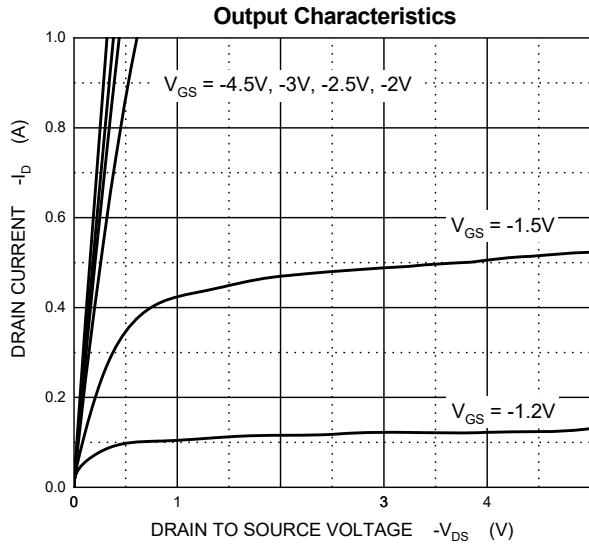
Reverse Diode Characteristics

Drain-source diode forward voltage	V _{SD} ^③	V _{GS} =0V, I _S =-0.5A	-	-	-1.2	V
Continuous drain-source diode forward current	I _S ^①		-	-	-0.83	A
Pulsed drain-source diode forward current	I _{SM} ^{①②}		-	-	-3.32	A

Notes:

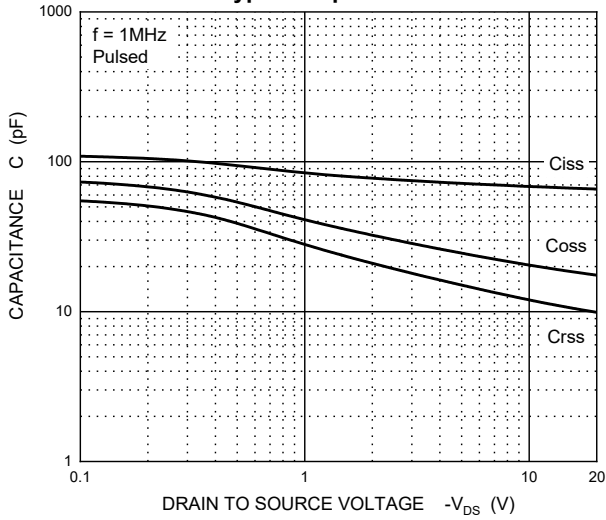
- ①.Limited only by maximum temperature allowed.
- ②.P_w≤10μs, Duty cycle ≤1%.
- ③.Pulse Test : Pulse Width ≤380μs, duty cycle ≤2%.
- ④.Guaranteed by design, not subject to production.
- ⑤.Device mounted on 1 in² FR-4 board with 2oz. double-sided Copper, in a still air environment with T_A=25°C. The current rating is based on the t ≤10s thermal resistance rating.

Typical Characteristics

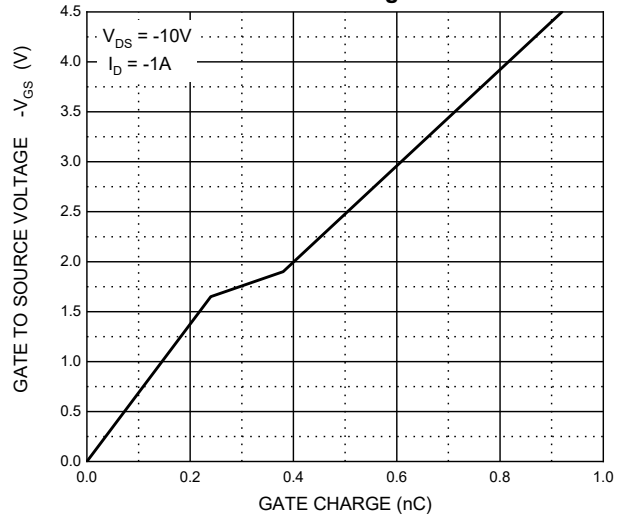


Typical Characteristics

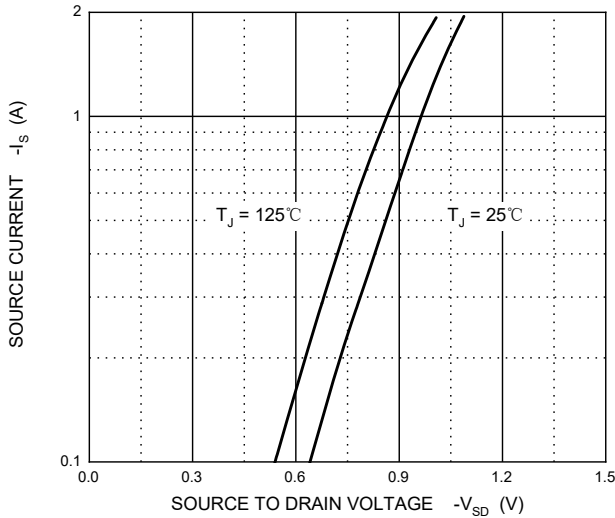
Typical Capacitances



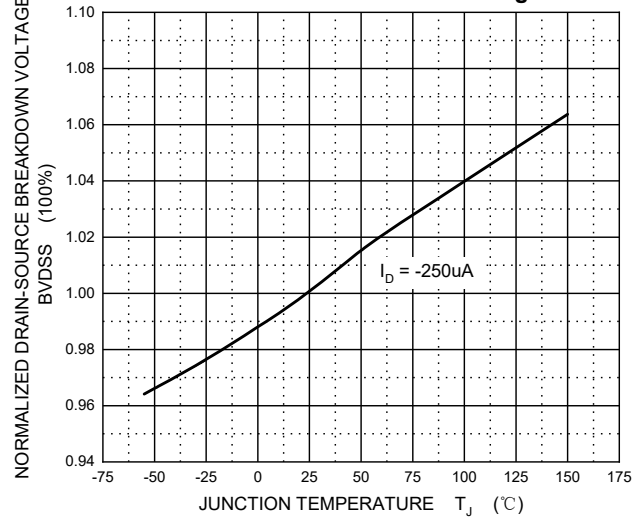
Gate Charge



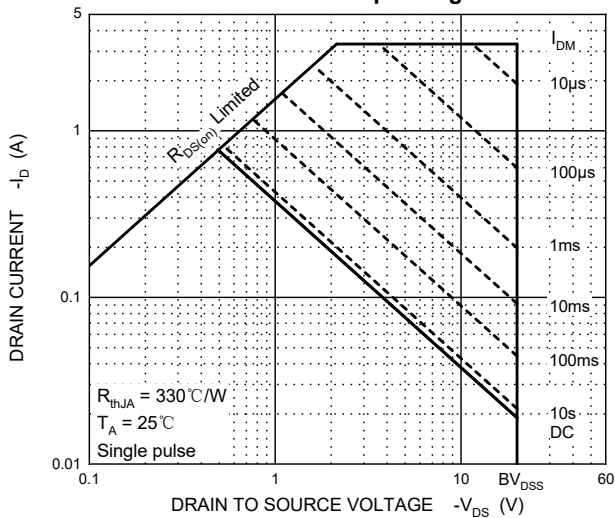
Source-Drain Diode Forward Characteristics



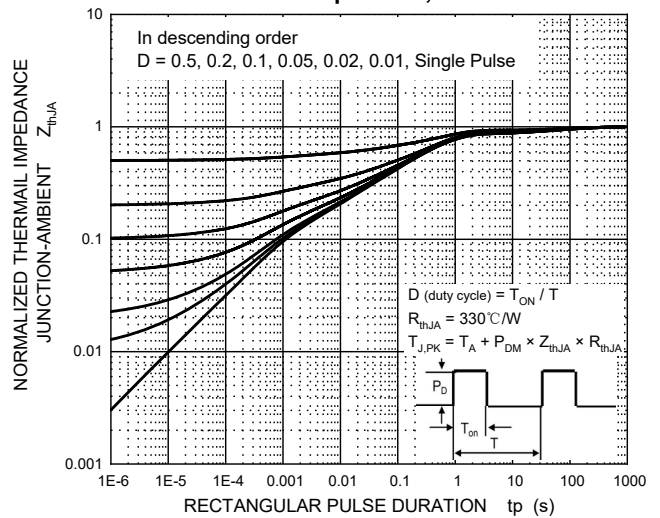
Drain-Source Breakdown Voltage



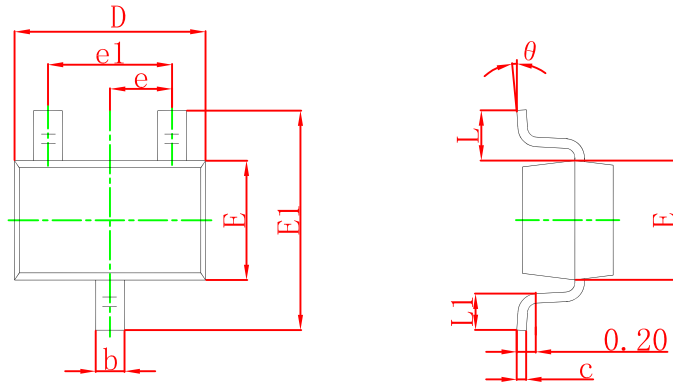
Maximum Safe Operating Area



Transient Thermal Impedance, Junction-Ambient

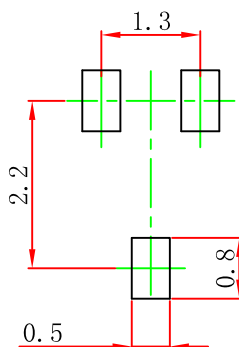


SOT-323 Package Outline Dimensions



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:

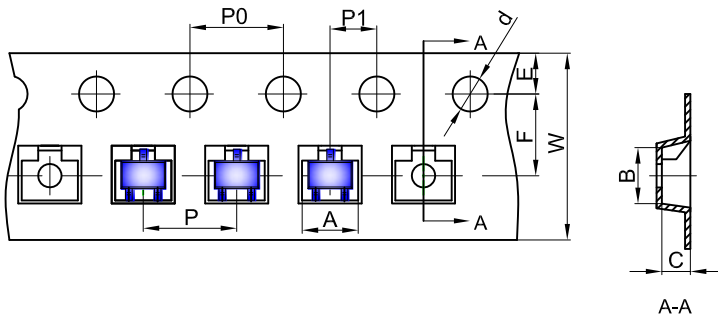
1. Controlling dimension: in millimeters.
2. General tolerance: ± 0.05 mm.
3. The pad layout is for reference purposes only.

NOTICE

JSCJ reserves the right to make modifications, enhancements, improvements, corrections or other changes without further notice to any product herein. JSCJ does not assume any liability arising out of the application or use of any product described herein.

SOT-323 Tape and Reel

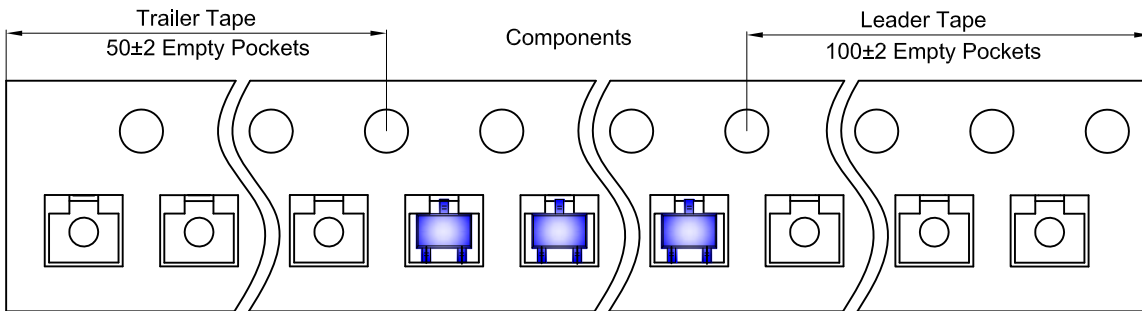
SOT-323 Embossed Carrier Tape



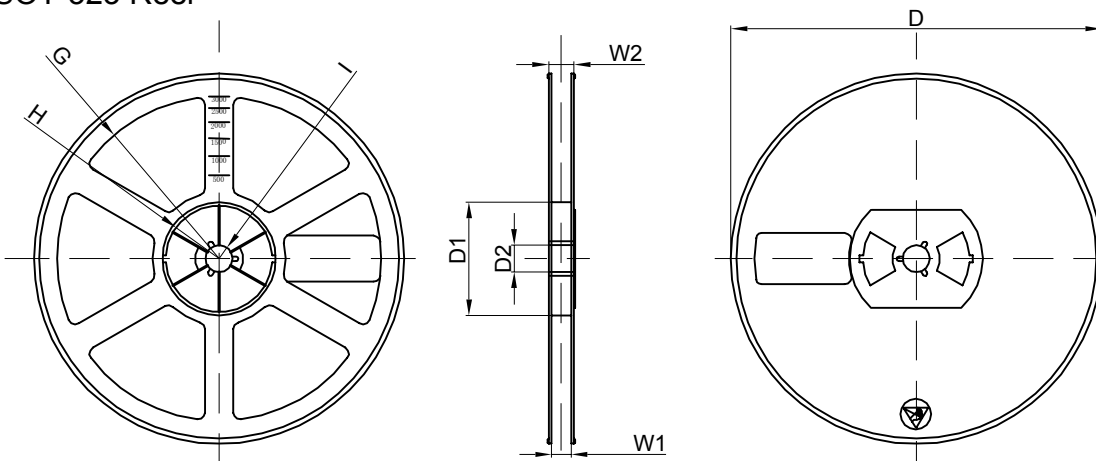
Packaging Description:
 SOT-323 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. 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	