

Schottky Barrier Rectifier Diode

Lead-less Chip Form



GENERAL DESCRIPTION

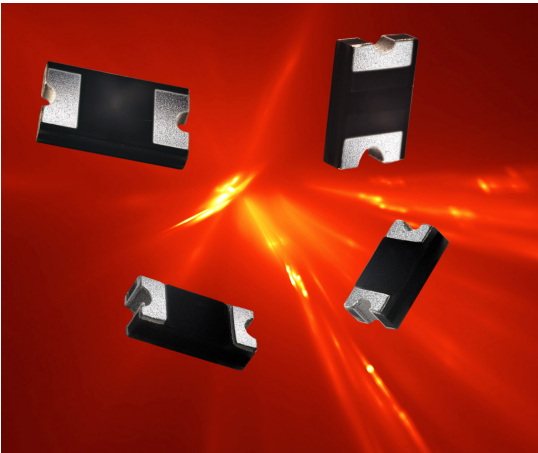
AVX Schottky rectifier diodes offer unique lead-less chip packaging technology which eliminates the lead frame wire bond to give the chip top-bottom symmetry for fewer mounting problems, better heat transfer, and current handling capability (compared to SOD devices).

FEATURES

- Lead-less chip form
- Low V_f
- High current capability
- Low power loss/high efficiency
- UL 94V-0 class package material
- Halogen free

APPLICATIONS

- Switch mode power supplies
- High frequency rectification
- Portable battery powered devices
- Reverse bias protection



MECHANICAL DATA

Case: FRP substrate with epoxy underfill

Terminations: 100% Sn plated (Pb-free), solderable per MIL-STD-750, Method 2026.

Operating Temperature: -55°C to 125°C

Storage Temperature: -55°C to 150°C

HOW TO ORDER

SD

Series
Schottky
Diodes

3220

Size
3220
2114
2010
0805
0603

S

Thickness
S = Standard
T = Thin

020

Voltage
020 = 20V
030 = 30V
040 = 40V
060 = 60V
100 = 100V
150 = 150V
200 = 200V

S

V_f
S = Standard
L = Low

3R0

Current
0R1 = 0.1
0R2 = 0.2
0R3 = 0.3
0R5 = 0.5
1R0 = 1.0



AVX SCHOTTKY DIODE CURRENTS BY CASE SIZE

Size		Max Forward Current								
EIAJ	JEDEC	.1A	.2A	.3A	.5A	1A	2A	3A	5A	8A
0603	SOD-523	●	●	●						
0805	SOD-323	●	●	●	●	●				
1206	SOD-123				●	●	●	●		
2010	SMA (D0-214AC)					●	●	●	●	
2114	SMB (D0-214AA)							●	●	●
3220	SMC (D0-214AB)							●	●	

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ELECTRICAL CHARACTERISTICS

AVX PN	Size	Max Reverse Voltage	Max Forward Current	Max Peak Forward Surge Current	Reverse Current I_{RRM}		Forward Voltage V_f			Rth JA	Rth JL	Cj
		V_{RRM}	I_F	I_{FSM}	Typ	Max	I_F	Min	Max			
		V	A	A	mA	mA	A	V	V			
SD3220S020S3R0	3220	20	3	100	0.025	0.5	3	0.47	0.50	55	17	180
SD3220S040S3R0	3220	40	3	100	0.025	0.5	3	0.47	0.50	55	17	180
SD3220S060S3R0	3220	60	3	100	0.025	0.5	3	0.65	0.70	55	17	180
SD3220S100S3R0	3220	100	3	100	0.025	0.5	3	0.78	0.85	55	17	180
SD3220S020S5R0	3220	20	5	130	0.045	0.5	5	0.52	0.55	55	17	180
SD3220S040S5R0	3220	40	5	130	0.045	0.5	5	0.52	0.55	55	17	180
SD3220S060S5R0	3220	60	5	130	0.045	0.5	5	0.65	0.70	55	17	180
SD3220S100S5R0	3220	100	5	130	0.045	0.5	5	0.79	0.85	55	17	180
SD2114S020S3R0	2114	20	3	80	0.04	0.5	3	0.48	0.50	55	17	180
SD2114S040S3R0	2114	40	3	80	0.04	0.5	3	0.48	0.50	55	17	180
SD2114S060S3R0	2114	60	3	80	0.04	0.5	3	0.65	0.70	55	17	180
SD2114S100S3R0	2114	100	3	80	0.04	0.5	3	0.78	0.85	55	17	180
SD2114S020S5R0	2114	20	5	105	0.045	0.5	5	0.5	0.55	55	17	250
SD2114S040S5R0	2114	40	5	105	0.045	0.5	5	0.5	0.55	55	17	250
SD2114S060S5R0	2114	60	5	105	0.045	0.5	5	0.65	0.70	55	17	250
SD2114S100S5R0	2114	100	5	105	0.045	0.5	5	0.79	0.85	55	17	250
SD2114S040S8R0	2114	40	8	135	0.045	0.5	8	0.53	0.55	55	17	450
SD2010S020S1R0	2010	20	1	30	0.02	0.2	1	0.47	0.50	88	28	110
SD2010S040S1R0	2010	40	1	30	0.02	0.2	1	0.47	0.50	88	28	110
SD2010S060S1R0	2010	60	1	30	0.02	0.2	1	0.6	0.70	88	28	110
SD2010S100S1R0	2010	100	1	30	0.02	0.2	1	0.76	0.85	88	28	110
SD2010S150S1R0	2010	150	1	30	0.001	0.05	1	0.83	0.88	88	28	110
SD2010S200S1R0	2010	200	1	30	0.001	0.05	1	0.86	0.90	88	28	110
SD2010S020S2R0	2010	20	2	50	0.025	0.2	2	0.49	0.50	75	17	115
SD2010S040S2R0	2010	40	2	50	0.025	0.2	2	0.49	0.50	75	17	115
SD2010S060S2R0	2010	60	2	50	0.025	0.2	2	0.6	0.70	75	17	115
SD2010S100S2R0	2010	100	2	50	0.025	0.2	2	0.75	0.85	75	17	115
SD2010S150S2R0	2010	150	2	50	0.001	0.2	2	0.83	0.88	88	28	110
SD2010S200S2R0	2010	200	2	50	0.001	0.2	2	0.86	0.90	88	28	110
SD2010S020S3R0	2010	20	3	80	0.02	0.2	3	0.46	0.50	86	24	120
SD2010S040S3R0	2010	40	3	80	0.02	0.2	3	0.46	0.50	86	24	120
SD2010S060S3R0	2010	60	3	80	0.02	0.2	3	0.58	0.70	86	24	120
SD2010S100S3R0	2010	100	3	80	0.02	0.2	3	0.75	0.85	86	24	120
SD2010S150S3R0	2010	150	3	80	0.001	0.05	3	0.83	0.88	88	28	110
SD2010S200S3R0	2010	200	3	80	0.001	0.05	3	0.86	0.90	88	28	110
SD2010S030S5R0	2010	30	5	80		0.2	3	0.42	0.44	55	17	210
SD2010S020L1R0	2010	20	1	30	0.35	1.0	1	0.37	0.38	55	17	115
SD2010S040L1R0	2010	40	1	30	0.35	1.0	1	0.37	0.38	55	17	115
SD2010S020L2R0	2010	20	2	50	0.28	1.0	2	0.39	0.40	70	17	115
SD2010S040L2R0	2010	40	2	50	0.28	1.0	2	0.39	0.40	70	17	115
SD2010S020L3R0	2010	20	3	80	0.55	1.0	3	0.39	0.42	55	17	120
SD2010S040L3R0	2010	40	3	80	0.55	1.0	3	0.39	0.42	55	17	120
SD2010S030L3R0	2010	30	3	70	0.08	0.2	3	0.42	0.44	55	17	120
SD1206S020S0R5	1206	20	0.5	15	0.01	0.05	0.5	0.4	0.42	88	28	120
SD1206S040S0R5	1206	40	0.5	15	0.01	0.05	0.5	0.45	0.48	88	28	120
SD1206S020S1R0	1206	20	1.0	20	0.015	0.2	1.0	0.46	0.50	88	28	110
SD1206S040S1R0	1206	40	1.0	20	0.015	0.2	1.0	0.46	0.50	88	28	110
SD1206S060S1R0	1206	60	1.0	20	0.015	0.2	1.0	0.62	0.70	88	28	110
SD1206S100S1R0	1206	100	1.0	20	0.015	0.2	1.0	0.76	0.85	88	28	110
SD1206S020S2R0	1206	20	2.0	40	0.03	0.2	2.0	0.47	0.50	75	17	115
SD1206S040S2R0	1206	40	2.0	40	0.03	0.2	2.0	0.47	0.50	75	17	115
SD1206S060S2R0	1206	60	2.0	40	0.03	0.2	2.0	0.58	0.70	75	17	115
SD1206S100S2R0	1206	100	2.0	40	0.03	0.2	2.0	0.75	0.85	75	17	115
SD1206S020L1R0	1206	20	1.0	25	0.3	1.0	1.0	0.37	0.38	88	28	115
SD1206S040L1R0	1206	40	1.0	25	0.3	1.0	1.0	0.37	0.38	88	28	115
SD1206S020L2R0	1206	20	2.0	40	0.28	1.0	2.0	0.39	0.40	70	22	115

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AVX PN	Size	Max Reverse Voltage	Max Forward Current	Max Peak Forward Surge Current	Reverse Current I_{RRM}		Forward Voltage V_f			Rth JA	Rth JL	Cj
		V_{RRM}	I_F	I_{FSM}	Typ	Max	I_F	Min	Max			
		V	A	A	mA	mA	A	V	V			
SD1206S040L2R0	1206	40	2.0	40	0.28	1.0	2.0	0.39	0.40	70	22	115
SD1206T020S0R5	1206	20	0.5	15	0.01	0.05	0.5	0.4	0.42	88	28	120
SD1206T040S0R5	1206	40	0.5	15	0.01	0.05	0.5	0.45	0.48	88	28	120
SD1206T060S0R5	1206	60	0.5	15	0.01	0.05	0.5	0.48	0.55	88	28	120
SD1206T020S1R0	1206	20	1.0	20	0.015	0.2	1.0	0.46	0.50	88	28	110
SD1206T040S1R0	1206	40	1.0	20	0.015	0.2	1.0	0.46	0.50	88	28	110
SD1206T060S1R0	1206	60	1.0	20	0.015	0.2	1.0	0.62	0.70	88	28	110
SD1206T100S1R0	1206	100	1.0	20	0.015	0.2	1.0	0.76	0.85	88	28	110
SD1206T020S2R0	1206	20	2.0	40	0.03	0.2	2.0	0.47	0.50	75	17	115
SD1206T040S2R0	1206	40	2.0	40	0.03	0.2	2.0	0.47	0.50	75	17	115
SD1206T060S2R0	1206	60	2.0	40	0.03	0.2	2.0	0.58	0.75	75	17	115
SD1206T100S2R0	1206	100	2.0	40	0.03	0.2	2.0	0.75	0.85	75	17	115
SD1206T040S3R0	1206	40	3.0	40	0.03	0.2	3.0	0.53	0.55	88	28	110
SD1206T060S3R0	1206	60	3.0	40	0.03	0.2	3.0	0.75	0.80	88	28	110
SD1206T020L1R0	1206	20	1.0	25	0.3	1.0	1.0	0.37	0.38	88	28	115
SD1206T040L1R0	1206	40	1.0	25	0.3	1.0	1.0	0.37	0.38	88	28	115
SD0805S020S0R1	0805	20.0	0.1	2.0	0.004	0.03	0.1	0.38	0.45	160	110	18
SD0805S040S0R1	0805	40.0	0.1	2.0	0.004	0.03	0.1	0.4	0.50	160	110	18
SD0805S020S0R2	0805	20.0	0.2	2.0	0.008	0.05	0.2	0.42	0.45	160	110	15
SD0805S040S0R2	0805	40.0	0.2	2.0	0.008	0.05	0.2	0.45	0.50	160	110	15
SD0805S020S0R3	0805	20.0	0.3	2.0	0.008	0.05	0.3	0.47	0.50	160	110	30
SD0805S040S0R3	0805	40.0	0.3	2.0	0.008	0.05	0.3	0.47	0.50	160	110	30
SD0805S020S0R5	0805	20.0	0.5	5.0	0.015	0.1	0.5	0.4	0.44	120	28	28
SD0805S030S0R5	0805	30.0	0.5	5.0	0.015	0.1	0.5	0.4	0.46	120	28	28
SD0805S040S0R5	0805	40.0	0.5	5.0	0.015	0.1	0.5	0.4	0.48	120	28	28
SD0805S020S1R0	0805	20.0	1.0	10.0	0.028	0.2	1.0	0.42	0.45	120	28	115
SD0805S040S1R0	0805	40.0	1.0	10.0	0.008	0.05	1.0	0.49	0.55	88	28	110
SD0805S060S1R0	0805	60.0	1.0	10.0	0.028	0.2	1.0	0.62	0.65	120	28	115
SD0805S020L1R0	0805	20.0	1.0	10.0	0.3	1.0	1.0	0.37	0.38	88	28	115
SD0805S040L1R0	0805	40.0	1.0	10.0	0.3	1.0	1.0	0.37	0.38	88	28	115
SD0603S020S0R1	0603	20	0.1	2	0.008	0.05	0.100	0.38	0.40	160	110	30
SD0603S040S0R1	0603	40	0.1	2	0.008	0.05	0.100	0.38	0.40	160	110	30
SD0603S020S0R2	0603	20	0.2	2	0.008	0.05	0.200	0.43	0.45	160	110	35
SD0603S040S0R2	0603	40	0.2	2	0.0005	0.0010	0.200	0.43	0.45	160	110	35
SD0603S020S0R3	0603	20	0.3	2	0.008	0.05	0.300	0.47	0.50	160	110	35
SD0603S040S0R3	0603	40	0.3	2	0.008	0.05	0.300	0.47	0.50	160	110	35

Schottky Barrier Rectifier Diode



Lead-less Chip Form

PAD LAYOUT

mm (inches)

0603 Diagram showing the pad layout for the 0603 package. Dimensions include: 0.80 (0.031) MIN. for the left pad height, 0.60 (0.024) MIN. for the left pad width, 1.10 (0.043) MAX. for the right pad width, and 2.30 (0.091) REF. for the total width.	2010 Diagram showing the pad layout for the 2010 package. Dimensions include: 1.47 (0.058) MIN. for the left pad height, 1.27 (0.050) MIN. for the left pad width, 2.60 (0.102) MAX. for the right pad width, and 5.14 (0.202) REF. for the total width.
0805 Diagram showing the pad layout for the 0805 package. Dimensions include: 0.90 (0.035) MIN. for the left pad height, 0.80 (0.031) MIN. for the left pad width, 1.30 (0.051) MAX. for the right pad width, and 2.90 (0.114) REF. for the total width.	2114 Diagram showing the pad layout for the 2114 package. Dimensions include: 3.00 (0.118) MIN. for the left pad height, 6.65 (0.262) REF. for the total width, and 2.65 (0.104) MAX. for the right pad width.
1206 1206-T Diagram showing the pad layout for the 1206 package. Dimensions include: 1.50 (0.059) MIN. for the left pad height, 1.0 (0.039) MIN. for the left pad width, 2.00 (0.787) MAX. for the right pad width, and 4.0 (0.157) REF. for the total width.	3220 Diagram showing the pad layout for the 3220 package. Dimensions include: 3.90 (0.154) MIN. for the left pad height, 11.9 (0.469) REF. for the total width, and 4.10 (0.161) MAX. for the right pad width.

Schottky Barrier Rectifier Diode

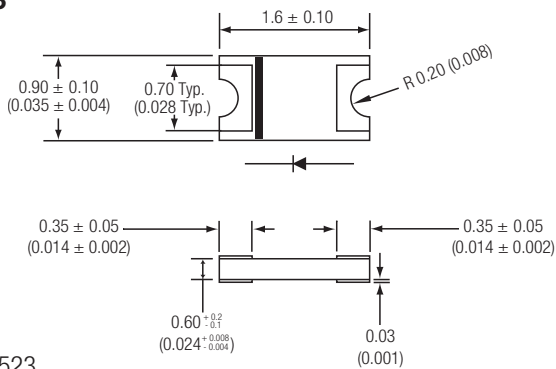
Lead-less Chip Form



CASE DRAWINGS

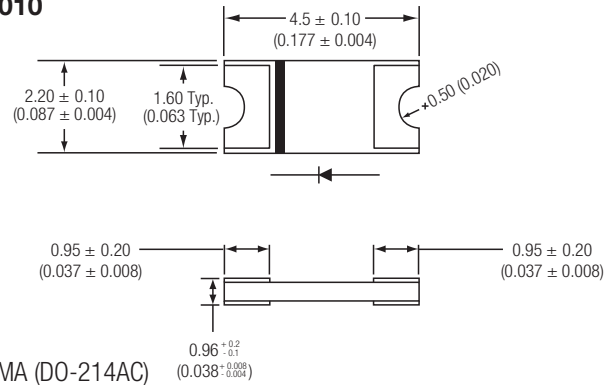
mm (inches)

0603



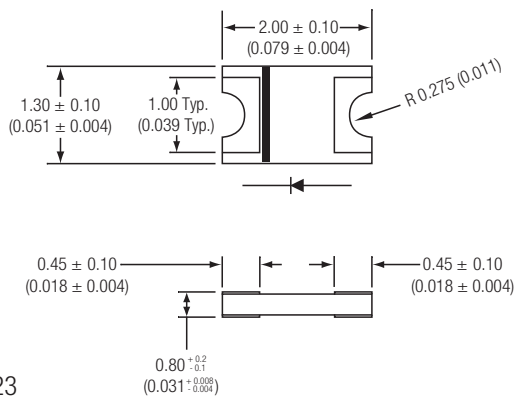
SOD-523

2010



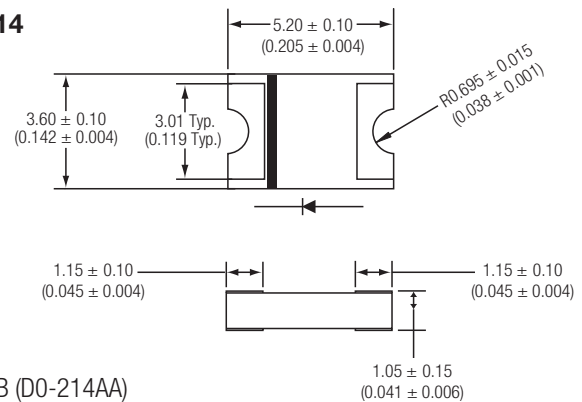
SMA (DO-214AC)

0805



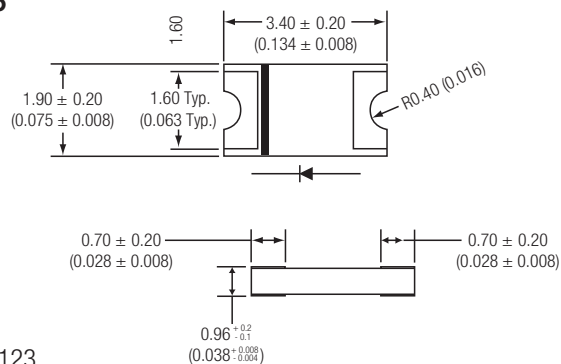
SOD-323

2114



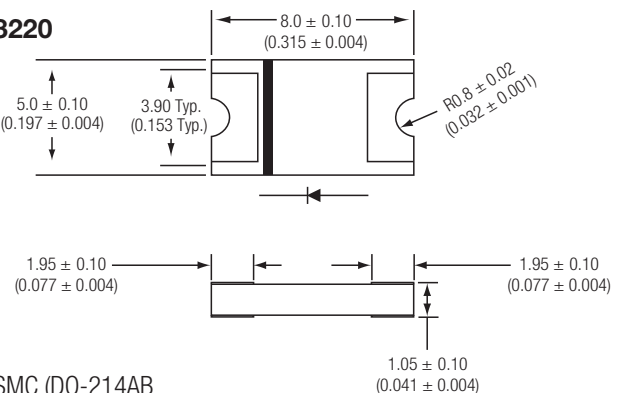
SMB (DO-214AA)

1206



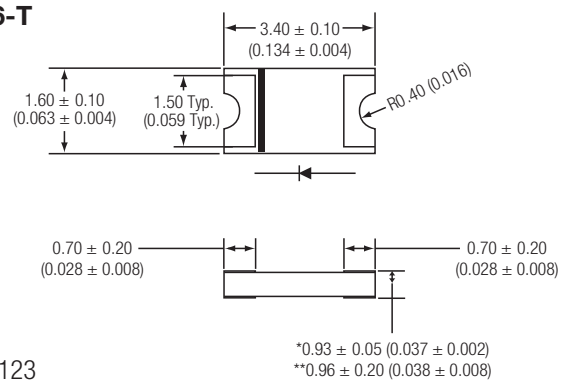
SOD-123

3220



SMC (DO-214AB)

1206-T



SOD-123

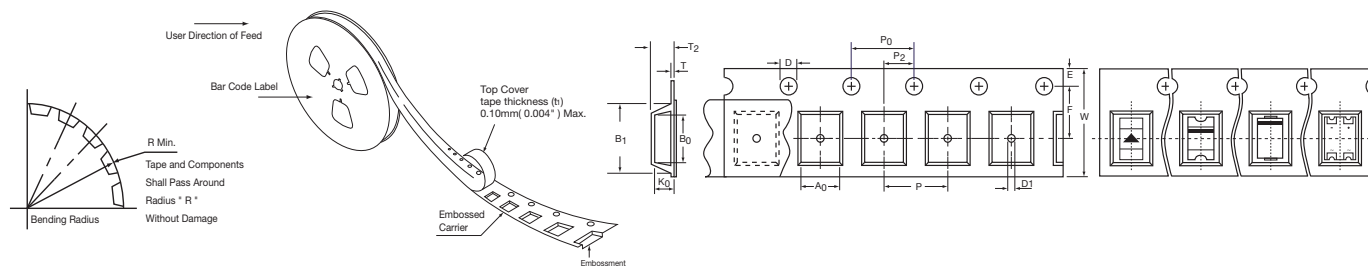


Schottky Barrier Rectifier Diode

Lead-less Chip Form



CARRIER TAPE



EMBOSSED TAPE

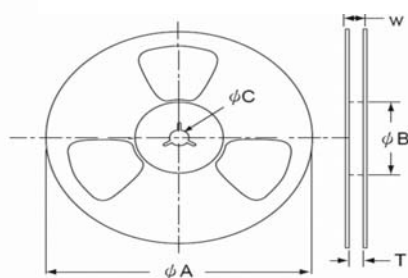
mm (inches)							
Tape Size	D	E	P ₀	A ₀	B ₀	K ₀	T max
8, 12 mm	1.50 ± 0.1 (0.059 ± 0.004)	1.75 ± 0.1 (0.069 ± 0.004)	4.0 ± 0.1 (0.157 ± 0.004)	See Note 1			0.4
16 mm	1.55 ± 0.05 (0.061 ± 0.002)	1.75 ± 0.1 (0.069 ± 0.004)	4.0 ± 0.1 (0.157 ± 0.004)				-0.016
							2.0 ± 0.1 (0.079 ± 0.002)

Product Size	Tape Size	B ₁	D ₁	F	P	W	T ₂	R Min
0603	8mm	2.0 max (0.079 max)	0.80 ± 0.05 (0.031 ± 0.002)	3.50 ± 0.05 (0.138 ± 0.002)	4.00 ± 0.10 (0.157 ± 0.004)	8.00 ± 0.30 (0.315 ± 0.012)	1.00 ± 0.10 (0.039 ± 0.004)	25 -0.98
0805							1.22 ± 0.10 (0.048 ± 0.004)	
1206	12mm	8.2 max (0.323 max)	1.50 min. (0.059 min.)	5.50 ± 0.05 (0.217 ± 0.002)	8.00 ± 0.10 (0.315 ± 0.004)	12.00 ± 0.30 (0.472 ± 0.012)	1.75 ± 0.1 (0.069 ± 0.004)	30 -1.181
1206-S							1.40 ± 0.1 (0.055 ± 0.004)	
2010							1.51 ± 0.10 (0.059 ± 0.004)	
2114							1.65 ± 0.10 (0.065 ± 0.004)	
3220	16mm	12.1 max (0.476 max)		7.50 ± 0.10 (0.295 ± 0.004)		16.00 ± 0.30 (0.630 ± 0.012)	2.50 max (0.098 max)	40 -1.575

NOTES:

- A₀, B₀, and K₀ are determined by component size. The clearance between the components and the cavity must be within 0.05 mm (0.002") Min. to 0.50 mm (0.02") Max. for 8mm tape, and 0.15mm (0.066") Min. to 0.90 mm (0.035") Max. 12 mm tape.
- All surface mount components are packed in accordance with EIA standard 481-1 and 481-2

REEL DIMENSIONS



mm (inches)						
Symbol	Tape Size	φA	φB	φC	W	T
0603	8	178 ± 2.0	60 ± 0.5	13.5 ± 0.5	12.0 ± 0.5	9.0 ± 0.5
0805	-0.315	(7.008 ± 0.079)	(2.362 ± 0.020)	(0.532 ± 0.020)	(0.472 ± 0.020)	(0.354 ± 0.020)
1206	12	178 ± 2.0 (7.008 ± 0.079)	50 min (1.969 min)	13.0 ± 0.5 (0.512 ± 0.020)	18.7 max (0.736 max)	14.4 max (0.567 max)
1206-T						
2010						
2114						
3220	16	330 ± 2.0 (12.99 ± 0.079)			22.7 max (0.893 max)	18.4 max (0.724 max)
	-0.63					

QUANTITIES

Size	Reel Size	Qty/Reel
0603	7"	3,000
0805		
1206	7"	3,000
1206-T		
2010		
2114	13"	5,000
3220	13"	3,000