



The DNA of tech.™

Product Change Notification



Product Group: DD/Thu Nov 9, 2023/PCN-DD-031-2023-REV-0

Additional In-House Backend Assembly Site for Commercial Rectifier Products in SMA Package

For further information, please contact your regional Vishay office.

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Fax: +86 21 5258 7979
Diodes-Asia@vishay.com

Description of Change: To support BCP (Business Continuity Program), Vishay Diodes Division is introducing an additional in-house back-end manufacturing site for Commercial Grade products in SMA package (Case Outline: DO-214AC). This assembly site is located in Kaohsiung, Taiwan, and already has manufacturing experience in surface mount packaged products. There is no change in form, fit and function on all involved part numbers. Upon the approval of this PCN, all future and customized part number for related product in the same package will adopt the same change.

Reason for Change: Capacity expansion and risk management

Expected Influence on Quality/Reliability/Performance: No change in quality and reliability performance

Part Numbers/Series/Families Affected: Please see materials list on the succeeding page.

Vishay Brand(S): Vishay General Semiconductor

Time Schedule:

Start Shipment Date: Wed Jan 10, 2024

Sample Availability: Available upon request

Product Identification: The new manufacturing code "K" will be marked next to the date code of device marking for identification, for example, "3BK" (3 - 2023, B - November, K – Kaohsiung, Taiwan)

Qualification Data: Available upon request

This PCN is considered approved, without further notification, unless we receive specific customer concerns before Tue Jan 9, 2024 or as specified by contract.

Issued By: Eddie Hwang, Jill Li



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B230LA-E3/5AT	B230LA-E3/61T	B230LA-M3/5AT	B230LA-M3/61T	B240A-E3/5AT
B240A-E3/61T	B240A-E3D/H	B240A-M3/5AT	B240A-M3/61T	B330LA-E3/5AT
B330LA-E3/61T	B330LA-M3/5AT	B330LA-M3/61T	B340A-E3/5AT	B340A-E3/61T
B340A-E3D/H	B340A-M3/5AT	B340A-M3/61T	B340A-M3D/H	B350A-E3/5AT
B350A-E3/61T	B350A-M3/5AT	B350A-M3/61T	B360A-E3/5AT	B360A-E3/61T
B360A-M3/5AT	B360A-M3/61T	BYG10D-E3/TR	BYG10D-E3/TR3	BYG10D-M3/TR
BYG10D-M3/TR3	BYG10G-E3/TR	BYG10G-E3/TR3	BYG10G-M3/TR	BYG10G-M3/TR3
BYG10J-E3/TR	BYG10J-E3/TR3	BYG10J-M3/TR	BYG10J-M3/TR3	BYG10K-E3/TR
BYG10K-E3/TR3	BYG10K-M3/TR	BYG10K-M3/TR3	BYG10M-E3/TR	BYG10M-E3/TR3
BYG10M-M3/TR	BYG10M-M3/TR3	BYG10Y-E3/TR	BYG10Y-E3/TR3	BYG10Y-M3/TR
BYG10Y-M3/TR3	BYG20D-E3/TR	BYG20D-E3/TR3	BYG20D-M3/TR	BYG20D-M3/TR3
BYG20G-E3/TR	BYG20G-E3/TR3	BYG20G-M3/TR	BYG20G-M3/TR3	BYG20J-01E3/I
BYG20J-E3/TR	BYG20J-E3/TR3	BYG20J-M3/TR	BYG20J-M3/TR3	BYG21K-E3/TR
BYG21K-E3/TR3	BYG21K-M3/TR	BYG21K-M3/TR3	BYG21M-01E3/I	BYG21M-E3/TR
BYG21M-E3/TR3	BYG21M-M3/TR	BYG21M-M3/TR3	BYG22A-E3/TR	BYG22A-E3/TR3
BYG22A-M3/TR	BYG22A-M3/TR3	BYG22B-E3/TR	BYG22B-E3/TR3	BYG22B-M3/TR
BYG22B-M3/TR3	BYG22D-E3/TR	BYG22D-E3/TR3	BYG22D-M3/TR	BYG22D-M3/TR3
BYG23M-7000E3/TR3	BYG23M-E3/TR	BYG23M-E3/TR3	BYG23M-M3/TR	BYG23M-M3/TR3
BYG23T-M3/TR	BYG23T-M3/TR3	BYG23T-M3H/I	BYG24D-E3/TR	BYG24D-E3/TR3
BYG24D-M3/TR	BYG24D-M3/TR3	BYG24G-E3/TR	BYG24G-E3/TR3	BYG24G-M3/TR
BYG24G-M3/TR3	BYG24J-E3/TR	BYG24J-E3/TR3	BYG24J-M3/TR	BYG24J-M3/TR3
BYS10-25-E3/TR	BYS10-25-E3/TR3	BYS10-25-M3/TR	BYS10-25-M3/TR3	BYS10-35-E3/TR
BYS10-35-E3/TR3	BYS10-35-M3/TR	BYS10-35-M3/TR3	BYS10-45-E3/TR	BYS10-45-E3/TR3
BYS10-45-E3D/H	BYS10-45-M3/TR	BYS10-45-M3/TR3	BYS11-90-E3/TR	BYS11-90-E3/TR3
BYS11-90-M3/TR	BYS11-90-M3/TR3	BYS12-90-E3/TR	BYS12-90-E3/TR3	BYS12-90-M3/TR
BYS12-90-M3/TR3	SL12-E3/5AT	SL12-E3/61T	SL12-M3/5AT	SL12-M3/61T
SL13-E3/5AT	SL13-E3/61T	SL13-M3/5AT	SL13-M3/61T	SS12-E3/5AT
SS12-E3/61T	SS12-E3D/H	SS12-E3H/H	SS12-M3/5AT	SS12-M3/61T
SS13-E3/5AT	SS13-E3/61T	SS13-M3/5AT	SS13-M3/61T	SS14-E3/5AT
SS14-E3/61T	SS14-E3D/H	SS14-M3/5AT	SS14-M3/61T	SS15-E3/5AT
SS15-E3/61T	SS15-M3/5AT	SS15-M3/61T	SS16-E3/5AT	SS16-E3/61T
SS16-M3/5AT	SS16-M3/61T	SS1H10-E3/5AT	SS1H10-E3/61T	SS1H10-M3/5AT
SS1H10-M3/61T	SS1H9-E3/5AT	SS1H9-E3/61T	SS1H9-M3/5AT	SS1H9-M3/61T
SS22S-E3/61T	SS22S-E3/5AT	SS22S-M3/5AT	SS22S-M3/61T	SS23S-E3/5AT
SS23S-E3/61T	SS23S-M3/5AT	SS23S-M3/61T	SS24S-E3/5AT	SS24S-E3/61T
SS24S-E3H/H	SS24S-M3/5AT	SS24S-M3/61T	SS25S-E3/5AT	SS25S-E3/61T
SS25S-M3/5AT	SS25S-M3/61T	SS26S-E3/5AT	SS26S-E3/61T	SS26S-M3/5AT
SS26S-M3/61T	SSA23L-E3/5AT	SSA23L-E3/61T	SSA23L-M3/5AT	SSA23L-M3/61T
SSA24-E3/5AT	SSA24-E3/61T	SSA24-M3/5AT	SSA24-M3/61T	SSA33L-E3/5AT
SSA33L-E3/61T	SSA33L-M3/5AT	SSA33L-M3/61T	SSA34-E3/5AT	SSA34-E3/61T
SSA34-E3D/H	SSA34-M3/5AT	SSA34-M3/61T	VSSA210-E3/5AT	VSSA210-E3/61T
VSSA210-M3/5AT	VSSA210-M3/61T	VSSA310S-E3/5AT	VSSA310S-E3/61T	VSSA310S-M3/5AT
VSSA310S-M3/61T	VSSA36S-M3/5AT	VSSA36S-M3/61T	VSSA3L6S-M3/5AT	VSSA3L6S-M3/61T



Qual Pack

INNOVATIVE PACKAGES

eSMP® Series



MicroSMF (DO-219AC)



MicroSMP (DO-219AD)



SlimDPAK (TO-252AE)



SlimSMA (DO-221AC)



SlimSMAW (DO-221AD)



SMF (DO-219AB)



SMP (DO-220AA)



SMPA (DO-221BC)



SMPC (TO-277A)



SMPD (TO-263AC)

iSoCinK+



BU Bridge



PB Bridge

FlatPAK 5 × 6



FlatPAK 5 × 6 Dual



FlatPAK 5 × 6 Single

DFN Series



DFN3820A



DFN33A



DFN1006-2A



DFN1110-3A

CONVENTIONAL PACKAGES

Surface-Mount



SMA (DO-214AC)



SMB (DO-214AA)



SMC (DO-214AB)



DPAK (TO-252AA)



D²PAK (TO-263AB)

Power Pack



TO-220 FullPAK 2L



TO-220AC 2L



TO-247AC 3L



TO-247AD 2L



Content

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- 2. Product Description**
- 3. Data Sheet**
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- 5. Process Flow**
- 6. Unit Pack Specifications**
- 7. Reliability Qualification Report**
- 8. Soldering Profile**
- 9. Materials Declaration Report**
- 10. Certificates**



Generic QualPack for PCN-DD-031-2023 of Additional in-house Backend Assembly Site for Commercial Grade Rectifier Products in SMA Package

1. CDC (Certificate of Design Construction)

Item Name	Supplier Response
1. Supplier Part Number/Generic Part Number:	SS14-M3
2. Device Description:	SKY
3. Wafer/Die Fab Location: a. Facility name/plant #: b. Country:	Vishay General Semiconductor Taiwan Ltd Subcon Taiwan/China
4. Assembly Location: a. Facility name/plant #: b. Country:	Vishay General Semiconductor China Co., Ltd. Vishay General Semiconductor Taiwan Ltd. ,Nanzi Branch China/Taiwan
5. Final Quality Control A (Test) Location: a. Facility name/plant #: b. Country:	Vishay General Semiconductor China Co., Ltd. Vishay General Semiconductor Taiwan Ltd. ,Nanzi Branch China/Taiwan
6. Wafer/Die: a. Wafer size: b. Die family:	6 inch SKY
7. Die (frontside) Metallization: a. Die metallization material(s):	Ti/Ni/Ag
8. Die Passivation: a. Die passivation material(s):	Oxide
9. Die Overcoat Material (e.g., Polyimide):	N/A
10. Die Prep Backside: a. Die metallization:	Ti/Ni/Ag
11. Die Separation Method:	Blade saw
12. Die Attach: a. Die attach method:	Reflow soldering
13. Package: a. Type of package (e.g., plastic, ceramic, unpackaged): b. JEDEC designation (e.g., MS029, MS034, etc.):	Plastic SMA (DO-214AC)
14. Mold Compound: a. Mold compound type: b. Flammability rating: c. Tg (glass transition temperature) (°C):	Halogen-free Epoxy Compound UL 94 V1 ☐ UL 94 V0 ☒ Typ. 135°C
15. Wire Bond: a. Wire bond material:	N/A
16. Leadframe (if applicable): a. Header material: b. Leadframe material: c. Leadframe bonding plating composition: d. External lead plating composition: e. External lead plating thickness (μinch):	Copper Copper None Pure Sn Min. 8μm
17. Thermal Resistance: a. θ_{JA} °C/W (approx): b. θ_{JC} °C/W (approx): c. θ_{JL} junction-to-lead °C/W (approx): d. θ_{JM} junction-to-mounting base °C/W (approx):	88°C/W N/A 28°C/W N/A
18. Maximum Process Exposure Conditions: a. MSL @ rated SnPb temperature: b. MSL @ rated Pb-free temperature:	* Note: Temperatures are as measured on the center of the plastic package body top surface. <u>1 at 235 °C (SnPb)</u> <u>1 at 260 °C (Pb-free)</u>



Generic QualPack for PCN-DD-031-2023 of Additional in-house Backend Assembly Site for Commercial Grade Rectifier Products in SMA Package

Item Name	Supplier Response
1. Supplier Part Number/Generic Part Number:	SSA34-E3
2. Device Description:	SKY
3. Wafer/Die Fab Location: a. Facility name/plant #: b. Country:	Vishay General Semiconductor Taiwan Ltd Subcon Taiwan/China
4. Assembly Location: a. Facility name/plant #: b. Country:	Vishay General Semiconductor China Co., Ltd. Vishay General Semiconductor Taiwan Ltd. ,Nanzi Branch China/Taiwan
5. Final Quality Control A (Test) Location: a. Facility name/plant #: b. Country:	Vishay General Semiconductor China Co., Ltd. Vishay General Semiconductor Taiwan Ltd. ,Nanzi Branch China/Taiwan
6. Wafer/Die: a. Wafer size: b. Die family:	6 inch SKY
7. Die (frontside) Metallization: a. Die metallization material(s):	Ti/Ni/Ag
8. Die Passivation: a. Die passivation material(s):	Oxide
9. Die Overcoat Material (e.g., Polyimide):	N/A
10. Die Prep Backside: a. Die metallization:	Ti/Ni/Ag
11. Die Separation Method:	Blade saw
12. Die Attach: a. Die attach method:	Reflow soldering
13. Package: a. Type of package (e.g., plastic, ceramic, unpackaged): b. JEDEC designation (e.g., MS029, MS034, etc.):	Plastic SMA (DO-214AC)
14. Mold Compound: a. Mold compound type: b. Flammability rating: c. Tg (glass transition temperature) (°C):	Epoxy Compound UL 94 V1 ☐ UL 94 V0 ☒ Min. 150°C
15. Wire Bond: a. Wire bond material:	N/A
16. Leadframe (if applicable): a. Header material: b. Leadframe material: c. Leadframe bonding plating composition: d. External lead plating composition: e. External lead plating thickness (μinch):	Copper Copper None Pure Sn Min. 8um
17. Thermal Resistance: a. θ_{JA} °C/W (approx): b. θ_{JC} °C/W (approx): c. θ_{JL} junction-to-lead °C/W (approx): d. θ_{JM} junction-to-mounting base °C/W (approx):	110°C/W N/A 28°C/W N/A
18. Maximum Process Exposure Conditions: a. MSL @ rated SnPb temperature: b. MSL @ rated Pb-free temperature:	* Note: Temperatures are as measured on the center of the plastic package body top surface. <u>1 at 235 °C (SnPb)</u> <u>1 at 260 °C (Pb-free)</u>



Generic QualPack for PCN-DD-031-2023 of Additional in-house Backend Assembly Site for Commercial Grade Rectifier Products in SMA Package

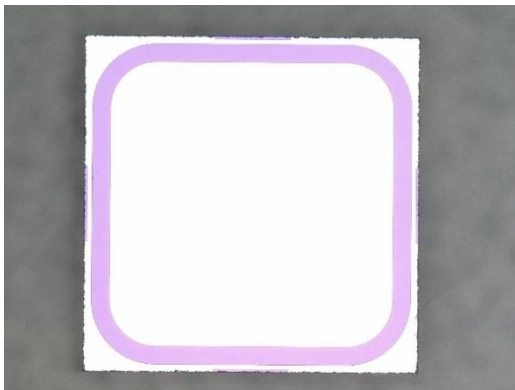
Item Name	Supplier Response
1. Supplier Part Number/Generic Part Number:	BYG10Y-E3
2. Device Description:	STD
3. Wafer/Die Fab Location: a. Facility name/plant #: b. Country:	Vishay Semiconductor Austria Ges.m.b.H Austria
4. Assembly Location: a. Facility name/plant #: b. Country:	Vishay General Semiconductor China Co., Ltd. Vishay General Semiconductor Taiwan Ltd. ,Nanzi Branch China/Taiwan
5. Final Quality Control A (Test) Location: a. Facility name/plant #: b. Country:	Vishay General Semiconductor China Co., Ltd. Vishay General Semiconductor Taiwan Ltd. ,Nanzi Branch China/Taiwan
6. Wafer/Die: a. Wafer size: b. Die family:	4 inch STD
7. Die (frontside) Metallization: a. Die metallization material(s):	Mo/Ni/Ag
8. Die Passivation: a. Die passivation material(s):	Glass
9. Die Overcoat Material (e.g., Polyimide):	N/A
10. Die Prep Backside: a. Die metallization:	Mo/Ni/Ag
11. Die Separation Method:	Blade saw
12. Die Attach: a. Die attach method:	Reflow soldering
13. Package: a. Type of package (e.g., plastic, ceramic, unpackaged): b. JEDEC designation (e.g., MS029, MS034, etc.):	Plastic SMA (DO-214AC)
14. Mold Compound: a. Mold compound type: b. Flammability rating: c. Tg (glass transition temperature) (°C):	Epoxy Compound UL 94 V1 ☐ UL 94 V0 ☒ Min. 150°C
15. Wire Bond: a. Wire bond material:	N/A
16. Leadframe (if applicable): a. Header material: b. Leadframe material: c. Leadframe bonding plating composition: d. External lead plating composition: e. External lead plating thickness (μinch):	Copper Copper None Pure Sn Min. 8μm
17. Thermal Resistance: a. θ_{JA} °C/W (approx): b. θ_{JC} °C/W (approx): c. θ_{JL} junction-to-lead °C/W (approx): d. θ_{JM} junction-to-mounting base °C/W (approx):	125°C/W N/A 25°C/W N/A
18. Maximum Process Exposure Conditions: a. MSL @ rated SnPb temperature: b. MSL @ rated Pb-free temperature:	* Note: Temperatures are as measured on the center of the plastic package body top surface. <u>1 at 235 °C (SnPb)</u> <u>1 at 260 °C (Pb-free)</u>

2. Product Description

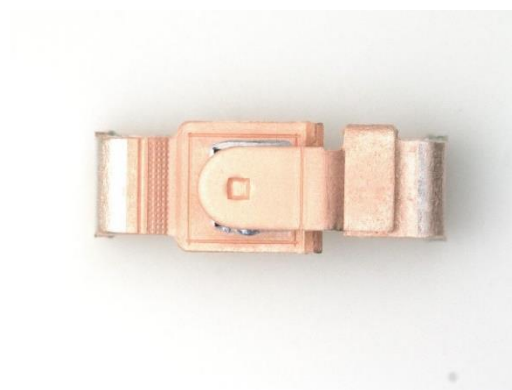
Product Description					
Product:	SS14-M3	Package:	SMA(DO-214AC)	Issued by:	Yan Zhang
Technology:		SKY		Date:	10/19/2023
Function Description: 1A/40V Surface Mount Schottky Barrier Rectifier					
Fab Factory China/Taiwan		Assembly Factory China/Taiwan		Testing Factory China/Taiwan	

Product:

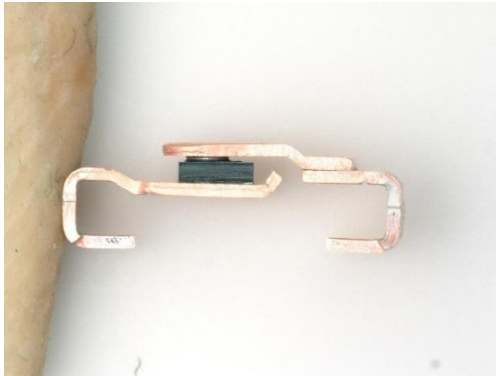
Chip



Sub-assembly (Top View)



Sub-assembly (Side View)



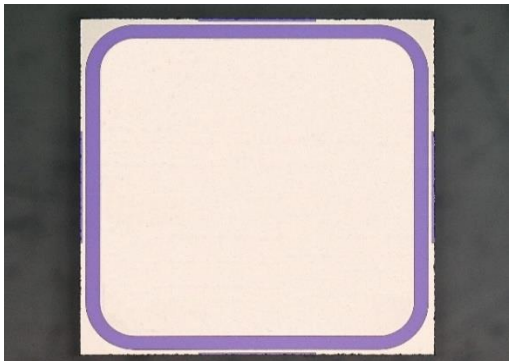
Finish Goods



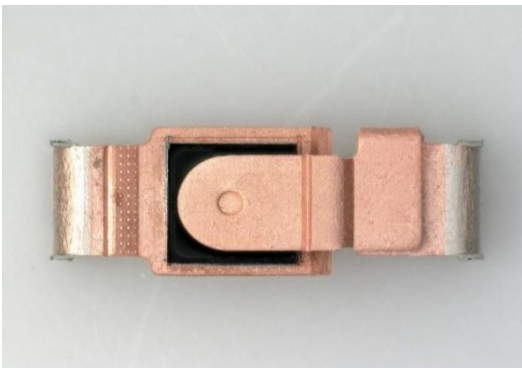
Generic QualPack for PCN-DD-031-2023 of Additional in-house Backend Assembly Site for Commercial Grade Rectifier Products in SMA Package

Product Description					
Product:	SSA34-E3	Package:	SMA(DO-214AC)	Issued by:	Yan Zhang
Technology:		SKY		Date:	10/19/2023
Function Description: 3A 40V High-Current Density Surface Mount Schottky Rectifier					
Fab Factory China/Taiwan	Assembly Factory China/Taiwan	Testing Factory China/Taiwan			

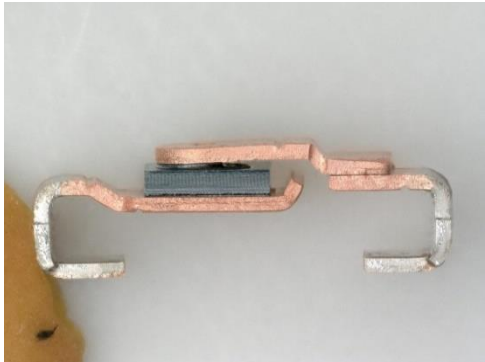
Product:
Chip



Sub-assembly (Top View)



Sub-assembly (Side View)



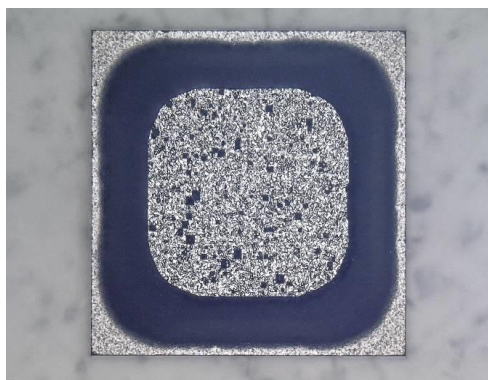
Finish Goods



Generic QualPack for PCN-DD-031-2023 of Additional in-house Backend Assembly Site for Commercial Grade Rectifier Products in SMA Package

Product Description					
Product:	BYG10Y-E3	Package:	SMA(DO-214AC)	Issued by:	Yan Zhang
Technology:		STD		Date:	10/19/2023
Function Description: 1.5A 1600V Standard Avalanche SMD Rectifier					
Fab Factory Austria		Assembly Factory China/Taiwan		Testing Factory China/Taiwan	

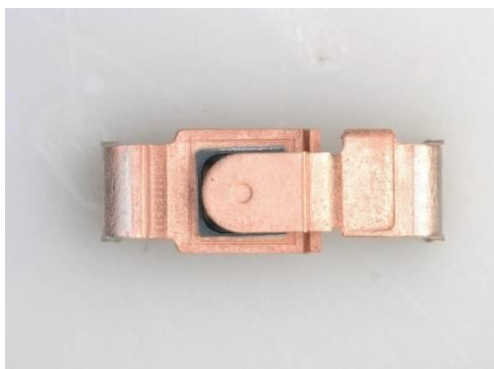
Product:
Chip



Sub-assembly (Side View)



Sub-assembly (Top View)



Finish Goods





3. Data Sheet

- please see the next pages

SS12~SS16

- Visit [ss12.pdf \(vishay.com\)](#) for the latest version

SSA33L, SSA34

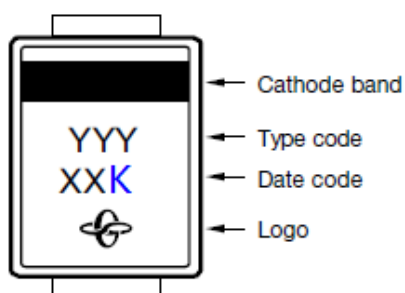
- Visit [ssa33l.pdf \(vishay.com\)](#) for the latest version

BYG10D~BYG10Y

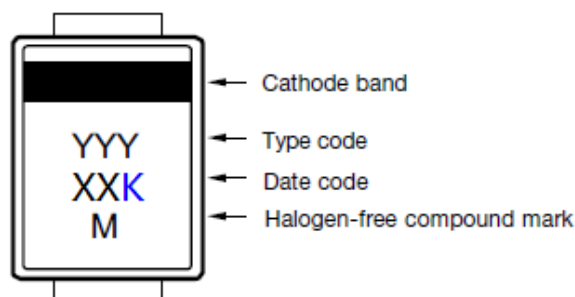
- Visit [byg10.pdf \(vishay.com\)](#) for the latest version

Generic QualPack for PCN-DD-031-2023 of Additional in-house Backend Assembly Site for Commercial Grade Rectifier Products in SMA Package

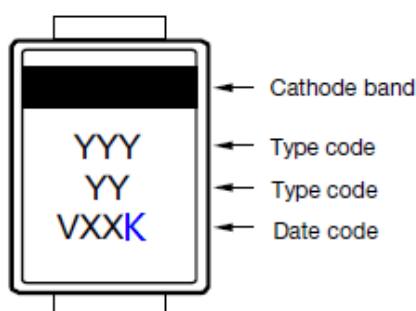
4. Body Marking



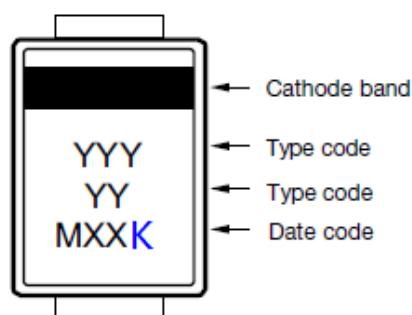
For Schottky products



For Schottky products

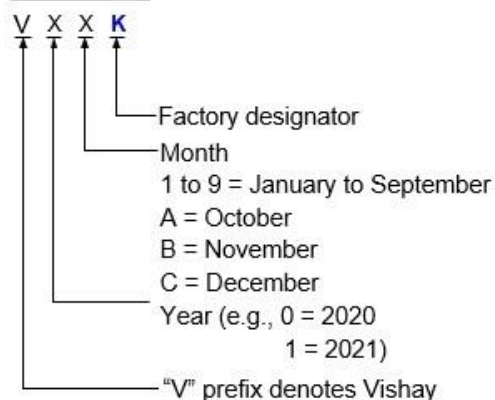


For BYGxx series products

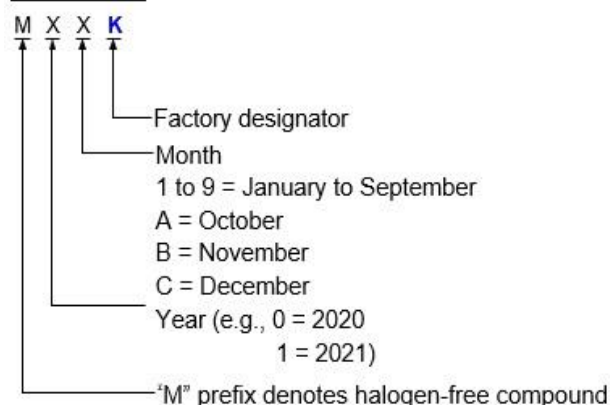


For BYGxx series products

DATE CODE



DATE CODE





Generic QualPack for PCN-DD-031-2023 of Additional in-house Backend Assembly Site for Commercial Grade Rectifier Products in SMA Package

5. Back-End Process Flow

Changeover Key
P=Product
T=Tooling
S=Software
D=Dunnage
L=Label

Inspection Key
A=Automatic
M=Manual
V=Visual
Q=Quality Audit

For Process: Folded SMA&SMB&SMC Process
For Sites: VGSK
Prepared By: Kent Chen

Doc. # KHFC-055F-
Rev. # 10
Rev. Date : 2023/11/1
Vishay GS Part # FSMX Process
Customer Part #

Op-Seq	Symbol Instructions						Operation Description	Special Char. Class	Significant Product Characteristics (Outputs)	Special Char. Class	Significant Process Characteristics (Inputs)
	Fab/Assem	Move	Store/Get	Inspect	Rework	Scrap/Contain					
	◇	○	△	□	●	●					
KHOP-049	↑	↑	↑	↑	↑	↑	Lead Frame				
							Solder Paste				
							Die				
							Flux (Only for products with pre-bump dice, for example, it's not required for the BYG series with Non-bump dice)				
							Auto Soldering	DD	Bottom solder area and position		AOI 100% Vision
KHOP-515	◇						Post Cleaning				
KHOP-206	↑	↑	↑	↑	↑	↑	Molding compound				
							Transfer molding				
KHOP-221	◇						Trimming				
KHOP-215	◇						Post molding curing				
KHOP-340	↑	↑	↑	↑	↑	↑	Pure tin solder ball				
							Pure tin strip plating	DT	PB content in pure-tin plating layer		PB content in pure-tin plating bath
							Plating solderability test Plating thickness measurement	DD	Plating solderability Plating thickness Aging test		1.Plating current 2.Solution concentration
KHOP-220	↑	↑	↑	↑	↑	↑	Forming				
							Forming dimension measurement	DD	Forming dimension		Tool life
KHOP-535 or Subcon (None-automotive)	↑	↑	↑	↑	↑	↑	Carrier Tape				
							Cover Tape				
							Reel				
							Test/Mark/Tape or Sub-con(Only for None automotive)	DD	Elec:IR/BVR/VF/TRR(FER)		Tester accuracy
							Tape peeling force test	DD	Tape peeling force		Sealing temperature
KHOP-550	◇						Final inspection				
GSK-4676	◇						Outgoing quality control (Elec.&Mech.)				
L-006, OP-700K	◇						Packing				

6. Unit Pack Specifications (Insert the Vishay Website Doc#88869/84082/95404 by completed pages or cut out suitable content as below example)

SURFACE MOUNT TAPE AND REEL PACKAGING

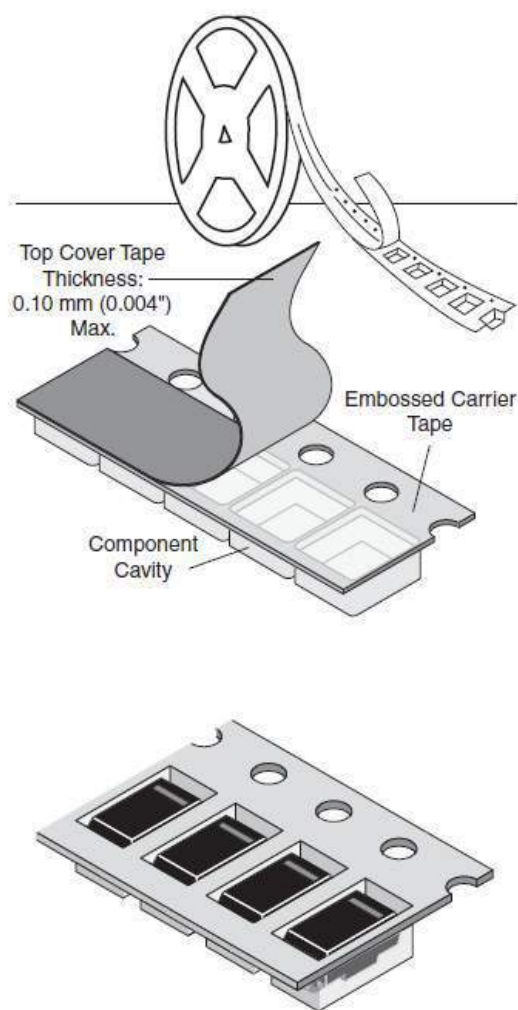


Fig. 5

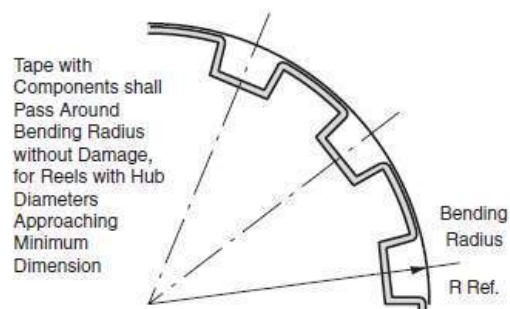


Fig. 6

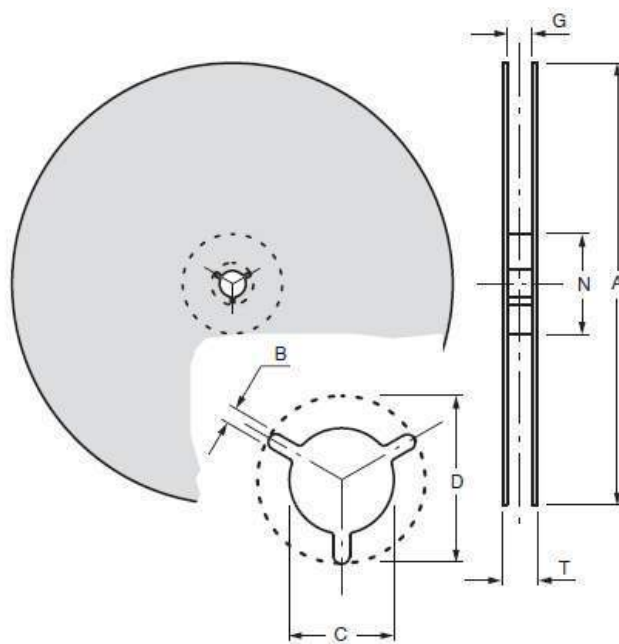


Fig. 7

DIMENSIONS in millimeters (inches)							
TAPE SIZE	A MAX.	B MIN.	C	D MIN.	N MIN.	G MAX.	T MAX.
8 mm (0.315)	330 ± 2.0 (13.0 ± 0.079) 178 ± 2.0 (7.0 ± 0.079)	1.5 (0.059)	13.0 ± 0.20 (0.51 ± 0.008)	20.2 (0.795)	50 (1.97)	9.9 (0.389)	14.4 (0.567)
12 mm (0.472)	330 ± 2.0 (13.0 ± 0.079) 178 ± 2.0 (7.0 ± 0.079)	1.5 (0.059)	13.0 ± 0.20 (0.51 ± 0.008)	20.2 (0.795)	50 (1.97)	14.4 (0.567)	18.4 (0.724)
16 mm (0.630)	330 ± 2.0 (13.0 ± 0.079) 178 ± 2.0 (7.0 ± 0.079)	1.5 (0.059)	13.0 ± 0.20 (0.51 ± 0.008)	20.2 (0.795)	50 (1.97)	18.4 (0.724)	22.4 (0.802)
24 mm (0.945)	330 ± 2.0 (13.0 ± 0.079) 178 ± 2.0 (7.0 ± 0.079)	1.5 (0.059)	13.0 ± 0.20 (0.51 ± 0.008)	20.2 (0.795)	50 (1.97)	26.4 (1.039)	30.4 (1.197)

SURFACE MOUNT TAPE AND REEL PACKAGING

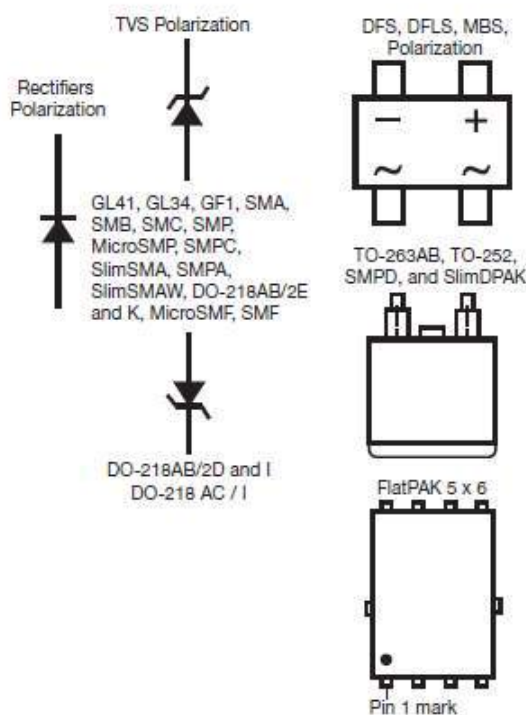
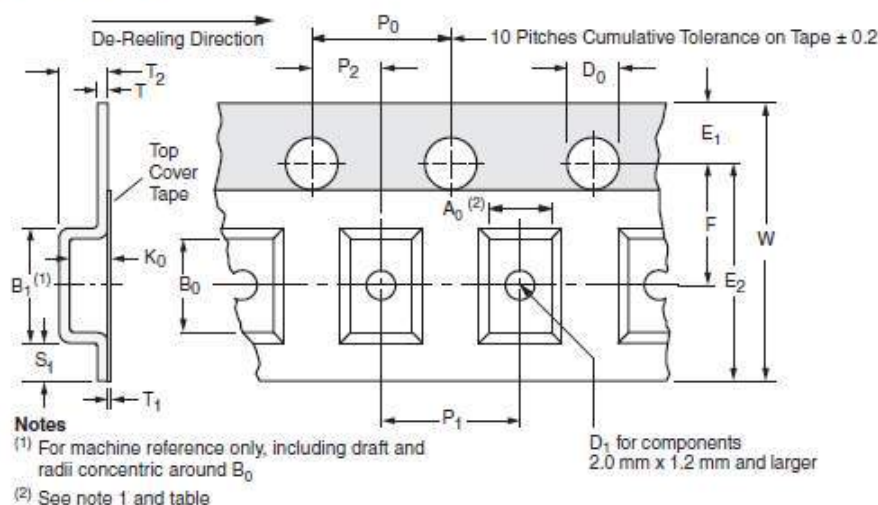


Fig. 8

8 mm, 12 mm, 16 mm, AND 24 mm EMBOSSED TAPE in millimeters (inches)								
TAPE SIZE	D_0	E_1	P_0	P_2	A_0, B_0, K_0	S_1 MIN.	T MAX.	T_1 MAX.
8 mm, 12 mm	1.5 ± 0.1 (0.059 $\pm$ 0.004)	1.75 ± 0.1 (0.069 $\pm$ 0.004)	4.0 ± 0.1 (0.157 $\pm$ 0.004)	2.0 ± 0.05 (0.079 $\pm$ 0.002)	(1)	0.6 (0.024)	0.600 (0.024)	0.1 (0.004)
16 mm, 24 mm				2.0 ± 0.1 (0.079 $\pm$ 0.004)				



DIMENSIONS in millimeters (inches)									
CASE TYPE	TAPE SIZE	B ₁ MAX.	D ₁ MIN.	E ₂ MIN.	F	P ₁	R REF.	T ₂ MAX.	W MAX.
GL34 (DO-213AA)	8 (0.315)	4.2 (0.165)	1.0 (0.039)	6.25 (0.246)	3.5 ± 0.05 (0.138 ± 0.002)	4.0 ± 0.10 (0.157 ± 0.004)	20 (0.787)	2.4 (0.094)	8.3 (0.327)
MicroSMP (DO-219AB) / MicroSMF (DO-219AD)		3.28 (0.129)		6.05 (0.238)				1.919 (0.076)	
SMF (DO-219AB)		-						1.8 (0.07)	8.2 (0.322)
GL34 (DO-213AA)	12 (0.472)	8.2 (0.323)	1.5 (0.059)	10.25 (0.404)	5.5 ± 0.05 (0.217 ± 0.002)	8.0 ± 0.10 (0.315 ± 0.004)	25 (0.984)	4.5 (0.177)	12.3 (0.484)
GF1 (DO-214BA)								3.25 (0.128)	
SMA (DO-214AC)								2.64 (0.104)	
SMP (DO-220AA)								1.84 (0.072)	
SMPC (TO-277A)		1.43 (0.056)							
SMB (DO-214AA) / SMBG (DO-215AA)	8.2 (0.323)							2.77 (0.109)	
SMC (DO-214AB) / SMCG (DO-215AB)	16 (0.630)	12.1 (0.476)		14.25 (0.561)	7.5 ± 0.1 (0.295 ± 0.004)	12.0 ± 0.10 (0.472 ± 0.004)		2.64 (0.104)	16.3 (0.642)
SlimDPAK (TO-252AE)								2.0 (0.079)	
DFS								3.91 (0.154)	
D ² PAK (TO-263AB) DO-218AB / AC	24 (0.945)	20.1 (0.791)		22.25 (0.876)	11.5 ± 0.1 (0.453 ± 0.004)	16.0 ± 0.10 (0.630 ± 0.004)		5.31 (0.209)	24.3 (0.957)
SMPD (TO-263AC)						12.0 ± 0.10 (0.472 ± 0.004)		2.35 (0.093)	
SlimSMA (DO-221AC) / SMPA (DO-221BC)	12 (0.472)	6.2 (0.244)		10.25 (0.404)	5.5 ± 0.05 (0.217 ± 0.002)	4.0 ± 0.10 (0.157 ± 0.004)		1.53 (0.060)	12.3 (0.484)
SlimSMAW (DO-221AD)						8.0 ± 0.10 (0.315 ± 0.004)		1.61 (0.063)	
FlatPAK 5 x 6		6.4 (0.252)						1.20 ± 0.10 (0.047 ± 0.004)	

Notes

- (1) A₀, B₀, and K₀ are determined by the maximum dimensions of the component size. The clearance between the component and the cavity must be within 0.05 mm (0.002") min. to 0.5 mm (0.02") max. for 8 mm tape and 12 mm tape, 0.15 mm (0.066") min. to 0.90 mm (0.035") max. for 16 mm tape and 0.15 mm (0.006") min. to 1.0 mm (0.59") max. for 24 mm tape
- (2) All surface mount components are packed in accordance with EIA standard 481-E



Generic QualPack for PCN-DD-031-2023 of Additional in-house Backend Assembly Site for Commercial Grade Rectifier Products in SMA Package

Production Part Approval -

Environmental Test Summary (Folded SMA)

Request Part Number	xxx-E3 , xxx-M3
Package	DO-214AC 92.5Pb/5Sn/2.5Ag
FAB	STD, SKY

Package Qualification:	DO-214AC
Die attach	92.5PB / 5SN / 2.5Ag
Package Process Used	SS14-M3 DO-214AC
	SSA34-E3 DO-214AC
	BYG10Y-E3 DO-214AC

FAB Process:	Requested	STD, SKY
FAB Process Used	SS14-M3	SKY
	SSA34-E3	SKY
	BYG10Y-E3	STD

Test Item & Condition	Duration	SS14-M3	SSA34-E3	BYG10Y-E3
HTRB	Ta / Bias	95°C / 40V	85°C / 40V	125°C / 1600V
	168 Hrs	0 / 77	0 / 77	0 / 77
	500 Hrs	0 / 77	0 / 77	0 / 77
	1000 Hrs	0 / 77	0 / 77	0 / 77
ESD(HBM) @ 100pF / 1500 Ω	2KV	0 / 10	0 / 10	0 / 10
	4KV			
	6KV	0 / 10	0 / 10	
	8KV	0 / 10	0 / 10	
ESD(CDM)	500V	0 / 10	0 / 10	0 / 10
	1000V	0 / 10	0 / 10	0 / 10
Solder Dip	Post	0 / 30	0 / 30	0 / 30
@Bake:130°C/24H→Moisture Soak:85°C/85%RH/168H→265°C/10sec				
Solderability @245°C/5sec	Post	0 / 10	0 / 10	0 / 10
Terminal Strength @2.2LB/80sec	Post	0 / 30	0 / 30	0 / 30
Pre-conditioning		0 / 308	0 / 308	0 / 308
@Bake:125°C/24H → Moisture Soak:85°C/85%RH/168H→ Reflow 3 times:TP=260°C				
Temperature Cycling @-55°C / +150°C / 30min.	168 Cys	0 / 77	0 / 77	0 / 77
	500 Cys	0 / 77	0 / 77	0 / 77
	1000 Cys	0 / 77	0 / 77	0 / 77
UHASt @Ta= 130°C , 85%RH ; 33.3Psia	48 Hrs	0 / 77	0 / 77	0 / 77
	96 Hrs	0 / 77	0 / 77	0 / 77
IOL @DTJ=100°C / Ton=Toff=2min	2520 Cys	0 / 77	0 / 77	0 / 77
	7500 Cys	0 / 77	0 / 77	0 / 77
	15000 Cys	0 / 77	0 / 77	0 / 77
HAST @130°C / 85%R.H. / 80%VR (max42V)/33.3Psia	48 Hrs			0 / 77
	96 Hrs			0 / 77
H3TRB @85°C / 85%R.H. / 80%VR (max100V)	168 Hrs	0 / 77	0 / 77	
	500 Hrs	0 / 77	0 / 77	
	1000 Hrs	0 / 77	0 / 77	



8. Soldering Profile (Insert the Vishay Website Doc#88854 by completed pages or cut out its content as below)

Soldering Process

VISHAY GENERAL SEMICONDUCTOR RECOMMENDED SOLDERING PROCESS

Through hole device (THD) and surface mount device (SMD) imply different soldering technologies leading to different constraints.

In THD, the package body is exposed to relatively low temperatures ($< 150^{\circ}\text{C}$) because the lead extremities are only dipped in the soldering alloy, whereas in SMD the whole package body is exposed to a very high temperature ($> 240^{\circ}\text{C}$) during reflow soldering process.

In addition, molding compounds used for encapsulation absorb moisture from the ambient medium. During rapid heating in solder reflow process; this absorbed moisture can vaporize, generating pressure at lead frame pad/silicon to plastic interfaces in the package, with a risk of package cracking and potential degradation of device reliability.

Wave soldering with SMD packages is not recommended because the thermal shock associated with package body solder dipping may induce internal structural damage to the package (interface delamination) that may affect long term reliability.

SMD package characterizations performed as a standard by Vishay only induce Solder Reflow Resistance assessment.

JEDEC® JESD A111 recommends that wave soldering of SMD packages should be evaluated by the USER, because the stress induced inside the package is very dependant of solder process parameters.

Due to the higher melting point of lead (Pb)-free alloys, the temperature of the solder pot will also increase to improve solderability and shorten contact times. For AgSnCu with melting point of 217°C , the solder pot temperature will be between 250°C to 270°C or as high as 260°C to 280°C for SnCu.

RECOMMENDED WAVE SOLDERING PROFILE FOR THROUGH HOLE COMPONENTS

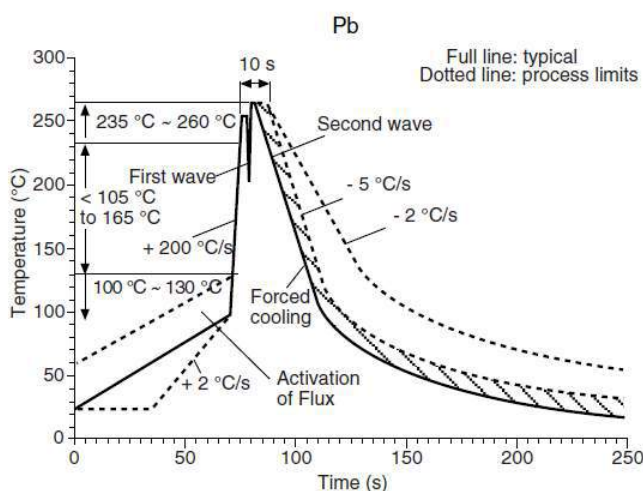
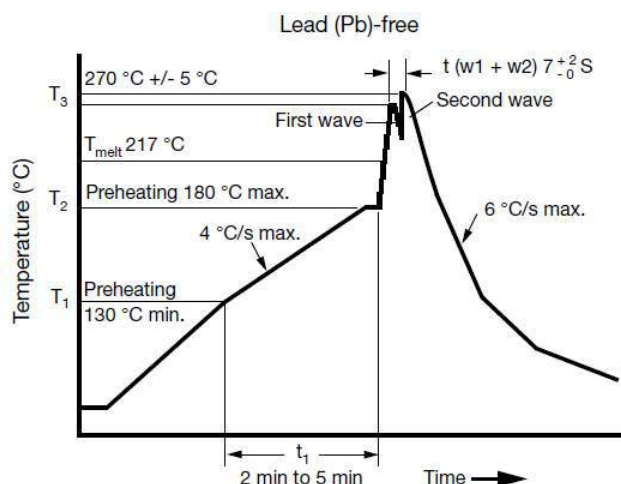


Fig. 1



Notes

- Temperature jump from T_2 to T_3 (w_1): 150°C max.
- Time from 25°C to T_3 (wave temp.): 8 min max.

Fig. 2

REFLOW FOR SURFACE MOUNTED COMPONENTS

TABLE 1 - CLASSIFICATION REFLOW PROFILE		
PROFILE FEATURE	Sn-Pb EUTECTIC ASSEMBLY	LEAD (Pb)-FREE ASSEMBLY
Preheat and soak		
Temperature min. ($T_{Smin.}$)	100 °C	150 °C
Temperature max. ($T_{Smax.}$)	150 °C	200 °C
Time ($T_{Smin.}$ to $T_{Smax.}$) (t_s)	60 s to 120 s	60 s to 120 s
Average ramp-up rate ($T_{Smax.}$ to T_p)	3 °C/s maximum	
Liquidus temperature (T_L)	183 °C	217 °C
Time to liquidus (t_l)	60 s to 150 s	60 s to 150 s
Peak package temperature (T_p) ⁽¹⁾	See classification temperature in table 2	See classification temperature in table 3
Time (t_p) ⁽²⁾ with 5 °C of the specified classification temperature (T_C)	20 s ⁽²⁾	30 s ⁽²⁾
Average ramp-down rate (T_p to $T_{Smax.}$)	6 °C/s maximum	
Time 25 °C to peak temperature	6 min maximum	8 min maximum

Notes

- (1) Tolerance for peak profile temperature (T_p) is defined as a supplier minimum and user maximum
 (2) Tolerance for time at peak profile temperature (T_p) is defined as a supplier minimum and user maximum

REFLOW PROFILE

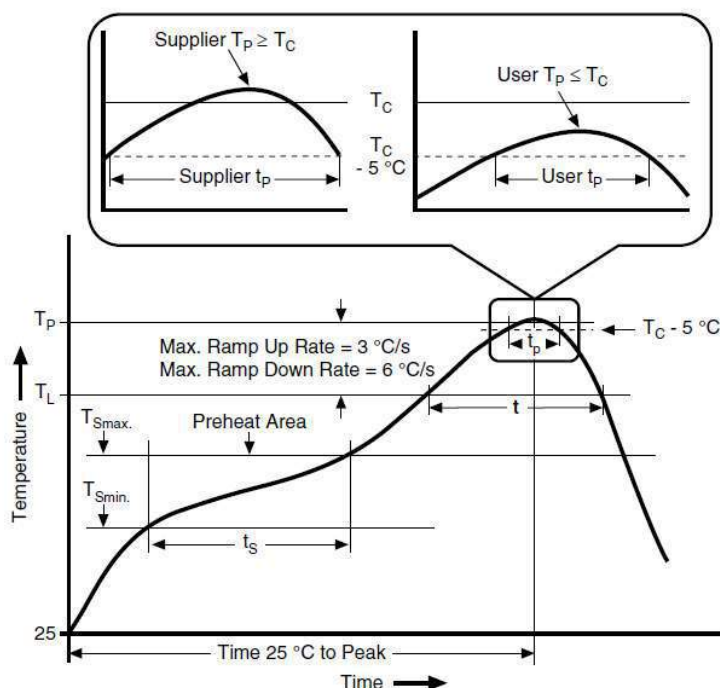


Fig. 3



TABLE 2 - Sn-Pb EUTECTIC PROCESS PACKAGE PEAK REFLOW TEMPERATURES

PACKAGE THICKNESS	VOLUME mm ³ < 350	VOLUME mm ³ ≥ 350
< 2.5 mm	235 °C	220 °C
≥ 2.5 mm	220 °C	220 °C

TABLE 3 - LEAD (Pb) - FREE PROCESS PACKAGE CLASSIFICATION REFLOW TEMPERATURES

PACKAGE THICKNESS	VOLUME mm ³ < 350	VOLUME mm ³ 350 TO 2000	VOLUME mm ³ > 2000
< 1.6 mm	260 °C	260 °C	260 °C
1.6 mm to 2.5 mm	260 °C	250 °C	245 °C
≥ 2.5 mm	250 °C	245 °C	245 °C

Tolerance: The device manufacturer / supplier shall assure process compatibility up to and including the stated classification temperature at the rated MSL level.

Notes

- Package volume excludes external terminals (balls, bumps, lands, leads) and/or non-integral heatsinks
- The maximum component temperature reached during reflow depends on package thickness and volume. The use of convection reflow processes reduces the thermal gradients between packages. However, thermal gradients due to differences in thermal mass of SMD packages may still exist
- Recommended soldering process is accordance with J-STD-020D



Generic QualPack for PCN-DD-031-2023 of Additional in-house Backend Assembly Site for Commercial Grade Rectifier Products in SMA Package

9. Materials Declaration Report

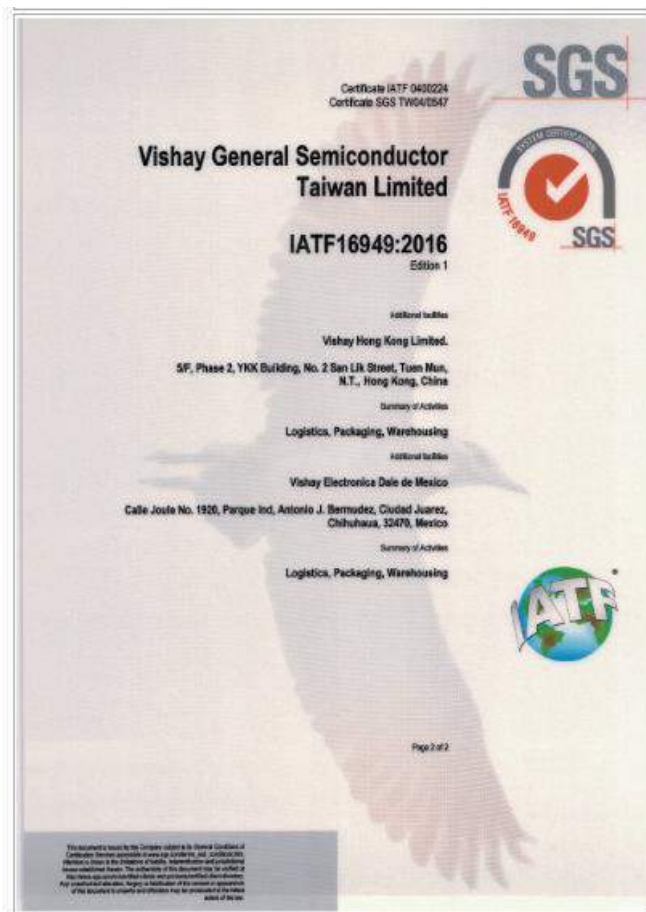
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Generic QualPack for PCN-DD-031-2023 of Additional in-house Backend Assembly Site for Commercial Grade Rectifier Products in SMA Package

10. Certificates

Locations		Country	City	Certificates	
Front-End	Vishay Taipei	Taiwan	Taipei	IATF16949	ISO9001
Back-End	Vishay Kaohsiung	Taiwan	Kaohsiung	IATF16949	ISO9001





Generic QualPack for PCN-DD-031-2023 of Additional in-house Backend Assembly Site for Commercial Grade Rectifier Products in SMA Package

Certificate IATF 0470202
Certificate TW23/00000165
The management system of

**Vishay General Semiconductor
Taiwan Ltd. Nanzi Branch**
40 Zhongyang Rd., Nanzi Dist., Kaohsiung City 81170, Taiwan

has been assessed and certified as meeting the requirements of
IATF 16949:2016
Edition 1

For the following Scope
Design and Manufacture of power rectifiers and protection devices.

EXCLUSIONS : None

3 Year certification is valid from 08 March 2023 until 07 March 2026 and remains valid subject to satisfactory surveillance audits.
Version no. 1. Current version updated 08 March 2023

Hank Yang
Authorized by
Hank Yang
Veto Power Authority

Contracted Office : SGS United Kingdom Ltd, Station Road, Oldbury, B69 4LN, UK.
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Certificate IATF 0470202
Certificate TW23/00000165

**Vishay General Semiconductor
Taiwan Ltd. Nanzi Branch**
IATF 16949:2016
Edition 1

Additional facilities
Support Function
Vishay General Semiconductor Taiwan Limited.
233, Baoqiao Rd., Xindian District, New Taipei City 231, Taiwan
Summary of Activities
Marketing, Product design, Process design
Support Function
Vishay General Semiconductor (China) Co., Ltd.
No.88 6th Avenue, TEDA, Tianjin, P.R. China
Summary of Activities
Product design, Process design
Support Function
VISHAY INTERTECHNOLOGY ASIA PTE. LTD.
37A Tampines Street 92, #07-01, Singapore, 528866
Summary of Activities
Contract review, Customer Service
Support Function
Vishay Electronica Dale de Mexico S.A. de C.V. Facility Bermudez II
Calle Joule No. 1920, Parque Ind, Antonio J. Bermudez, Ciudad Juarez, Chihuahua, 32170, Mexico
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Generic QualPack for PCN-DD-031-2023 of Additional in-house Backend Assembly Site for Commercial Grade Rectifier Products in SMA Package

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Design and Manufacture of power rectifiers and protection devices.



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Certificate TW22/00000199

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Management System
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11. Revision History

Rev#	Date	Revision history
1	2023/11/03	Convert to new QualPack format

--End of Report--