NextGen Components,Inc.

PART CODE: **ES5DC00000S200**

SPECIFICATION SHEET

SPECIFICATION SHEET NO.	R0510- ES5DC00000S200	
DATE	May 10, 2024	
REVISION	A1	Updated With Most Recent Data
DESCRIPTION AND MAIN PARAMETRICS	SMD Super Fast Recovery Rectifier, 2 Pads, Case SMC/DO-214AB ES5 Series, Repetitive Peak Reverse Voltage 200V Max. Average Forward Rectified Current 5.0A Max. Operating Temp. Range -55°C ~+150°C Package in Tape/Reel, 3000pcs/Reel RoHS III/REACH Compliant and Halogen Free (HF)	
CUSTOMER		
CUSTOMER PART NO.		
CROSS REF. PART NO.		
ORIGINAL MFG/PART NO.	MDD Diodes/ES5DC	
PART CODE	ES5DC00000S200	

VENDOR APPROVE
Issued/Checked/Approved NextGen Components, Inc. Mandy Xu NextGen Components, Inc. Ruby Zhang NextGen Components, Inc. Jack Zhang
DATE: May 10, 2024

CUSTOMER APPROVE
DATE:

NextGen Components, Inc. sales@NextGenComponent.com www.NextGenComponent.com

SMD SUPER FAST RECOVERY RECTIFIER ES5 SERIES CASE SMC

MAIN FEATURE

- The Plastic Package Carries Underwriters Laboratory Flammability Classification 94V-0
- Low Reverse Leakage
- Glass Passivated Chip Junction
- Built-in Strain Relief, Ideal For Automated Placement
- High Forward Surge Current Capability
- High Temperature Soldering Guaranteed: 250°C/10 Seconds At Terminals
- Surface Mount Package Ideally Suited for Automatic Insertion
- REACH/RoHS III Complaint and Halogen Free
- Cross Main Competitor Parts in Market

APPLICATION

- For SMD application

ELECTRICAL CHARACTERISTICS

- See Page 5~ Page 6 For Different Part Code

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HOW TO ORDER

- Please follow up Part Code Guide and indicate pat code when you order or RFQ For Custom Specification .

PART CODE GUIDE

RFQ
Request For Quotation

CODE	NAME	KEY SPECIFICATION OPTION
ES5	Product Series Code	Super Fast Recovery Rectifier, Forward Current 5.0A
D	Repetitive Peak Reverse Voltage Code	A: 50V Max. ; B: 100V Max. ; C: 150V Max.; D: 200V Max.; E: 300V Max.; G: 400V Max.; J: 600V Max
C0	Case Code	A0: Case DO-214AC/SMA; B0: Case DO-214AA/SMB; BF: Case SMBF; C0: Case SMC/DO-214AB ; F0: Case SMAF ; W0: Case SMF/SOD-123FL
0000S	Internal Control Code	Custom letter A~Z, a-z or Digits (0-9)
200	DC Blocking Voltage Code	050: 50V Max.; 100: 100V Max.; 150: 150V Max.; 200: 200V Max. 300: 300V Max.; 400: 400V Max.; 600: 600V Max.

SMD SUPER FAST RECOVERY RECTIFIER ES5 SERIES CASE SMC

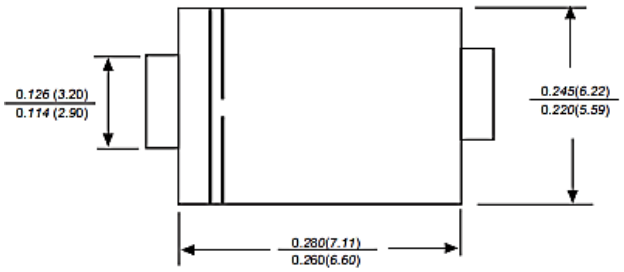
DIMENSION (Unit: Inch/mm)

Image for reference

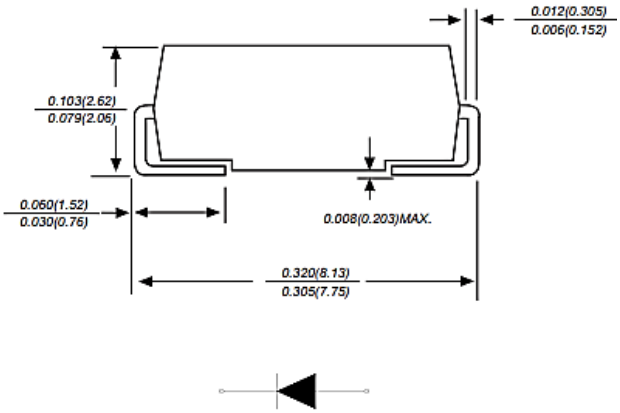
Marking:

See Page -6 Marking List

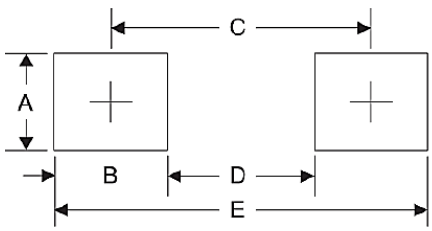
For different Part code



SMC/DO-214AB



Recommend Pad Layout



Symbol	Unit (inch)	Unit (mm)
A	0.170	4.30
B	0.160	4.10
C	0.311	7.90
D	0.150	3.80
E	0.472	12.0

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SMD SUPER FAST RECOVERY RECTIFIER ES5 SERIES CASE SMC

MECHANICAL DATA

CASE	TERMINALS	POLARITY	MOUNTING POSITION	WEIGHT PER PIECE
JEDEC SMC/DO-214AB Molded Plastic Body	Solder plated, Solderable per MIL-STD-750, Method 2026	Polarity Symbol Marking On Case	Any	0.0077 Ounce, 0.2000 Grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25 °C ambient temperature unless otherwise specified. Single phase half-wave 60Hz,resistive or inductive load, for capacitive load current derate by 20%.

PARAMETER		SYMBOLS	VALUE	UNITS
Maximum Average Forward Rectified Current		I_{AV}	5.0	A
Maximum DC Reverse Current At Rated DC Blocking Voltage	T_A=25℃	I_R	10	μA
	T_A=125℃		100	
Maximum Reverse Recovery Time (NOTE 1)		t_{rr}	35	ns
Typical Junction Capacitance (NOTE 2)		CJ	95	pF
Typical Thermal Resistance (NOTE 3)		$R_{\Theta JA}$	45	°C/W
Operating Junction And Storage Temperature Range		T_J, T_{STG}	-55 to +150	°C

Note:

1. Reverse Recovery Condition I_F=0.5A, I_R=1.0A, Irr=0.25A
2. Measured at 1MHz and Applied Reverse Voltage of 4.0V D.C.
3. PCB Mounted With 0.20”x 0.20”(5.08 x 5.08mm) Copper Pad Area.

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PART CODE: **ES5DC00000S200**

SMD SUPER FAST RECOVERY RECTIFIER ES5 SERIES CASE SMC

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS FOR DIFFERENT PART CODE

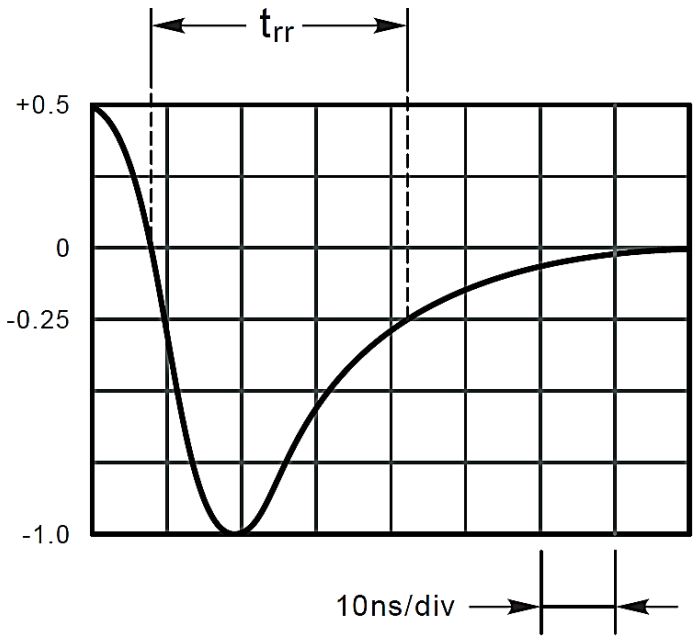
Ratings at 25 °C ambient temperature unless otherwise specified. Single phase half-wave 60Hz,resistive or inductive load, for capacitive load current derate by 20%.

PART CODE	Max. Repetitive Peak Reverse Voltage	Max. RMS Voltage	Max. DC Blocking Voltage	Peak Forward Surge Current 8.3ms Single Half Sine-wave Superimposed On Rated Load (JEDEC Method)	Max. Instantaneous Forward Voltage @5A	Marking List
	V_{RRM}	V_{RMS}	V_{DC}	I_{FSM}	V_F	
	V	V	V	A	V	
ES5AC00000S050	50	35	50	150	1	ES5AC
ES5BC00000S100	100	70	100	150	1	ES5BC
ES5CC00000S150	150	105	150	150	1	ES5CC
ES5DC00000S200	200	140	200	150	1	ES5DC
ES5EC00000S300	300	210	300	135	1.25	ES5EC
ES5GC00000S400	400	280	400	135	1.25	ES5GC
ES5JC00000S600	600	420	600	135	1.70	ES5JC

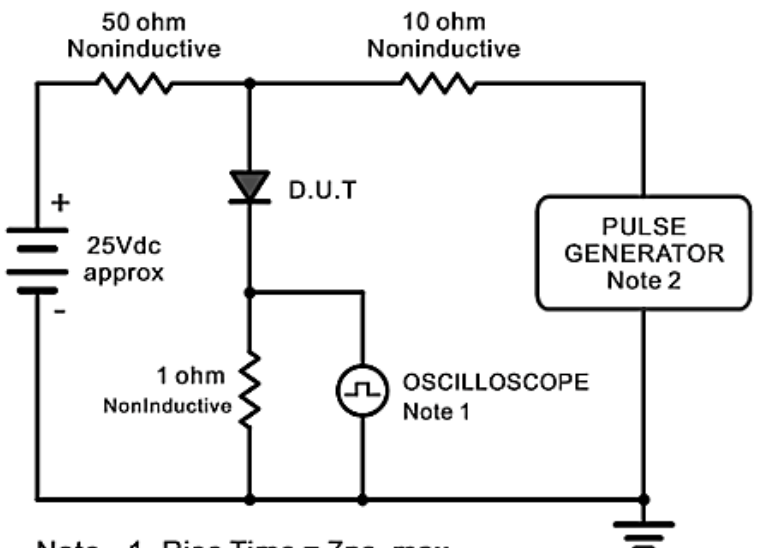
SMD SUPER FAST RECOVERY RECTIFIER ES5 SERIES CASE SMC

RATINGS AND CHARACTERISTIC CURVES (For Reference Only)

Figure 1. Reverse Recovery Time Characteristic And Test Circuit Diagram



Set time Base for 10ns/div



Note: 1. Rise Time = 7ns, max.
Input Impedance = 1megohm,22pF.
2. Ries Time =10ns, max.
Source Impedance = 50 ohms.

RATINGS AND CHARACTERISTIC CURVES (For Reference Only)

Figure 2. Maximum Average Forward Current Rating

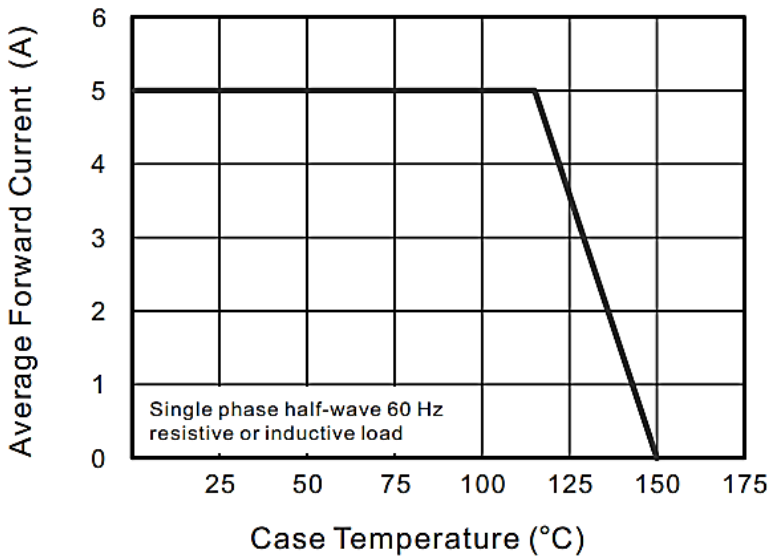
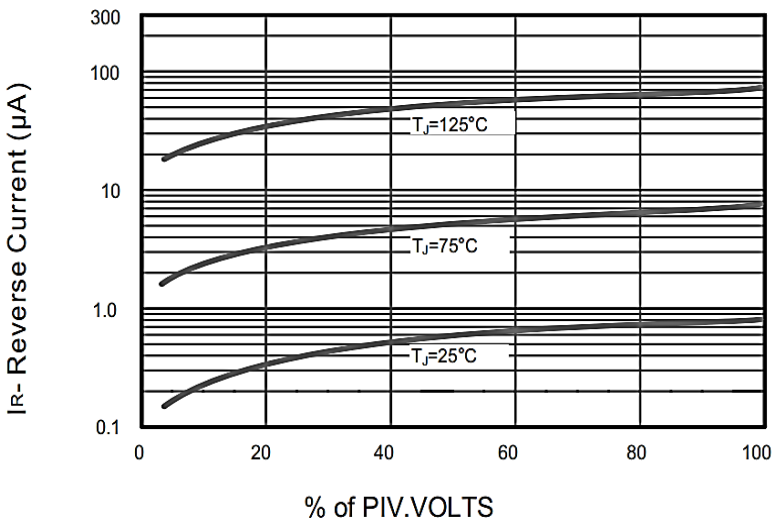


Figure 3. Typical Reverse Characteristics



RATINGS AND CHARACTERISTIC CURVES (For Reference Only)

Figure 4. Typical Forward Characteristics

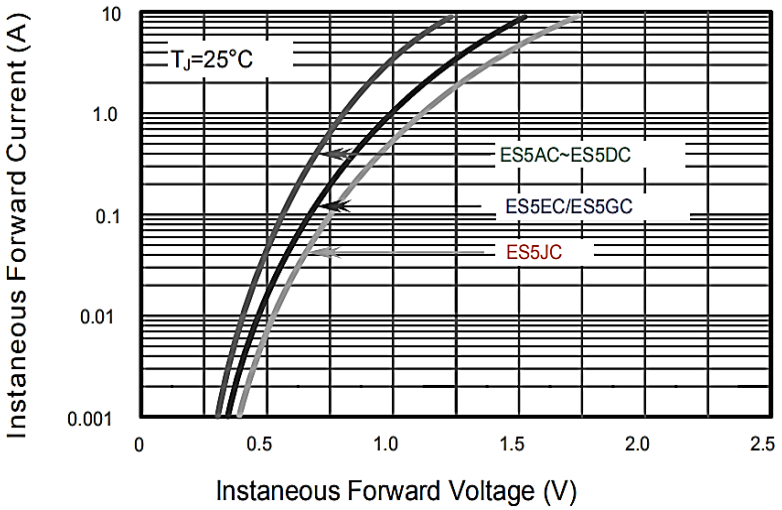
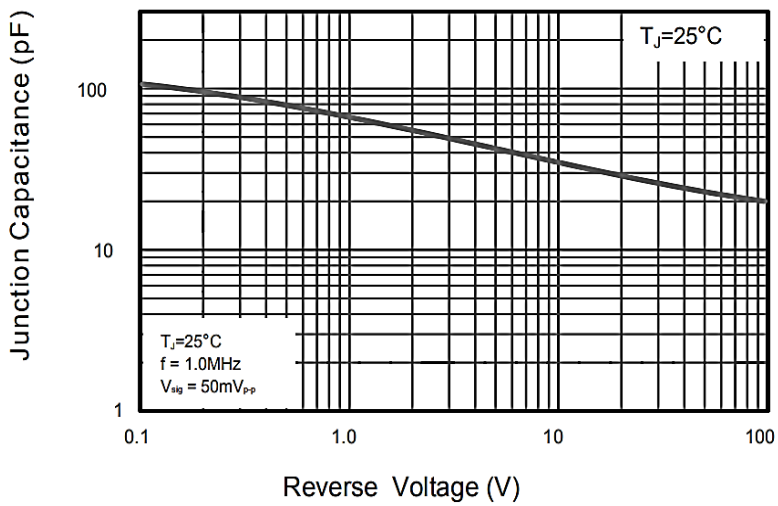
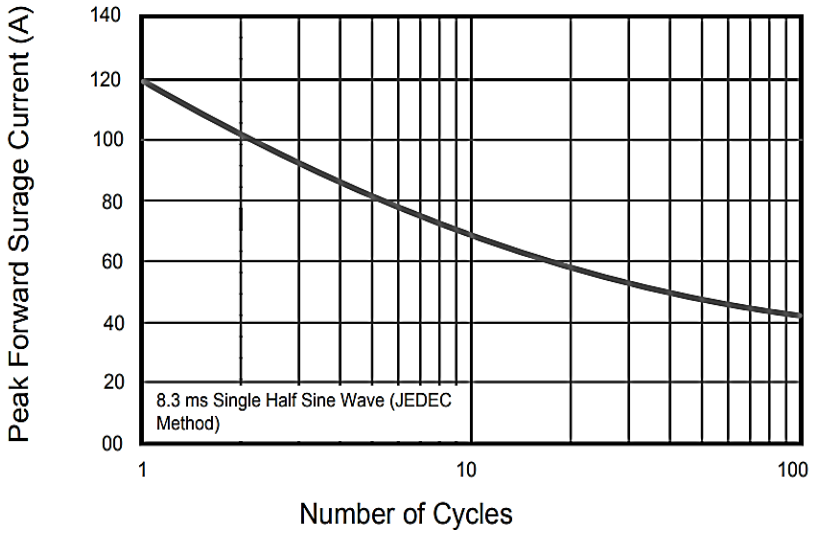


Figure 5. Typical Junction Capacitance



RATINGS AND CHARACTERISTIC CURVES (For Reference Only)

Figure 6. Maximum Non-Repetitive Peak Forward Surge Current



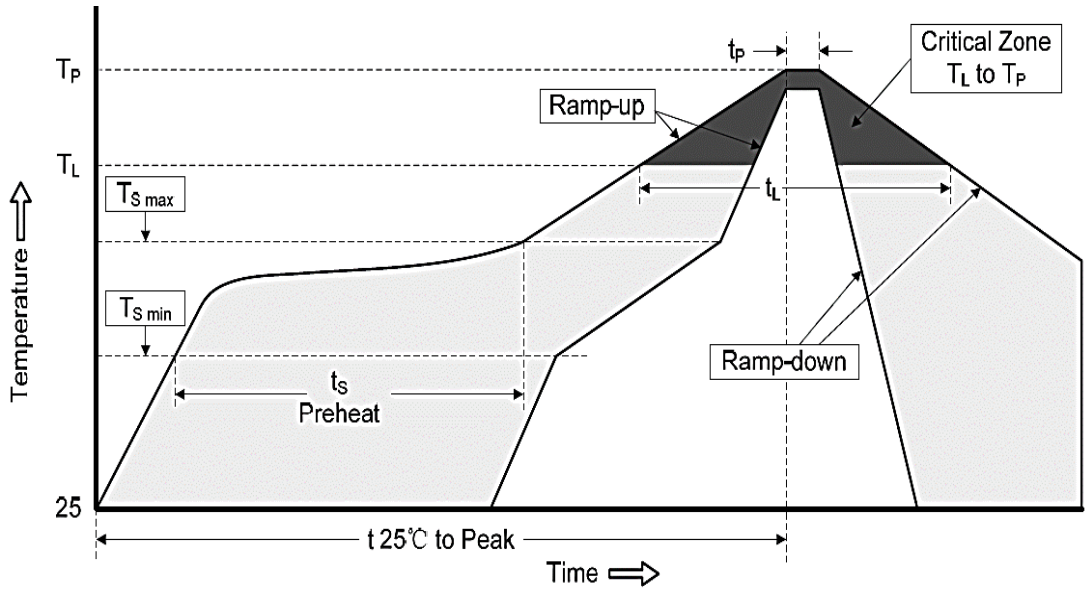
SMD SUPER FAST RECOVERY RECTIFIER ES5 SERIES CASE SMC

RELIABILITY

NUMBER	EXPERIMENT ITEMS	EXPERIMENT METHOD AND CONDITIONS	REFERENCE DOCUMENTS
1	Solder Resistance Test	Test 260°C± 5°C for 10 ± 2 sec. Immerse body into solder 1/16" ± 1/32"	MIL-STD-750D METHOD-2031.2
2	Solderability Test	230°C ±5°C for 5 sec.	MIL-STD-750D METHOD-2026.1 0
3	Pull Test	1 kg in axial lead direction for 10 sec.	MIL-STD-750D METHOD-2036.4
4	Bend Test	0.5Kg Weight Applied To Each Lead, Bending Arcs 90 °C ± 5 °C For 3 Times	MIL-STD-750D METHOD-2036.4
5	High Temperature Reverse Bias Test	T_A=100°C for 1000 Hours at V_R=80% Rated V_R	MIL-STD-750D METHOD-1038.4
6	Forward Operation Life Test	TA=25°C Rated Average Rectified Current	MIL-STD-750D METHOD-1027.3
7	Intermittent Operation Life Test	On state: 5 min with rated IRMS Power Off state: 5 min with Cool Forced Air. On and off for 1000 cycles.	MIL-STD-750D METHOD-1036.3
8	Pressure Cooker Test	15 PSIG, T_A=121°C, 4 hours	MIL-S-19500 APPENOIXC
9	Temperature Cycling Test	-55°C~+125°C; 30 Minutes For Dwelled Time 5 minutes for transferred time. Total: 10 cycles.	MIL-STD-750D METHOD-1051.7
10	Thermal Shock Test	0°C for 5 minutes., 100°C for 5minutes, Total: 10 cycles	MIL-STD-750D METHOD-1056.7
11	Forward Surge Test	8.3ms Single Sale Sine-wave One Surge.	MIL-STD-750D METHOD-4066.4
12	Humidity Test	T_A=65°C, RH=98% for 1000 hours.	MIL-STD-750D METHOD-1021.3
13	High Temperature Storage life Test	150°C for 1000 Hours	MIL-STD-750D METHOD-1031.5

SMD SUPER FAST RECOVERY RECTIFIER ES5 SERIES CASE SMC

SUGGESTED REFLOW PROFILE - For Reference Only



PROFILE FEATURE		PB-FREE ASSEMBLY
Average Ramp-up Rate (Ts Max to Tp)		3℃/second Max
Preheat	Temperature Min (Ts Min.)	150℃
	Temperature Max (Ts Max.)	200℃
	Time (ts Min. to ts Max.)	60 ~ 180 seconds
Time maintained above	Temperature (TL)	217℃
	Time (tL)	60 ~ 150 seconds
Peak/Classification Temperature (Tp)		260 ℃
Time within 5℃ of actual Peak Temperature (tp)		20 ~ 40 seconds
Ramp-down rate		6 ℃ /Second Max.
Time 25 ℃ to Peak Temperature		8 minutes Max.
Suggest reflow times		3 Times Max.

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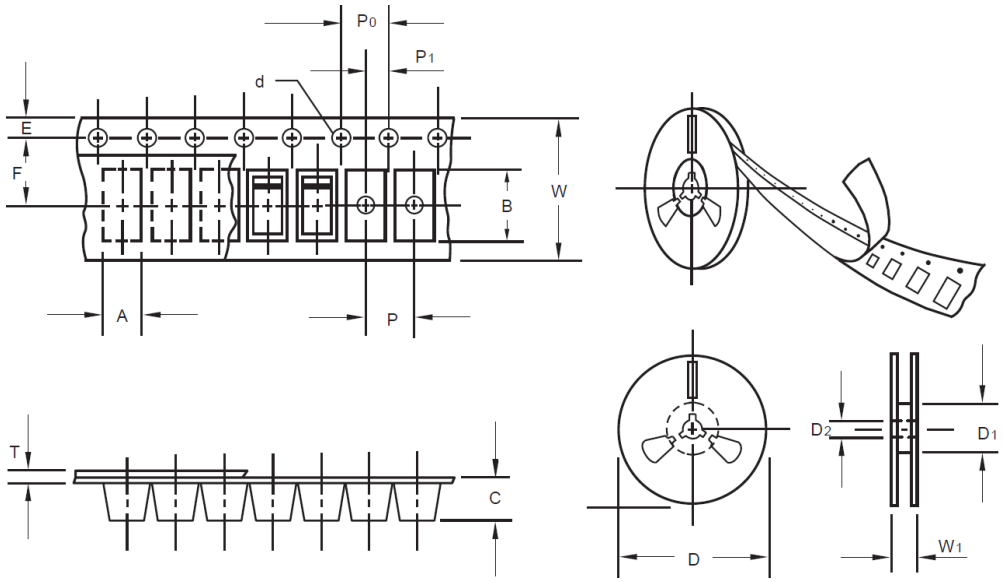
TAPE/REEL (Unit: mm)

All Devices are packed in accordance with EIA standard RS-481-A and specifications.



ITEM	SYMBOL	TOLERANCE	SMC/DO-214AB
Carrier width	A	0.1	6.15
Carrier Length	B	0.1	8.41
Carrier Depth	C	0.1	2.42
Sprocket hole	d	0.05	1.50
13” Reel outside diameter	D	2.0	330.0
13” Reel inner diameter	D1	Min.	50.00
Feed hole diameter	D2	0.5	13.00
Sprocket hole position	E	0.1	1.75
Punch hole position	F	0.1	7.50
Punch hole pitch	P	0.1	8.00
Sprocket hole pitch	P0	0.1	4.00
Embossment center	P1	0.1	2.00
Overall tape thickness	T	0.1	0.25
Tape width	W	0.3	16.00
Reel width	W1	1.0	16.50
MPQ/Reel	3000pcs/Reel		

IMPORTANT NOTES AND DISCLAIMER

1. ROHS COMPLIANCE: The levels of RoHS restricted materials in this product are below the maximum concentration values (also referred to as the threshold limits) permitted for such substances, or are used in an exempted application, in accordance with EU RoHS Directive (EU) 2015/863 EC (RoHS3). RoHS Test Report for this product can be obtained can be obtained at Download Center.
2. REACH COMPLIANCE: REACH substances of high concern (SVHCs) information is available for this product. Since the European Chemical Agency (ECHA) has published notice of their intent to frequently revise the SVHC listing for the foreseeable future, REACH Test Report for this product can be obtained can be obtained at Download Center.
3. All Product parametric performance is indicated in the Electrical Characteristics for the listed herein test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.
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