

設計驗證
工程課
2026 -02- 04
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

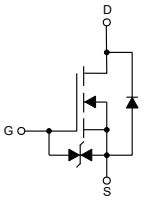
- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature: -55°C to +150°C
- Thermal Resistance: 110°C/W Junction to Ambient(Note2)

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

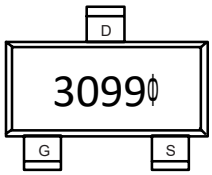
Note:

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.

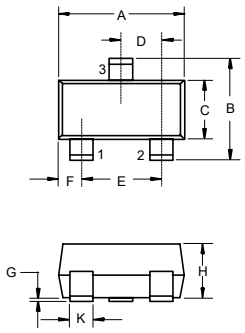
Internal Structure and Marking Code



1. GATE
2. SOURCE
3. DRAIN

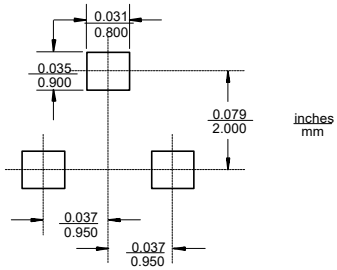


SOT-23



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 (T_a=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

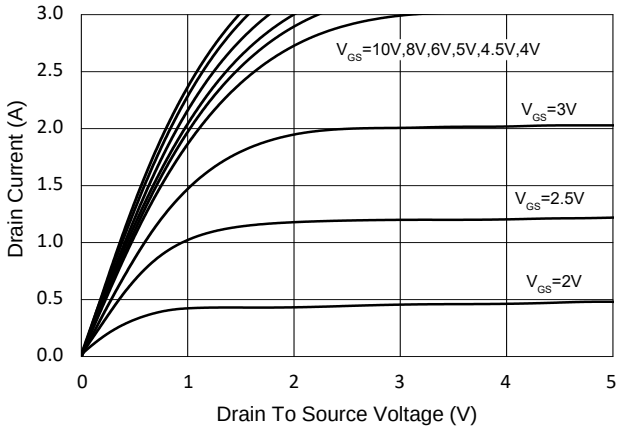


Fig.2 - Transfer Characteristic

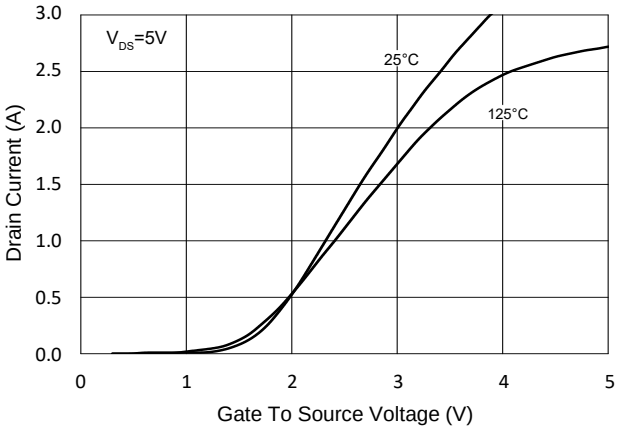


Fig.3 - $R_{DS(ON)}$ - V_{GS}

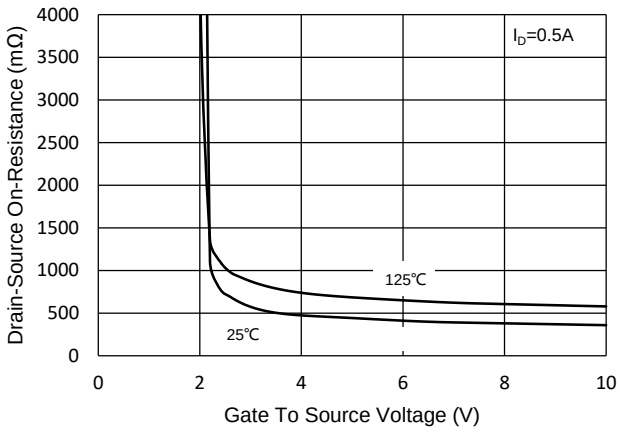


Fig.4 - $R_{DS(ON)}$ - I_D

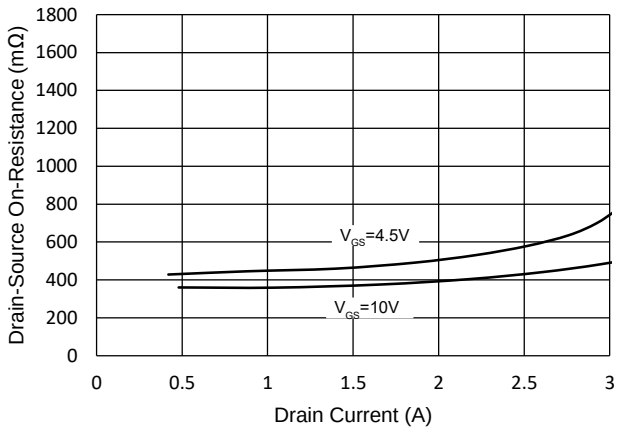


Fig.5 - Capacitance Characteristics

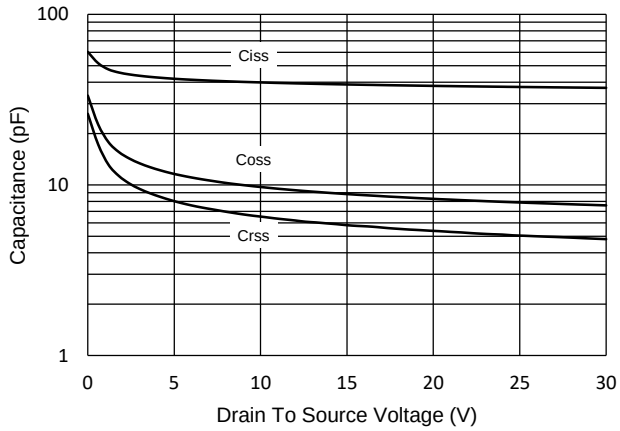
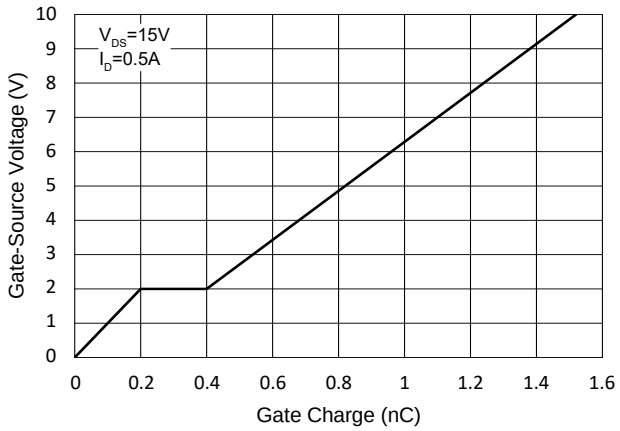


Fig.6 - Gate Charge



Curve Characteristics

Fig.7 - Normalized Threshold Voltage

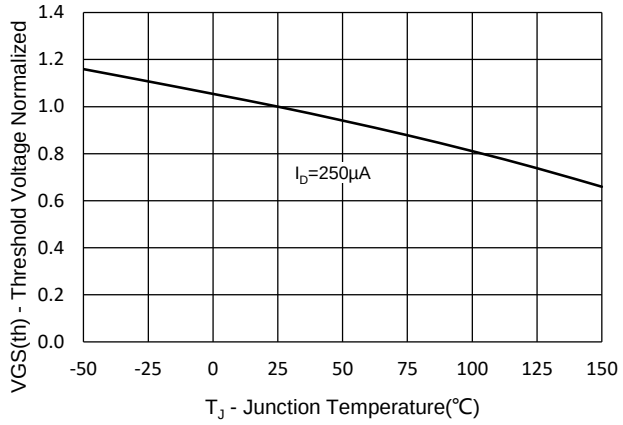


Fig.8 - Normalized On Resistance Characteristics

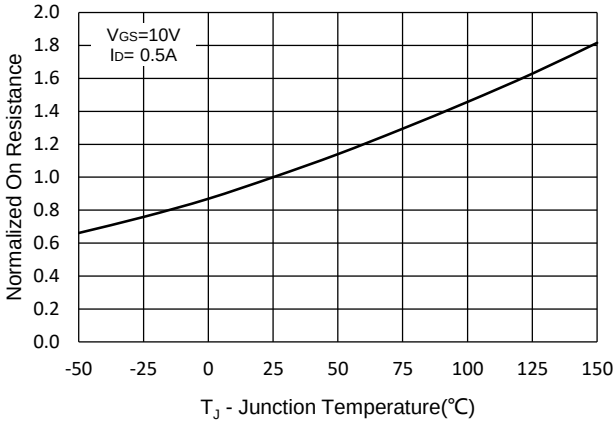


Fig.9 - I_S - V_{SD}

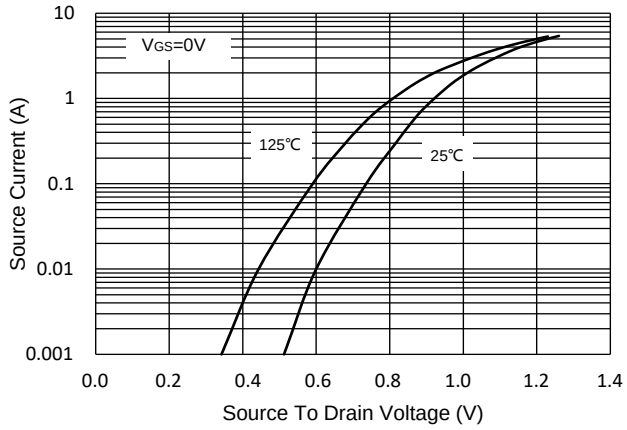


Fig.10 - Drain Current

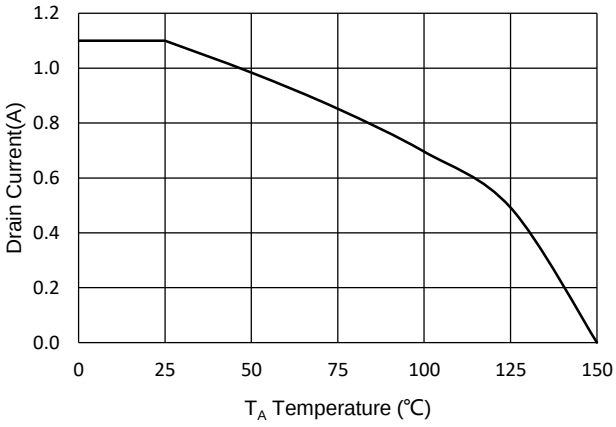
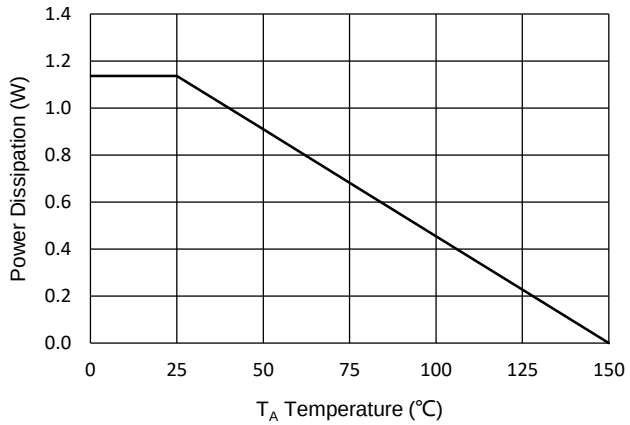


Fig.11 - PD Dissipation



Curve Characteristics

Fig.12 - Safe Operation Area

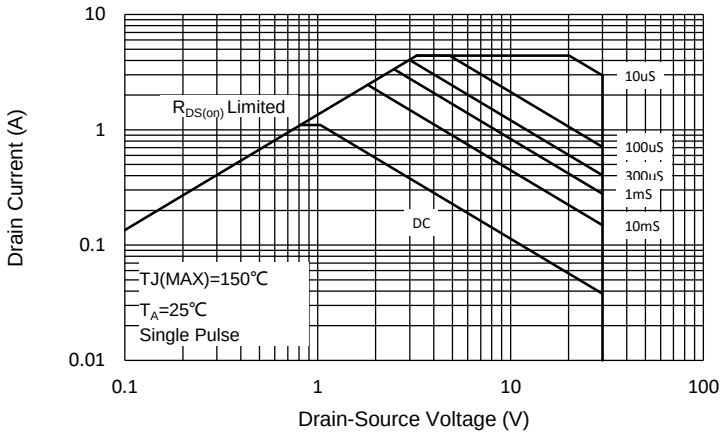
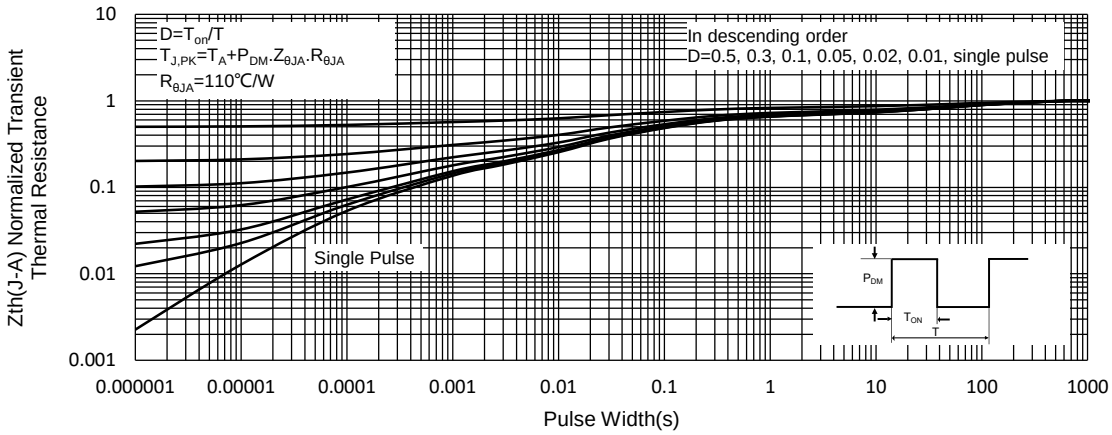


Fig.13 - Normalized Transient Thermal Impedance



Ordering Information

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

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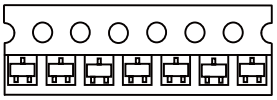
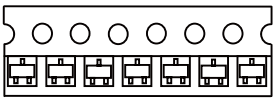
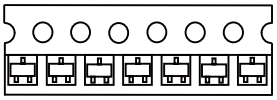
Packing Quantity and Device Tape Orientation

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

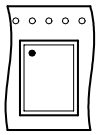
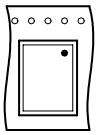
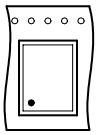
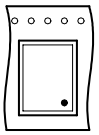
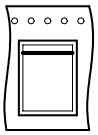
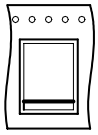
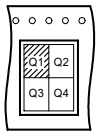
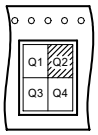
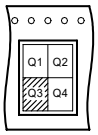
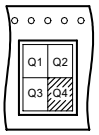
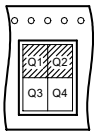
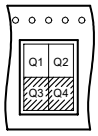
Note 1: All MOSFETs and other MSL3 products come with an ESD/MBB bag.

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.

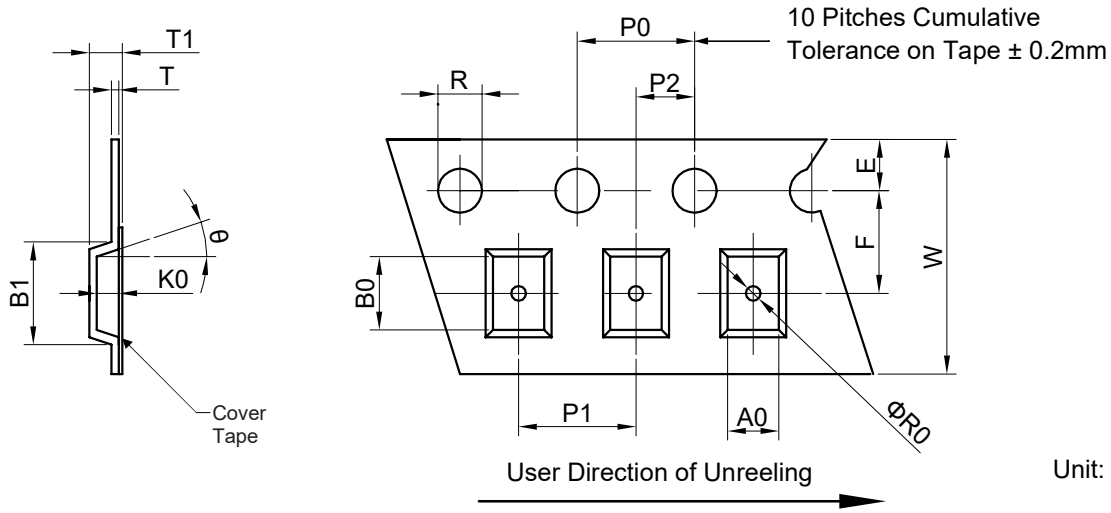
Note 3: MCC Tape&reel products meets EIA-481 specification.

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

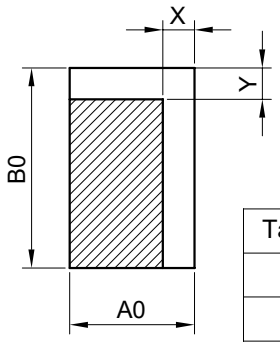


Tape Width	A0	B0	K0	B1	E	F	P0
8mm	See Note 6			See Note 7	1.75	3.5	4.0
(Tolerance)					±0.1	±0.05	±0.1

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

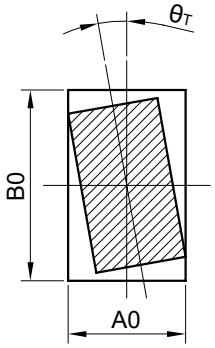
Note 6: A0, B0, and K0 are determined by component size. The clearance between the components and the cavity must be within 0.05 mm min to 0.50mm max.

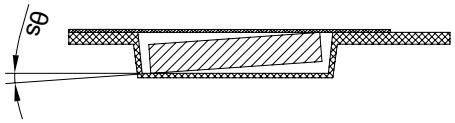
Note 7: For machine reference only including draft and radii concentric around B0.



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

Maximum Lateral movement

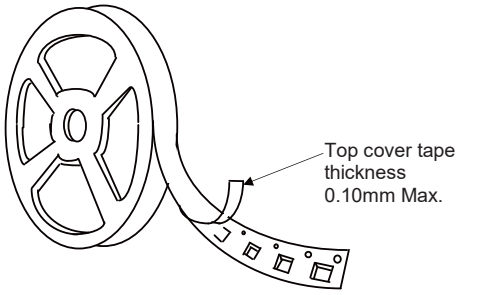


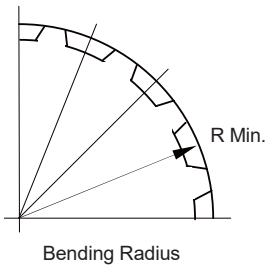


Maximum Component Rotation		
Tape width	Top View	Side View
mm	θT°	θs°
8,12	20	20

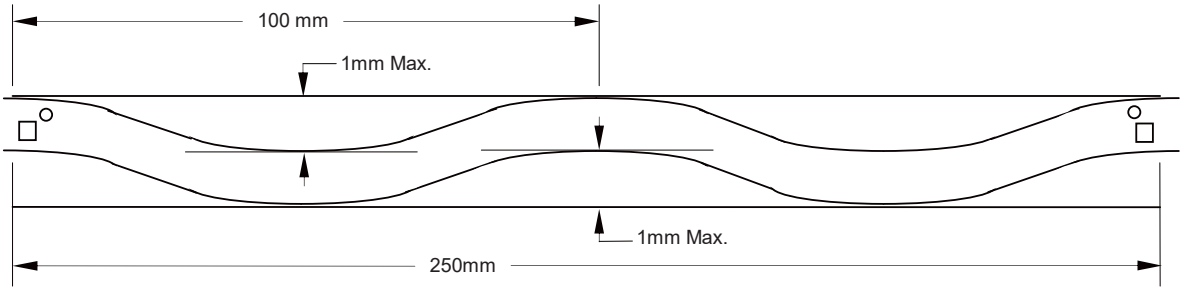
Maximum Component Rotation

Embossed Carrier Tape Specifications





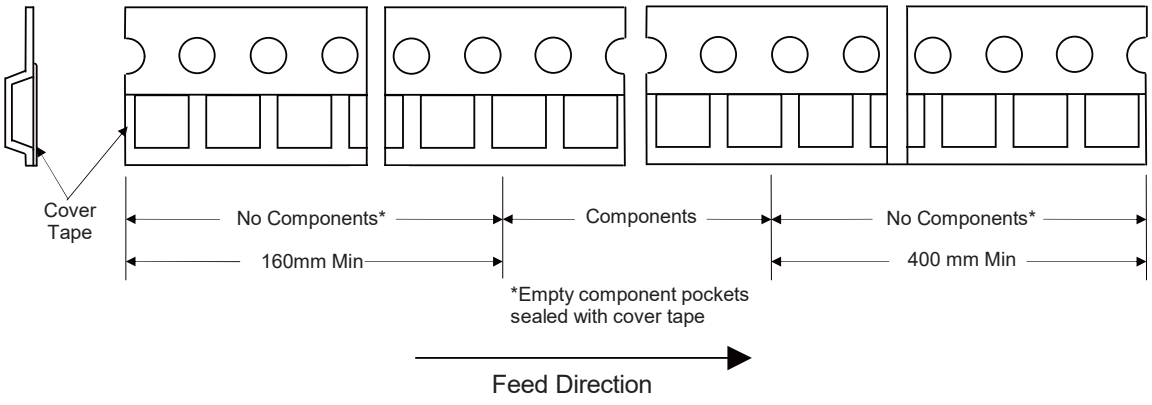
Tape Size	R Min.
8mm	25mm



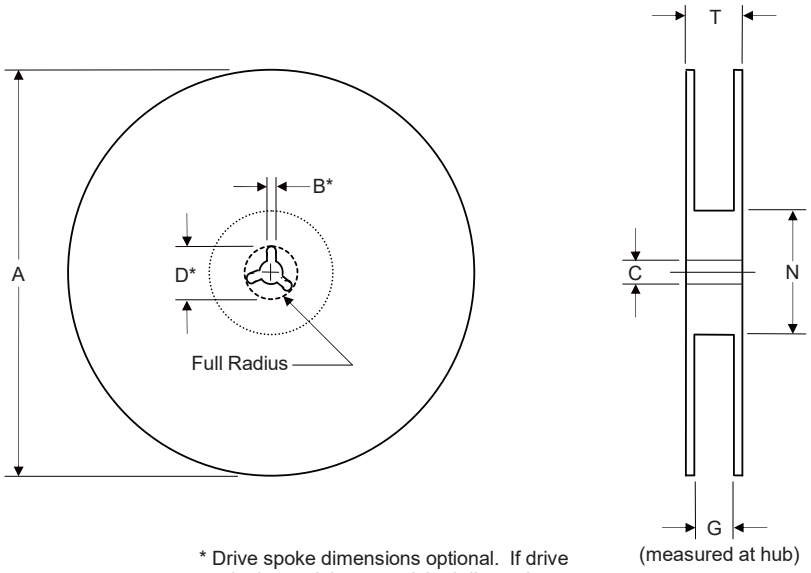
Camber (Top View)

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

Start and Finish Specification



Surface Mount Reel Specifictions

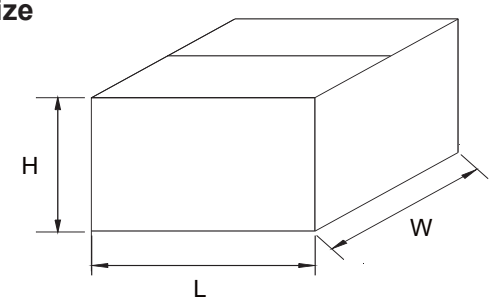


* Drive spoke dimensions optional. If drive spoke is used then asterisked dimensions apply.

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

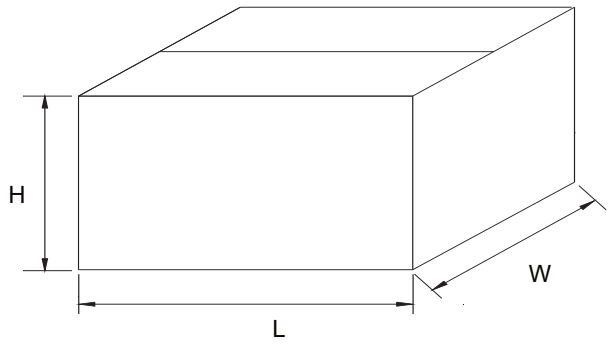
Dimensions

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