

設計驗證
工程課
2026 -01- 28
發行

承　認　書

APPROVAL　SHEET

客　戶	鈺緯科技開發股份有限公司
CUSTOMER	DIVA Laboratories, Ltd.

零 件 編 號 TYPE　NO	包裝 / 品牌 PACKAGE / BRAND
SI3099-TP	Brand : MCC
3BSI309901Y(B0145)	Package :SOT-23
	Tape&Reel: 3000pcs/Reel

設計驗證
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鈺緯科技開發股份有限公司

REMARK

Sentronic International Corp.
昱捷
TEL:
8797-5025
新北市汐止區新台五路一段93號25樓之6

APPROVE		**COMMENT :**
REJECT		

ACCEPTED BY Willy　　DATE :2026/1/26

昱捷股份有限公司　　**新北市汐止區新台五路一段93號25樓之6**

SENTRONIC INTERNATIONAL CORP.　　**TEL : 02-8797-5025 FAX :2659-2979**

Features

- Trench LV MOSFET Technology
- ESD Protected Up To 2.5KV (HBM)
- Moisture Sensitivity Level 1
- Halogen Free. “Green” Device (Note 1)
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

N-Channel MOSFET

Maximum Ratings

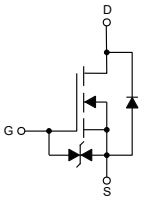
- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature: -55°C to +150°C
- Thermal Resistance: 110°C/W Junction to Ambient(Note2)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Volltage		V_{GS}	±12	V
Continuous Drain Current	T_A=25°C	I_D	1.1	A
	T_A=70°C		0.88	
Pulsed Drain Current(Note 3)		I_{DM}	4.4	A
Total Power Dissipation (Note 4)		P_D	1.1	W

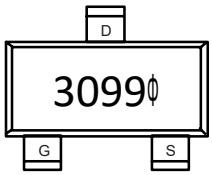
Note:

1. Halogen free "Green” products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. The value of $R_{\theta JA}$ is measured with the device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C.
3. Repetitive rating; pulse width limited by max. junction temperature.
4. P_D is based on max. junction temperature, using junction-ambient thermal resistance.

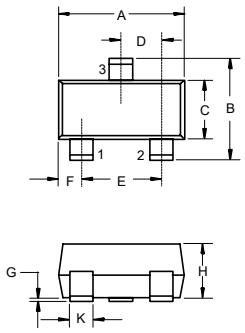
Internal Structure and Marking Code



1. GATE
2. SOURCE
3. DRAIN

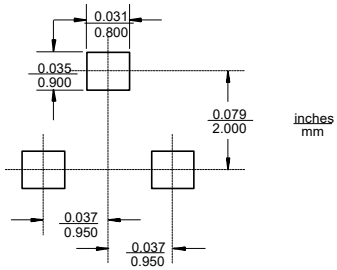


SOT-23



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.110	0.120	2.80	3.04	
B	0.083	0.104	2.10	2.64	
C	0.047	0.055	1.20	1.40	
D	0.034	0.041	0.85	1.05	
E	0.067	0.083	1.70	2.10	
F	0.018	0.024	0.45	0.60	
G	0.0004	0.006	0.01	0.15	
H	0.035	0.043	0.90	1.10	
J	0.003	0.007	0.08	0.18	
K	0.012	0.020	0.30	0.51	
L	0.007	0.020	0.20	0.50	

Suggested Solder Pad Layout



ELECTRICAL CHARACTERISTICS (Ta=25℃ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=250μA	30			V
Gate-Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	0.5	1.0	1.5	V
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±12V, V_{DS}=0V			±10	μA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=24V, V_{GS}=0V			100	nA
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=0.5A		360	408	mΩ
		V_{GS}=4.5V, I_D=0.4A		430	518	
		V_{GS}=2.5V, I_D=0.3A		720	800	
Forward Transconductance	g_{FS}	V_{DS}=5V, I_D=1.1A		1.4		S
Gate Resistance	R_g	f=1 MHz, Open drain		80		Ω
Dynamic Characteristics						
Continuous Body Diode Current	I_S				1.1	A
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=0.5A			1.2	V
Reverse Recovery Time	t_{rr}	I_F=0.5A, dI_F/dt=100A/μs		8		ns
Reverse Recovery Charge	Q_{rr}			2.6		nC
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=15V,V_{GS}=0V,f=1MHz		39		pF
Output Capacitance	C_{oss}			9		
Reverse Transfer Capacitance	C_{rss}			6		
Total Gate Charge	Q_g	V_{DS}=15V,V_{GS}=10V,I_D=0.5A		1.5		nC
Gate-Source Charge	Q_{gs}			0.2		
Gate-Drain Charge	Q_{gd}			0.2		
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=15V,V_{GS}=10V, R_G=2.5Ω, I_D=0.5A		3		ns
Turn-On Rise Time	t_r			3		
Turn-Off Delay Time	$t_{d(off)}$			12		
Turn-Off Fall Time	t_f			8		

Curve Characteristics

Fig.1 - Typical Output Characteristics

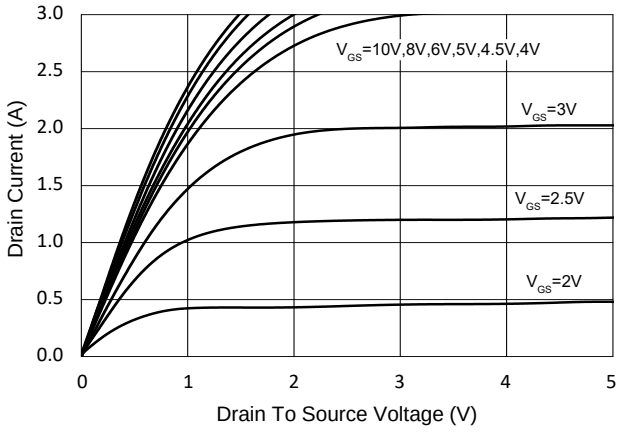


Fig.2 - Transfer Characteristic

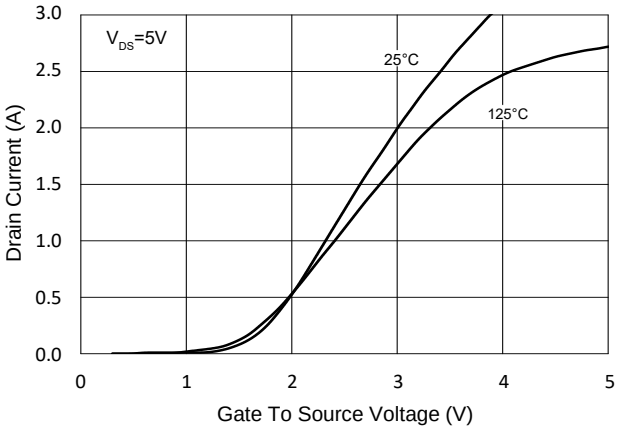


Fig.3 - $R_{DS(ON)}$ - V_{GS}

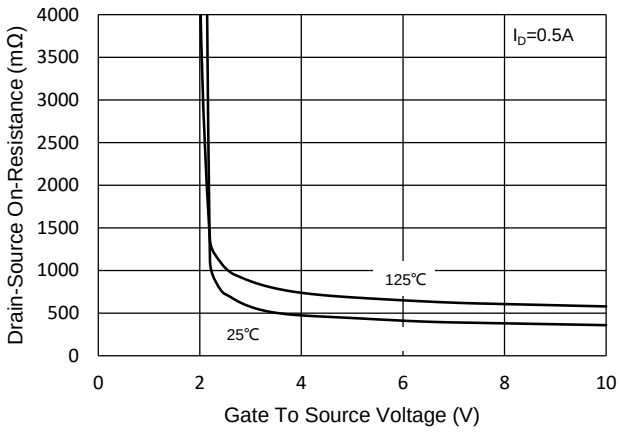


Fig.4 - $R_{DS(ON)}$ - I_D

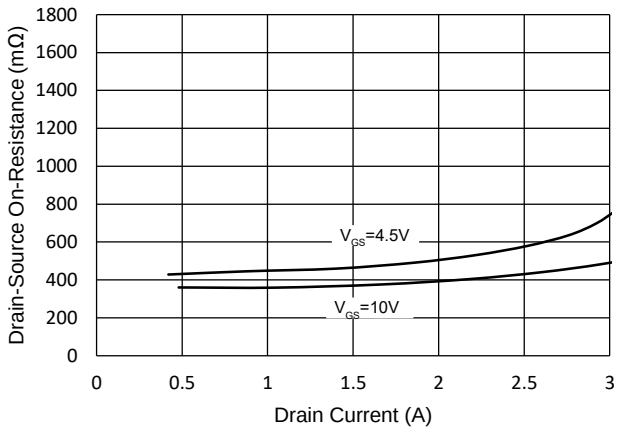


Fig.5 - Capacitance Characteristics

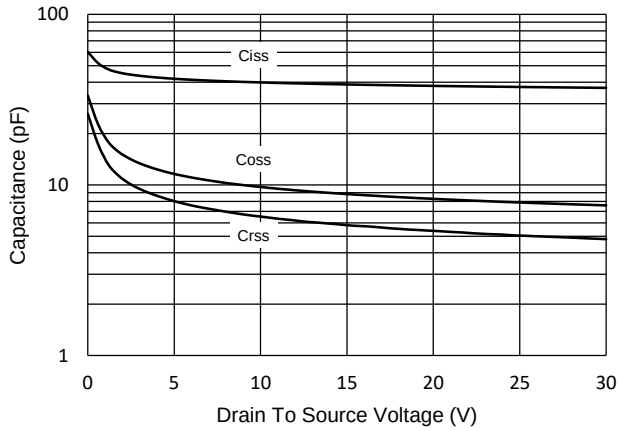
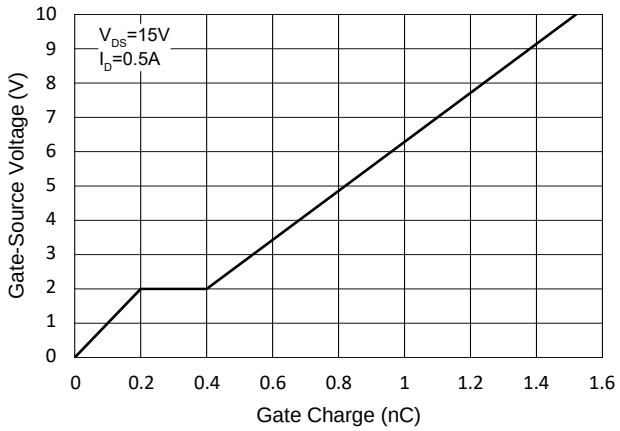


Fig.6 - Gate Charge



Curve Characteristics

Fig.7 - Normalized Threshold Voltage

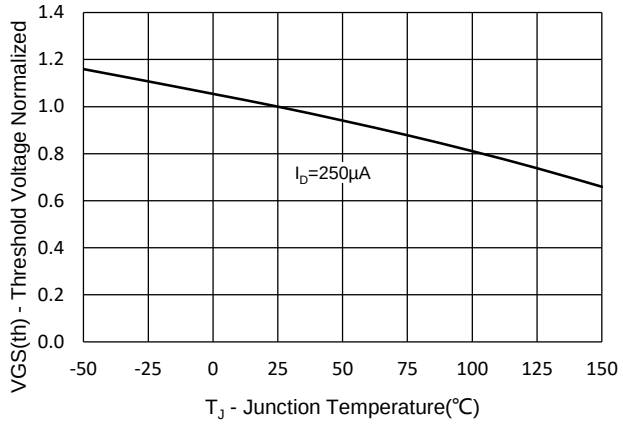


Fig.8 - Normalized On Resistance Characteristics

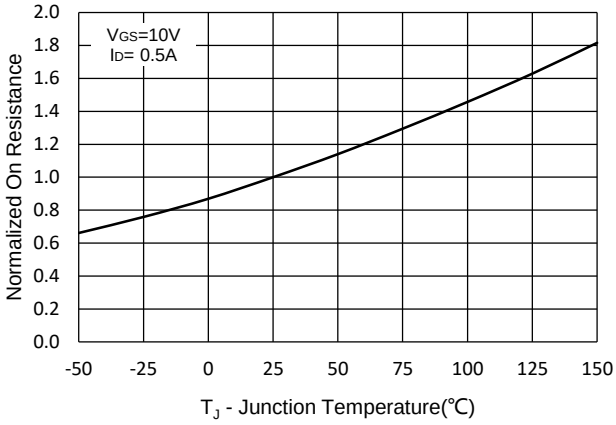


Fig.9 - I_S - V_{SD}

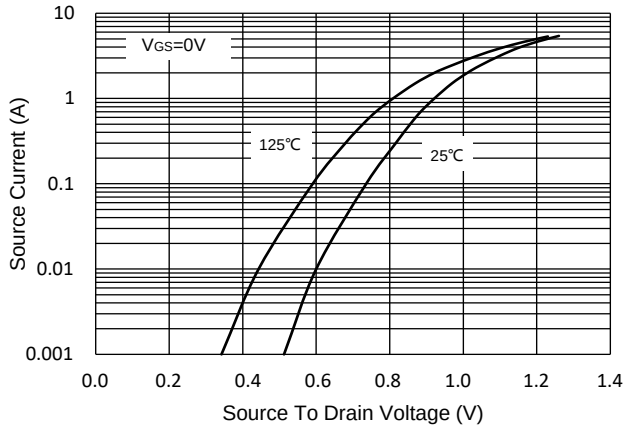


Fig.10 - Drain Current

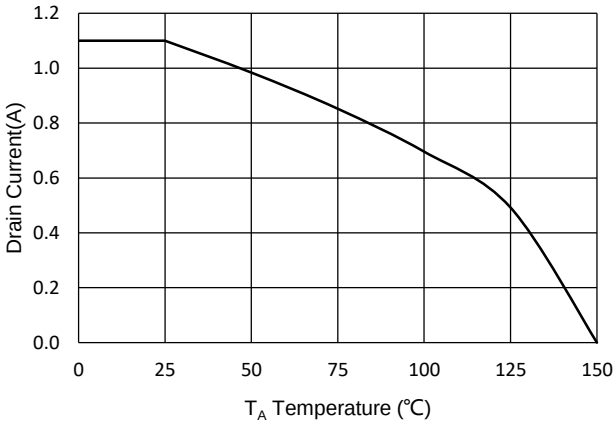
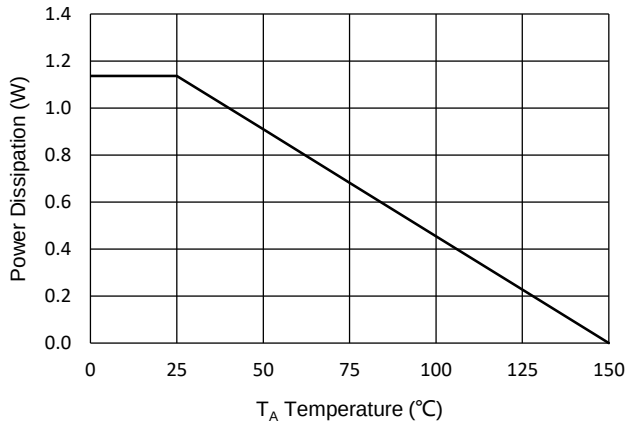


Fig.11 - PD Dissipation



Curve Characteristics

Fig.12 - Safe Operation Area

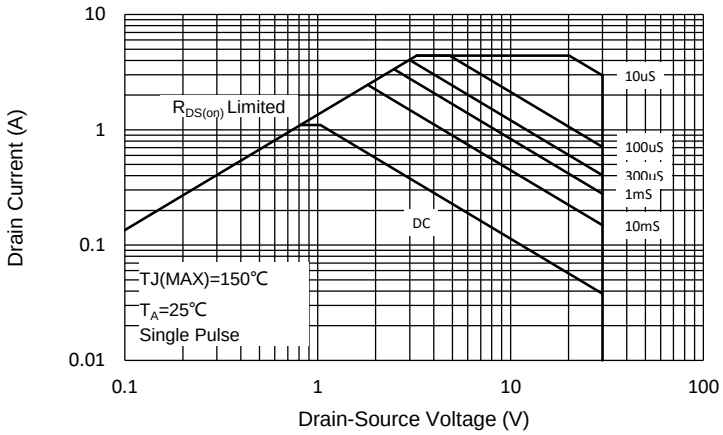
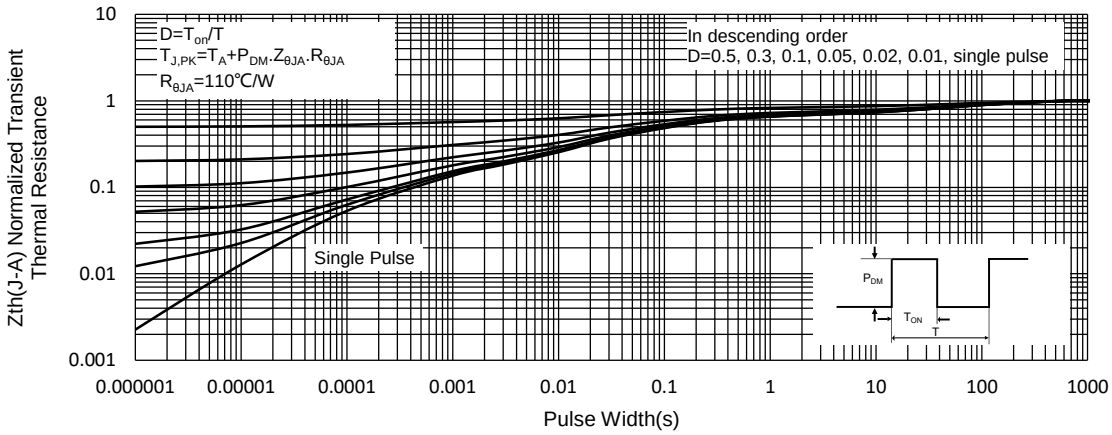


Fig.13 - Normalized Transient Thermal Impedance



Ordering Information

Device	Packing
Part Number-TP	Tape&Reel:3Kpcs/Reel

*****IMPORTANT NOTICE*****

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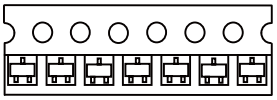
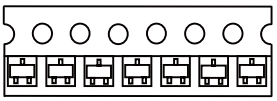
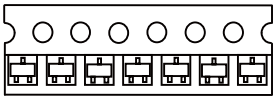
*****LIFE SUPPORT*****

MCC's products are not authorized for use as critical components in life support devices or systems without the express written approval of Micro Commercial Components Corporation.

*****CUSTOMER AWARENESS*****

Counterfeiting of semiconductor parts is a growing problem in the industry. Micro Commercial Components (MCC) is taking strong measures to protect ourselves and our customers from the proliferation of counterfeit parts. MCC strongly encourages customers to purchase MCC parts either directly from MCC or from Authorized MCC Distributors who are listed by country on our web page cited below. Products customers buy either from MCC directly or from Authorized MCC Distributors are genuine parts, have full traceability, meet MCC's quality standards for handling and storage. **MCC will not provide any warranty coverage or other assistance for parts bought from Unauthorized Sources**. MCC is committed to combat this global problem and encourage our customers to do their part in stopping this practice by buying direct or from authorized distributors.

Packing Quantity and Device Tape Orientation

Package	Tape Width	Reel Size	Pitch	Packing Quantity			ESD/MBB Bag	Pin1 Position	Tape Orientation	OPN Suffix
				Reel	Inner Box	Carton			Feed Direction	
	mm	inch	mm	kpcs	kpcs	kpcs				
SOT-23	8	7	4	3	30	120	NA	Q3		-TP
		13	4	10	10	160	NO	Q3		-13P
					20	100	YES	Q3		-13P

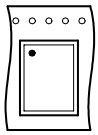
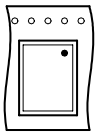
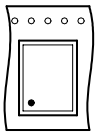
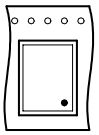
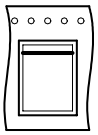
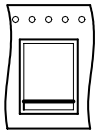
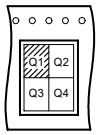
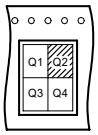
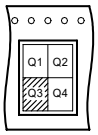
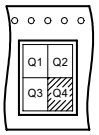
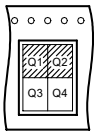
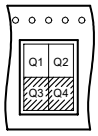
Note 1: All MOSFETs and other MSL3 products come with an ESD/MBB bag.

Note 2: These are minimum package quantities only. Minimum order quantities may vary. Please contact your sales representative for more information on minimum order quantities.

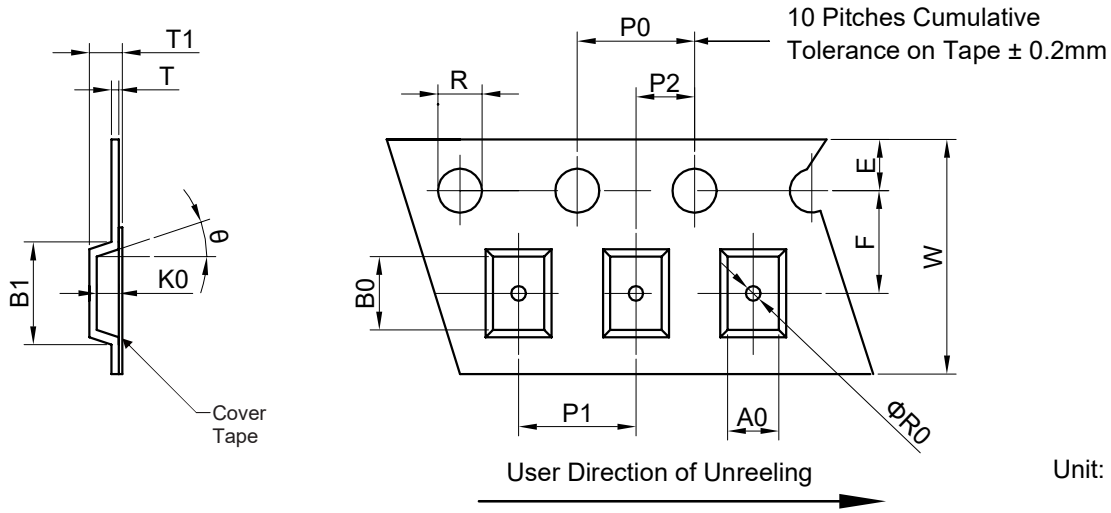
Note 3: MCC Tape&reel products meets EIA-481 specification.

Note 4: Please refer to the product datasheet for MSL level, RoHS and Halogen-Free compliance.

Note 5: Orientation guide for commonly used devices.

Pin1 Position	Q1	Q2	Q3	Q4	Q1Q2	Q3Q4
Orientation in Carrier						
Termination 1 Orientation by Quadrant						

Embossed Carrier Tape Specifications

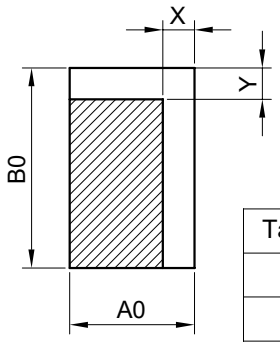


Tape Width	A0	B0	K0	B1	E	F	P0
8mm	See Note 6			See Note 7	1.75	3.5	4.0
(Tolerance)					±0.1	±0.05	±0.1

Tape Width	P1	P2	R	R0	T	T1	W
8mm	4.0	2.0	1.5	1.0	0.6	2.4	8.0
(Tolerance)	±0.1	±0.05	+0.1/-0	±0.1	Max	Max	±0.3

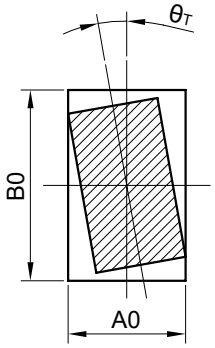
Note 6: A0, B0, and K0 are determined by component size. The clearance between the components and the cavity must be within 0.05 mm min to 0.50mm max.

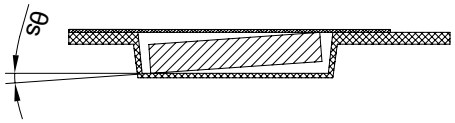
Note 7: For machine reference only including draft and radii concentric around B0.



Tape width	8,12mm
X (mm)	0.5
Y (mm)	0.5

Maximum Lateral movement

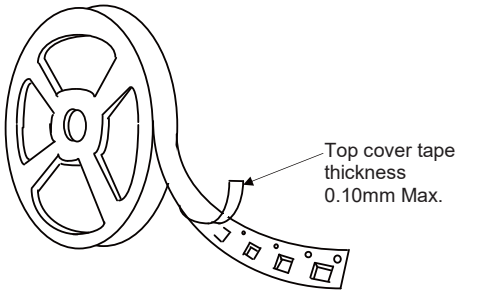


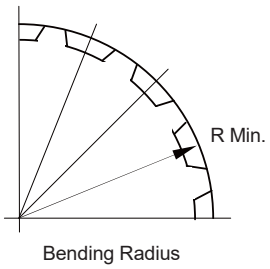


Maximum Component Rotation		
Tape width	Top View	Side View
mm	θT°	θs°
8,12	20	20

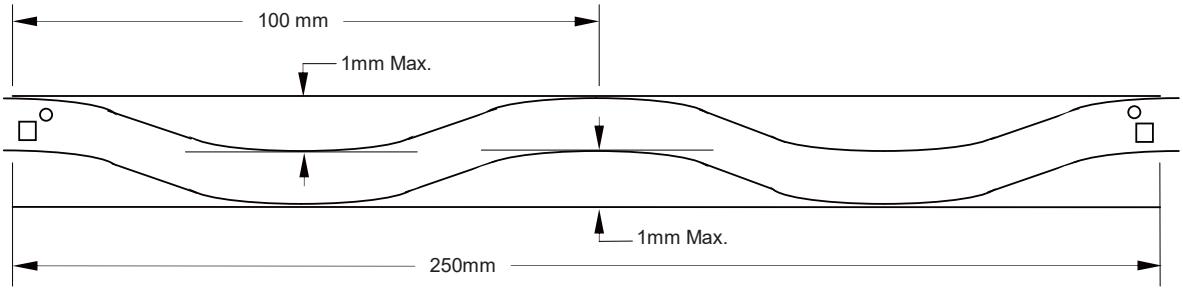
Maximum Component Rotation

Embossed Carrier Tape Specifications





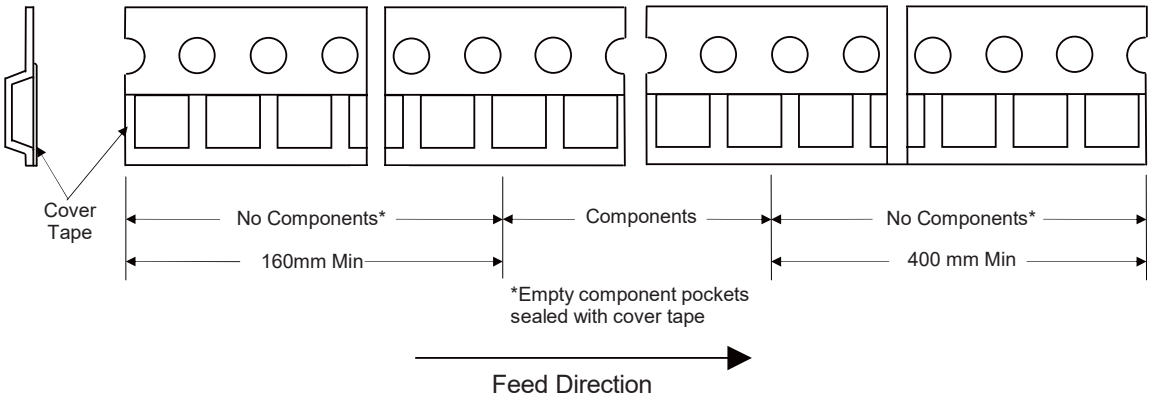
Tape Size	R Min.
8mm	25mm



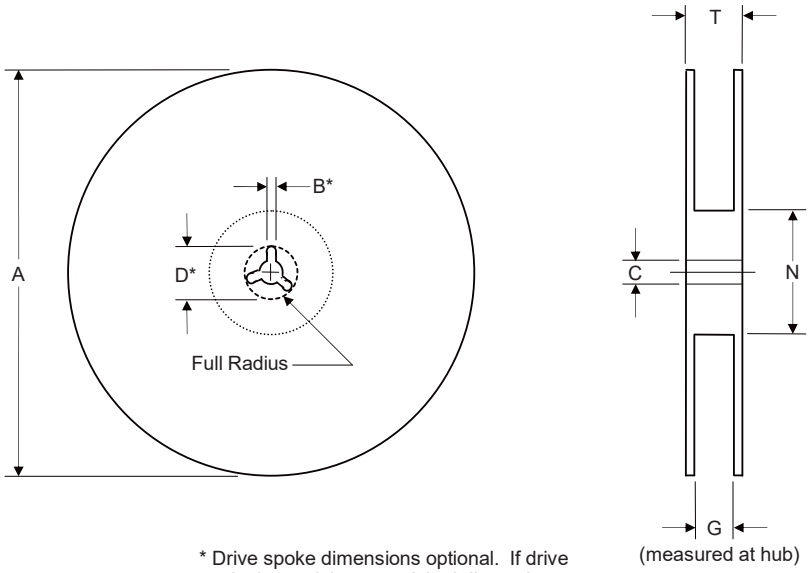
Camber (Top View)

Allowable camber to be 1mm/100mm non-accumulative over 250mm

Start and Finish Specification



Surface Mount Reel Specifictions

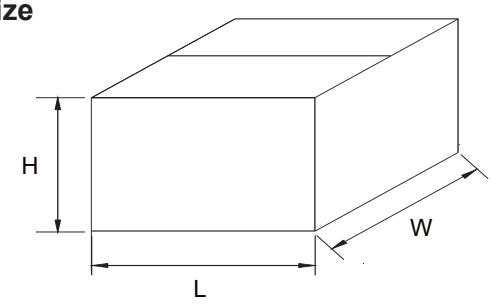


* Drive spoke dimensions optional. If drive spoke is used then asterisked dimensions apply.

Tape Width	A	B	C	D	N	G	T
8mm	180/335	1.5	13.0	20.2	55/100	8.4	14.4
(Tolerance)	Max	Min	±0.2	Min	±5.0	+1.5	Max

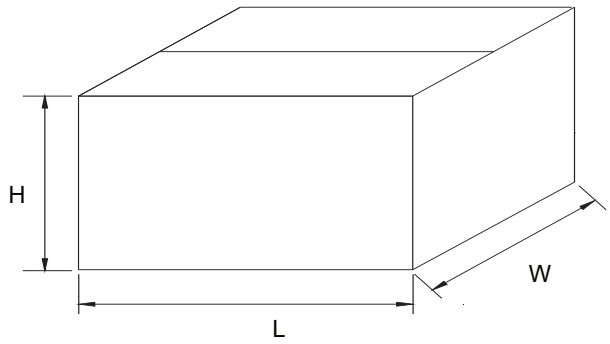
Dimensions

Inbox Size



Dimension	Specification(mm typical)			
	General		ESD/MBB Bag	
Reel Size	7 inch	13 inch	7 inch	13 inch
L	187	342	245	370
W	130	342	145	340
H	187	22	202	55

Carton Size



Dimension	Specification(mm typical)			
	General		ESD/MBB Bag	
Reel Size	7 inch	13 inch	7 inch	13 inch
L	390	395	510	385
W	275	360	305	365
H	207	366	235	315