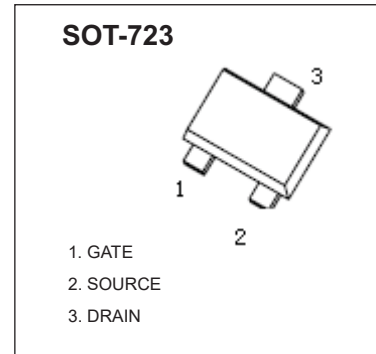




SOT-723 Plastic-Encapsulate MOSFETS

CJ3139KB P-Channel MOSFET

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-20V	164mΩ@-4.5V	-1.2A
	223mΩ@-2.5V	
	302mΩ@-1.8V	



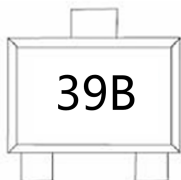
FEATURE

- Lead Free Product is Acquired
- Surface Mount Package
- P-Channel Switch with Low $R_{DS(on)}$
- Operated at Low Logic Level Gate Drive

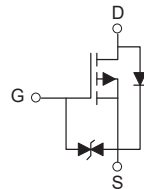
APPLICATION

- Load/Power Switching
- Interfacing, Logic Switching
- Battery Management for Ultra Small Portable Electronics

MARKING



Equivalent Circuit



MAXIMUM RATINGS ($T_A=25^{\circ}C$ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	±12	V
Continuous Drain Current	$I_D^{③}$	-1.2	A
Pulsed Drain Current	$I_{DM}^{③}$	-2	A
Power Dissipation	$P_D^{③}$	0.65	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55~+150	°C

Thermal Characteristics

Parameter	Symbol	Typ	Max	Unit
Maximum Junction-to-Ambient	$R_{\theta JA}^{③}$	128	192	°C/W
		165	250	

MOSFET ELECTRICAL CHARACTERISTICS

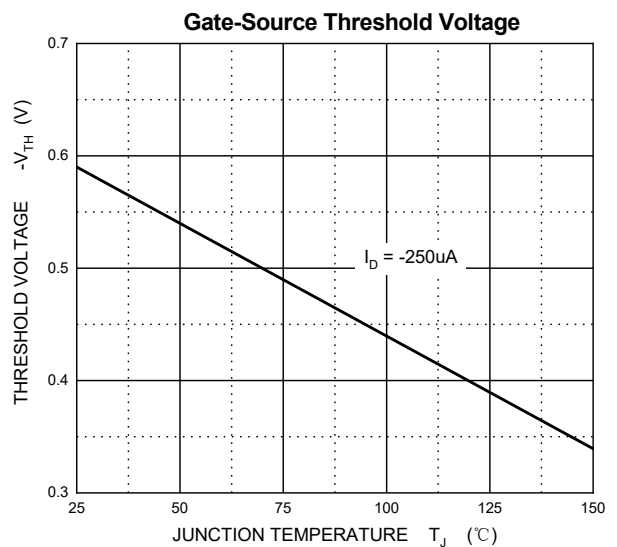
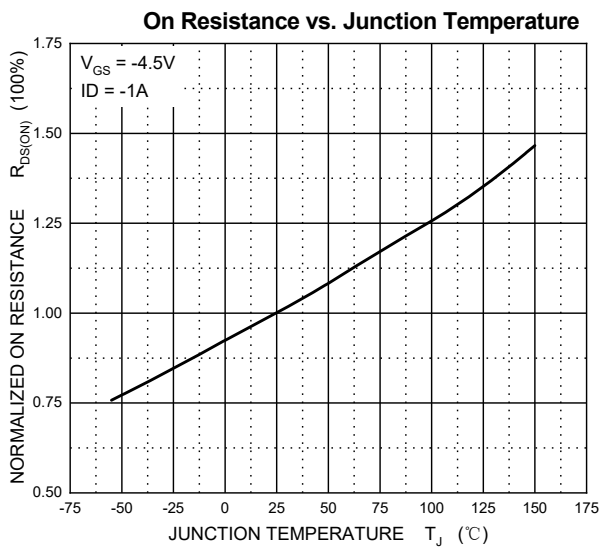
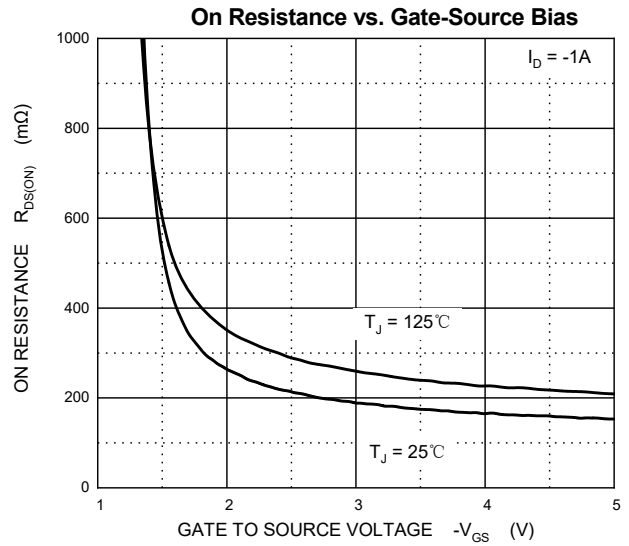
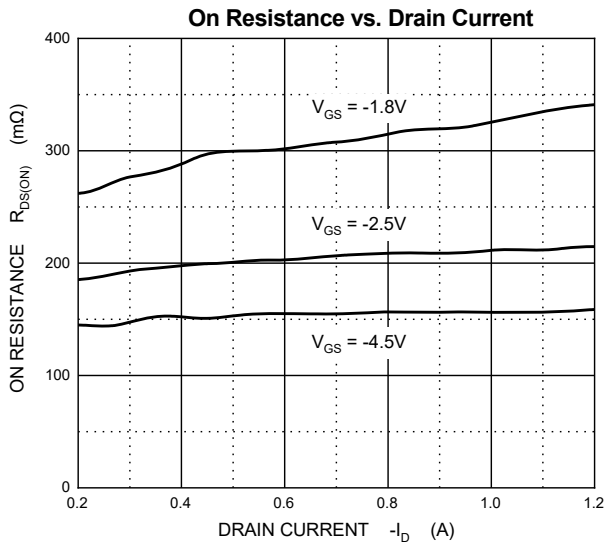
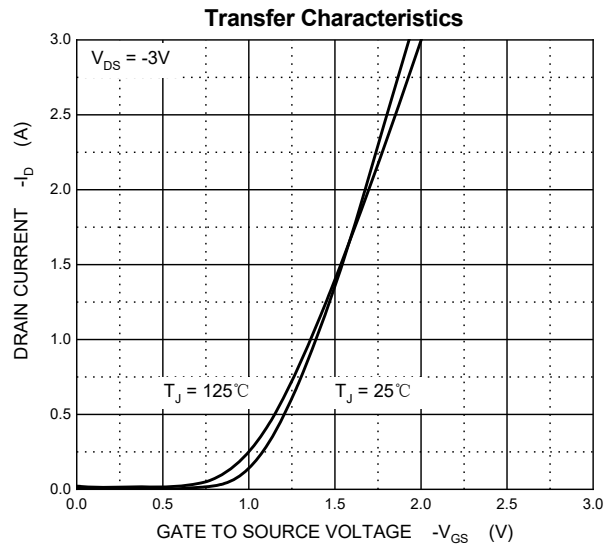
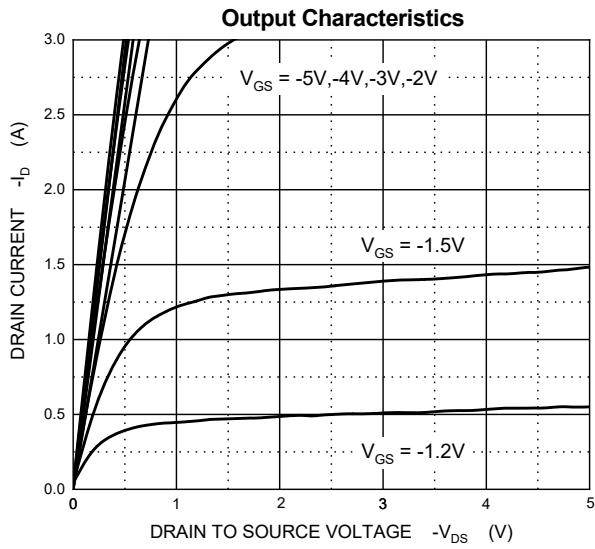
$T_J=25^\circ\text{C}$ unless otherwise specified

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit	
Off characteristics							
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-20	-	-	V	
Zero gate voltage drain current	I_{DSS}	$V_{GS}=0V, V_{DS}=-20V$	$T_J=25^\circ\text{C}$	-	-	-1	μA
			$T_J=125^\circ\text{C}$	-	-	-100	
Gate-body leakage current	I_{GSS}	$V_{GS}=\pm 10V, V_{DS}=0V$	-	-	± 20	μA	
On characteristics^②							
Gate-threshold voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.35	-0.59	-1.1	V	
Static drain-source on-state resistance	$R_{DS(on)}$	$V_{GS}=-4.5V, I_D=-1A$	-	164	300	$m\Omega$	
		$V_{GS}=-2.5V, I_D=-0.8A$	-	223	450		
		$V_{GS}=-1.8V, I_D=-0.5A$	-	302	600		
Forward transconductance	g_{FS}	$V_{DS}=-10V, I_D=-0.54A$	-	1.2	-	S	
Dynamic Characteristics							
Input capacitance	C_{iss}	$V_{DS}=-16V, V_{GS}=0V, f=1MHz$	-	50	-	pF	
Output capacitance	C_{oss}		-	16	-		
Reverse transfer capacitance	C_{rss}		-	8	-		
Gate resistance	R_g	$f=1MHz$	-	1.15	-	$k\Omega$	
Switching Characteristics^③							
Total gate charge	Q_g	$V_{DS}=-10V, V_{GS}=-1.8V, I_D=-1A$	-	0.44	-	nC	
Total gate charge	Q_g	$V_{DS}=-10V, V_{GS}=-2.5V, I_D=-1A$	-	0.58	-		
Total gate charge	Q_g	$V_{DS}=-10V, V_{GS}=-4.5V, I_D=-1A$	-	0.95	-		
Gate-source charge	Q_{gs}		-	0.22	-		
Gate-drain charge	Q_{gd}		-	0.16	-		
Turn-on delay time	$t_{d(on)}$	$V_{DS}=-10V, V_{GS}=4.5V, I_D=-200mA, R_G=10\Omega$	-	12	-	ns	
Turn-on rise time	t_r		-	43	-		
Turn-off delay time	$t_{d(off)}$		-	345	-		
Turn-off fall time	t_f		-	183	-		
Drain- Source Diode Characteristics							
Drain-source diode forward voltage	$V_{SD}^{②}$	$V_{GS}=0V, I_S=-0.5A$	-	-	-1.2	V	
Continuous drain-source diode forward current	$I_S^{③}$		-	-	-1.2	A	
Pulsed drain-source diode forward current	$I_{SM}^{①③}$		-	-	-2	A	

Notes :

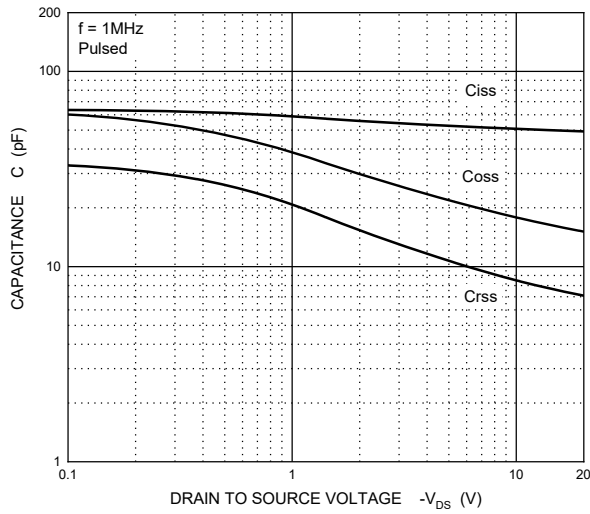
- Limited only by maximum temperature allowed.
- Pulse Test : Pulse Width $\leq 380\mu s$, duty cycle $\leq 2\%$.
- Device mounted on 1 in² FR-4 board with 2oz. double-sided Copper, in a still air environment with $T_A=25^\circ\text{C}$. The current rating is based on the $t\leq 10s$ thermal resistance rating.

Typical Characteristics

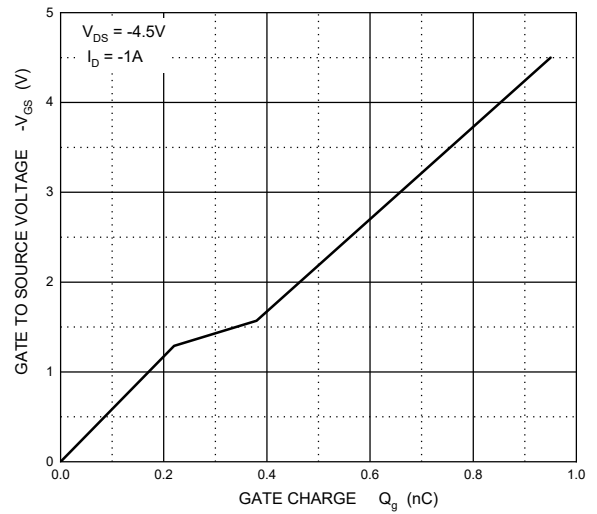


Typical Characteristics

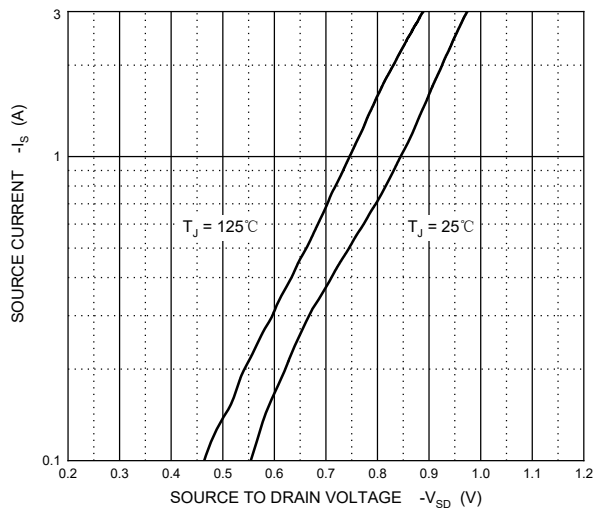
Typical Capacitances



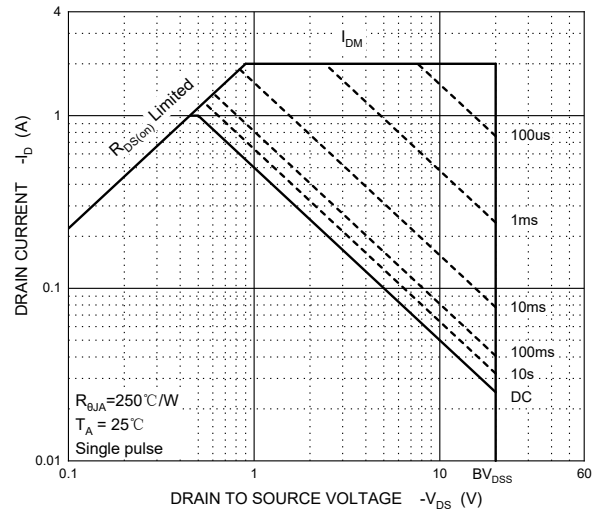
Gate Charge



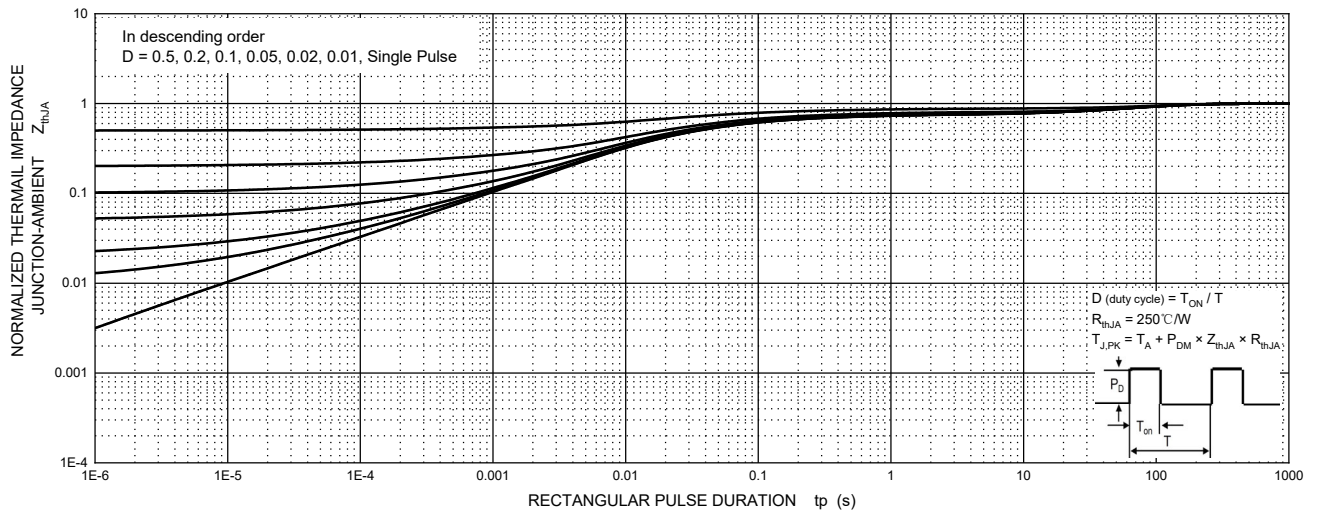
Source-Drain Diode Forward Characteristics



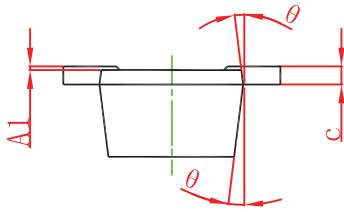
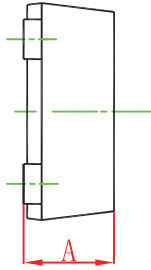
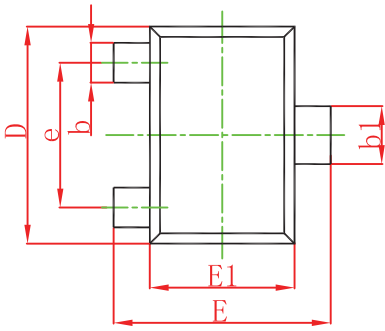
Maximum Safe Operating Area



Transient Thermal Impedance, Junction-Ambient

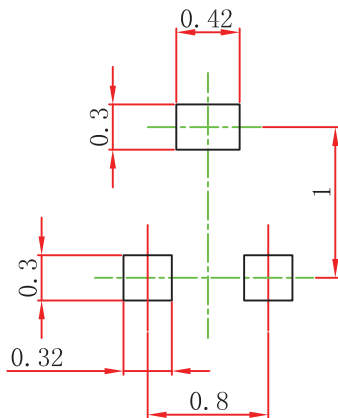


SOT-723 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.430	0.500	0.017	0.020
A1	0.000	0.050	0.000	0.002
b	0.170	0.270	0.007	0.011
b1	0.270	0.370	0.011	0.015
c	0.080	0.150	0.003	0.006
D	1.150	1.250	0.045	0.049
E	1.150	1.250	0.045	0.049
E1	0.750	0.850	0.030	0.033
e	0.800TYP.		0.031TYP.	
θ	7° REF.		7° REF.	

SOT-723 Suggested Pad Layout



Note:

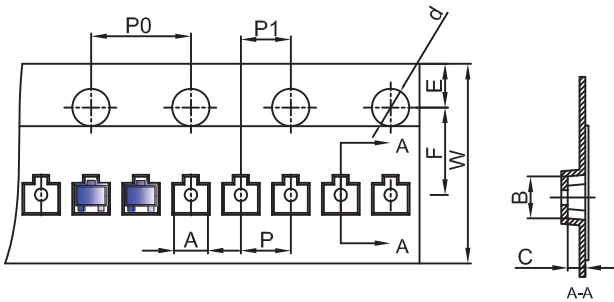
1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.

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-723 Tape and Reel

SOT-723 Embossed Carrier Tape

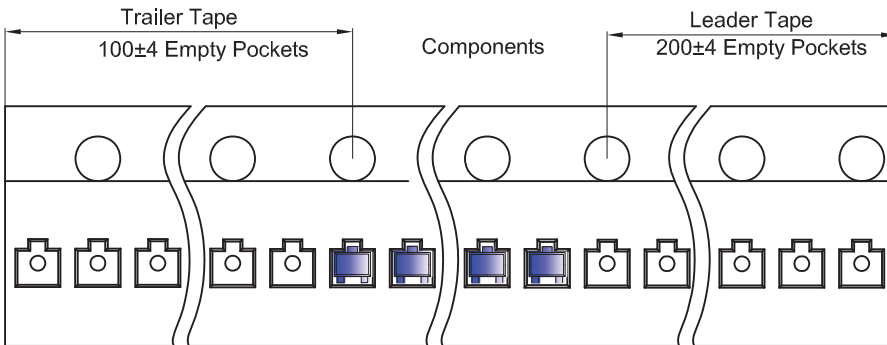


Packaging Description:

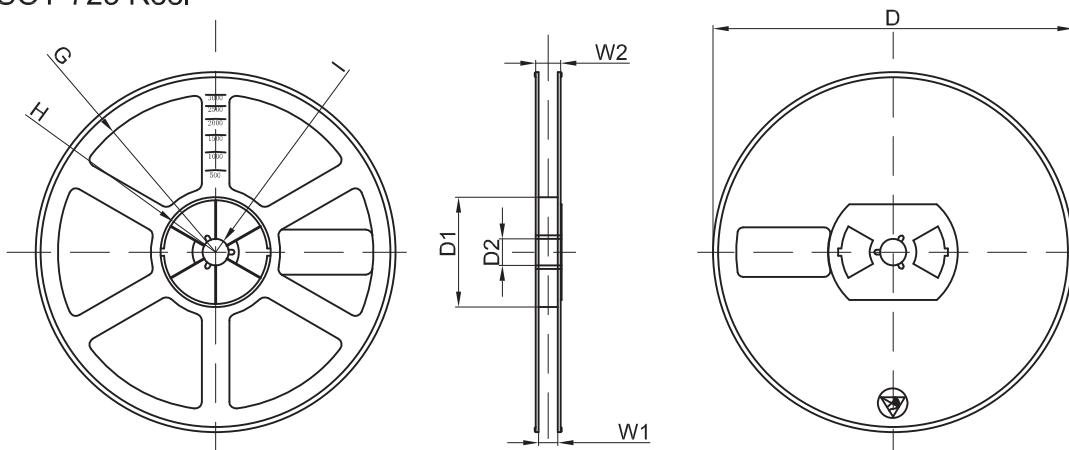
SOT-723 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 8,000 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-723	1.33	1.45	0.61	Ø1.50	1.75	3.50	4.00	2.00	2.00	8.00
(Tolerance)	+/-0.05	+/-0.05	+/-0.05	+/-0.1	+/-0.1	+/-0.1	+/-0.1	+/-0.1	+/-0.1	+0.3/-0.1

SOT-723 Tape Leader and Trailer



SOT-723 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
Tolerance	+/-2	+/-1	+/-1	+/-1	+/-1	+/-1	+/-1	+/-1

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
8,000 pcs	7 inch	120,000 pcs	210×208×205	480,000 pcs	440×440×230	