

High Voltage Diodes

$V_{RM}: 2 \sim 24kV$

$I_o: 2mA/350mA$

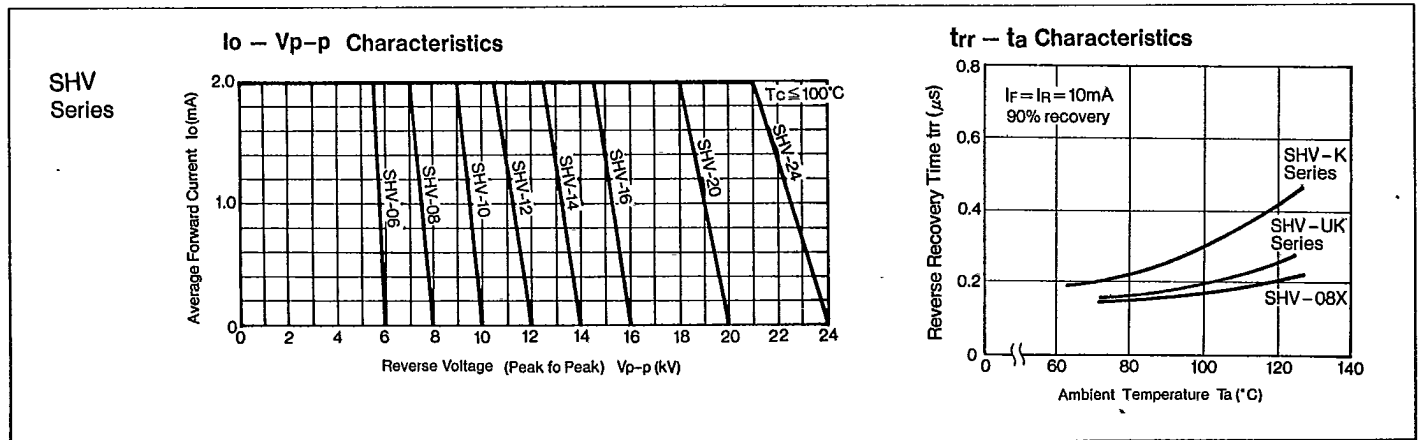
SHV/HVR

| Rating/ Characteristics | Absolute Maximum Ratings | | | | | | Electrical Characteristics (Ta=25°C) | | | | | | Others | | | | | |
|----------------------------|--------------------------|-------------------------|----------------------------------|-------------------------|------------------------|--------------------------|--------------------------------------|--|--|--|----------|--------------------|------------|-----------|---------------------|----|----|------|
| | V _{RSM} (kV) | V _{RM} (kV) | I _o (mA) | I _{FSM} (A) | T _c (°C) | T _{stg} (°C) | V _F (V) | I _R (μA) | I _{R(H)} (μA) | t _{rr} (μs) | | Outline Drawing | Weight (g) | Taping | Application | | | |
| Type No. | | | | | | max | I _F (mA) | V _R =V _{RM} max | V _R =V _{RM} Ta=100°Cmax | I _F /I _R (mA) | Ta=100°C | | | | | | | |
| SHV-02 | 2.2 | 2 | 2 [TV High Voltage C Load] | 0.3 | 100 | -40~ +120 | 10 | 1 | 3 | 0.18 | 10/10 | ②⑤ | 0.15 | Available | For TV High Voltage | | | |
| SHV-03 | — | 3 | | | | | | | | | | | | | | 16 | ②⑥ | 0.16 |
| SHV-06 | 7 | 6 | | | | | | | | | | | | | | 26 | ②⑧ | 0.2 |
| SHV-08 | 9 | 8 | | | | | | | | | | | | | | 36 | ②⑨ | 0.32 |
| SHV-10 | 12 | 10 | | | | | | | | | | | | | | 40 | ③⑩ | 0.32 |
| SHV-12 | 14 | 12 | | | | | | | | | | | | | | 45 | ③⑪ | 0.2 |
| SHV-14 | 17 | 14 | | | | | | | | | | | | | | 55 | ③⑫ | 0.32 |
| SHV-16 | 19 | 16 | | | | | | | | | | | | | | 60 | ③⑬ | 0.3 |
| SHV-20 | 24 | 20 | | | | | | | | | | | | | | 75 | ③⑭ | 0.3 |
| SHV-24 | 27 | 24 | | | | | | | | | | | | | | 90 | ③⑮ | 0.3 |
| SHV-06NK | 7 | 6 | 2 | 0.5 | 60(Ta) | -40~+130 | 9 | 350 | 10 | V _B =9.5KVmin, 15KVmax | 0.25 | ③⑯ | 0.32 | — | For MWO | | | |
| SHV-08NK | 9 | 8 | | | | | | | | | | | | | | 26 | ③⑰ | 0.2 |
| SHV-10K | 12 | 10 | | | | | | | | | | | | | | 36 | ③⑱ | 0.32 |
| SHV-12K | 14 | 12 | | | | | | | | | | | | | | 40 | ③⑲ | 0.2 |
| SHV-06UNK | 7 | 6 | | | | | | | | | | | | | | 45 | ③⑳ | 0.3 |
| SHV-08UNK | 9 | 8 | | | | | | | | | | | | | | 48 | ③㉑ | 0.3 |
| SHV-10UK | 12 | 10 | | | | | | | | | | | | | | 60 | ③㉒ | 0.3 |
| SHV-12UK | 14 | 12 | | | | | | | | | | | | | | 68 | ③㉓ | 0.3 |
| SHV-16UK | 19 | 16 | | | | | | | | | | | | | | 90 | ③㉔ | 0.32 |
| SHV-08X | 9 | 8 | | | | | | | | | | | | | | 2 | 60 | — |
| HVR-1X-40B | — | 9 | 350 | 20 | 60(Ta) | -40~+130 | 9 | 350 | 10 | V _B =9.5KVmin, 15KVmax | 0.25 | ③㉖ | 0.32 | — | For MWO | | | |

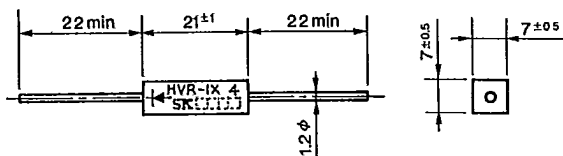
| Type No. | Outline Drawing | Marking | |
|-----------|------------------------|-----------------|---------------|
| | | Marking Pattern | Marking Color |
| SHV-02 | Outline Drawing ②⑤ | | White |
| | | | Red |
| SHV-03 | Outline Drawing ②⑥ | | White |
| SHV-06NK | Outline Drawing ②⑦ | | White |
| SHV-06UNK | | | Red |
| SHV-08NK | | | White |
| SHV-08UNK | | | Red |
| SHV-06 | Outline Drawing ②⑧ | | White |
| SHV-08 | | | White |

For TV/Microwave Oven

| Type No. | Outline Drawing | Marking | | |
|----------|---------------------------|---------------------------|---------------|-------|
| | | Marking Pattern | Marking Color | |
| SHV-08X | <p>Outline Drawing ②⑤</p> | | Red | |
| SHV-10 | | | White | |
| SHV-10K | | | | |
| SHV-10UK | | | Red | |
| SHV-12 | | | White | |
| SHV-12K | | | | |
| SHV-12UK | | | Red | |
| SHV-14 | | | White | |
| SHV-16 | | <p>Outline Drawing ③①</p> | | White |
| SHV-16UK | | | | Red |
| SHV-20 | | | White | |
| SHV-24 | | | | |



Outline Drawing ③①



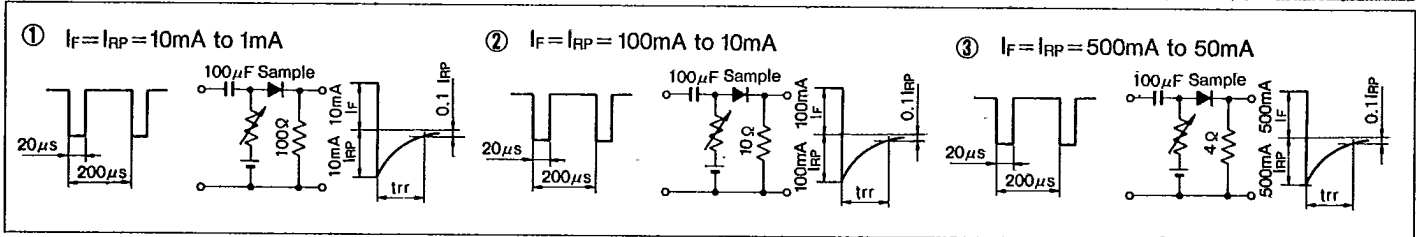
②⑤~③① Plastic Molded, Flammability: UL94V-0 or Equivalent

Symbols/trr Measurement Circuit

Symbols

| | | | | | |
|-------------|-----------------------------------|------------|------------------------------------|---------------|--|
| V_{RSM} | Peak Reverse Surge Voltage | I_{RSM} | Peak Reverse Surge Current | T_{stg} | Storage Temperature |
| V_{RM} | Peak Reverse Voltage | I_R | Reverse Current | t_{rr} | Reverse Recovery Time |
| V_{P-P} | Reverse Voltage (Peak to Peak) | I_{RP} | Peak Reverse Current | C_t | Total Capacitance Between Terminals |
| V_R | Reverse Voltage | $I_{R(H)}$ | Reverse Current (High Temperature) | $R_{th(j-c)}$ | Thermal Resistance, Junction to Case |
| V_F | Forward Voltage | I_Z | Avalanche Current | r_z | Temperature Coefficient of Breakdown Voltage |
| V_B | Breakdown Voltage | I_{ZSM} | Allowable Avalanche Current | R_z | Equivalent Resistance of Breakdown Region |
| I_o | Average Rectified Forward Current | T_a | Ambient Temperature | $P_{F(AV)}$ | Average Forward Power Dissipation |
| I_F | Forward Current | T_j | Junction Temperature | I_t | I_t limiting Value |
| $I_{F(AV)}$ | Average Forward Current | T_{opr} | Operating Ambient Temperature | | |
| I_{FSM} | Peak Forward Surge Current | T_c | Case Temperature | | |

Reverse Recovery Time Measurement Circuit



Taping Specifications

Excluding High Voltage Diodes

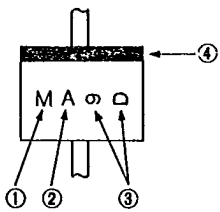
| Designation | Dimension (in mm) | Packaging Dimension and Marking | Quantity |
|--|--|---|--|
| V Add Suffix [V] to Type No. | <p>Tape Carrier Method</p> <p>(1) Right side of taping direction is cathode. (2) Place electrode side down when casing. (3) Provide leader tape of 150~200mm at beginning of tape. (4) Provide space of more than 10 pitches each for beginning and end of tape.</p> | <p>Reel</p> <p>Marking of Type No., Lot No. and Quantity</p> | 1,800 pcs per reel |
| V Add Suffix [V] to type No. | <p>Axial Taping</p> | <p>Reel</p> <p>Markings of Type No. Lot No. and Quantity</p> | 5,000 pcs per reel (2.7 φ body) 3,000 pcs per reel (4.0 φ body) |

Taping Specifications

| Designation | Dimension (in mm) | Packaging Dimension and Marking | Quantity |
|---|---|---------------------------------|---|
| <p>V1</p> <p>Add Suffix [V1] to Type No.</p> | <p>Axial Taping</p> | <p>Ammunition Pack</p> | <p>2,000 pcs per box (2.7 φ body)</p> <p>1,000 pcs per box (4.0 φ body)</p> |
| <p>VO</p> <p>Add Suffix [VO] to Type No.</p> | <p>Axial Taping</p> | <p>Ammunition Pack</p> | <p>2,000 pcs per box (2.7 φ body)</p> <p>(2.4 φ body)</p> |
| <p>V3</p> <p>Add Suffix [V3] to Type No.</p> | <p>Axial Taping</p> | <p>Reel</p> | <p>1,500 pcs per reel (5.2 φ body)</p> |
| <p>V4</p> <p>Add Suffix [V4] to Type No.</p> | <p>Axial Taping</p> | <p>Ammunition Pack</p> | <p>1,000 pcs per box (5.2 φ body)</p> |
| <p>W</p> <p>Add Suffix [W] to Type No.</p> | <p>Radial Taping</p> | <p>Ammunition Pack</p> | <p>4,000 pcs per box (2.7 φ body)</p> <p>(0.6 φ lead)</p> |
| <p>WS</p> <p>Add Suffix [WS] to Type No.</p> | <p>Radial Taping (Applicable to AO Series)</p> | <p>Ammunition Pack</p> | <p>2,500 pcs per box (2.4 φ body)</p> |
| <p>WK</p> <p>Add Suffix [WK] to Type No.</p> | <p>Radial Taping (Applicable to AO Series)</p> | <p>Ammunition Pack</p> | <p>2,500 pcs per box (2.4 φ body)</p> |

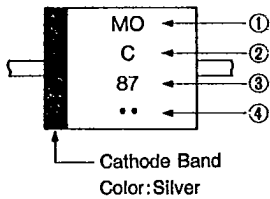
Marking Guide

1 Small TMD



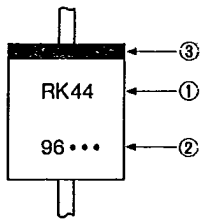
- ① Type Designation (in abbreviation)
AM01 is abbreviated as M.
- ② Class Designation
Z: 200V, No Letter: 400V, A: 600V
- ③ A: Year (Last Number of AD Year)
B: Month (Jan. to Sept. are represented by numbers 1 to 9 respectively, and Oct., Nov., and Dec. are abbreviated as O, N and D respectively)
- ④ Cathode Band: Successive Band, however AU02 Type is Non-Successive Band.

2 E/EO Type TMD



- ① Type Designation (in abbreviation)
EM01 is abbreviated as MO, EM2 is abbreviated as M2.
- ② Class Designation
Z: 200V, No Letter: 400V, A: 600V
B: 800 V, C: 1000V, F: 1500V
However, EU02A to be marked 2A, and EU2YX to be marked Y.
- ③ Abbreviations Representing Production Period
A: Year (Last Number of AD Year)
B: Month (1~9, O, N, D)
- ④ Production Period Divided in 3 ten day terms
• : 1st 10days •• : 2nd 10days ••• : 3rd 10days

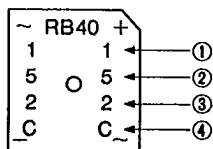
3 R Type TMD



- ① Type Designation: Mark in 2 sets
- ② Production Period: Mark in 4 sets
A: Year (Last Number of AD Year)
B: Month (1~9, O, N, D)
- ③ Production Period Divided in 3 ten day terms
• : 1st 10days •• : 2nd 10days ••• : 3rd 10days
- ④ Cathode Band Color: Silver: For Power Supply
Yellow: For Middle Speed
Red : For High Speed and Ultra-High Speed

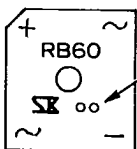
4 RB40/60

(RB40 Series)



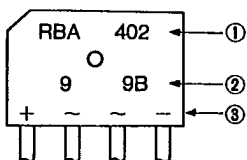
- ① Peak Reverse Voltage Designation
1, 2, 4, 6, C
Production Period
- ② Year (Last Number of AD Year)
- ③ Month (1~9, O, N, D)
- ④ Divided in 3 ten day terms
A: 1st 10days, B: 2nd 10days
C: 3rd 10days
Color Designation: Silver

(RB60 Series)



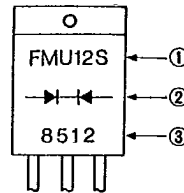
Dot Designation RB601 Violet
RB602 No Color
RB604 Blue
RB606 White

5 RBV/RBA



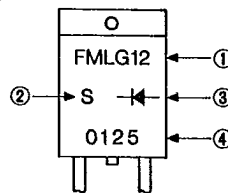
- ① Type Designation
- ② Lot Number
1st : Year (Last Number of AD Year)
2nd: Month (1~9, O, N, D)
3rd : Divided 1~3 ten day Terms
A: 1st 10 days B: 2nd 10 days
C: 3rd 10 days
- ③ In-Put Designation

6 T0220 Type (FM or CT Type)



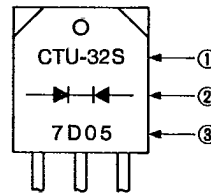
- ① Type Designation
Show FMU-12S as FMU12S.
- ② Polarity: Rectifier Symbols
- ③ Lot Number (Laser Marking)
1st : Year (Last Number of AD Year)
2nd : Month (0~9, O, N, D)
3rd, 4th: Day

7 T0220 Type (FM or CT Type, single chip)



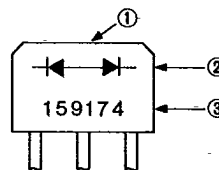
- ① Type Designation: Omit Last Letter
Show FML-G12S as FMLG12.
- ② Last Letter of Type Designation
- ③ Polarity: Rectifier Symbols
- ④ Lot Number (Laser Marking)
1st : Year (Last Number of AD Year)
2nd : Month (0~9, O, N, D)
3rd, 4th: Day

8 T03P Type (FM or CT Type)



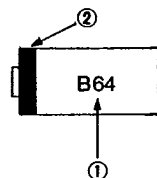
- ① Type shown in full designation
However, CTB-34/34S/34M are marked as CTB-34, CTU-G3DR is marked as CTUG3DR.
- ② Polarity: Rectifier Symbols
- ③ Lot Number:
1) M, U, G and L Types
First Number : Last Digit of AD Year
Second Number : Month
Third and Fourth Numbers: Day
Fifth Number : None
2) For types CTB-34/34S/34M, the fifth letter shows type designation. If no fifth number, the type is CTB-33 or CTB-34.
3) Marking Color: Silver

9 MI-10/15 Type



- ① MI-10/15 is die-stamped on the top of the case.
- ② Rectifier Symbols
- ③ Lot Number:
First Number : Peak Reverse Voltage:
(Letter) 0=50V, 1=100V, 2=200V,
4=400V, 6=600V, C=1000V
Second Number : Last Digit of AD Year
Third Number : Month
Fourth and Fifth Numbers: Day
Sixth Number : Production number and
U: Voltage Doubler Type

10 SFP Type



- ① Type Designation:
SFPB-64 is abbreviated at B64.
- ② Cathode Band