V_{RM} = 8 kV, $I_{F(AV)}$ = 350 mA
High Frequency and High Voltage Rectifier Diode

UX-F5B

Features

The UX-F5B is a low-loss and high-voltage rectifier diode with a peak reverse voltage of 8 kV.

The product achieved a typical forward voltage drop of 11.0 V and a typical trr-time of 0.07 µs by optimizing trade-offs between the forward voltage drop (V_F) and the reverse recovery time (t_{rr}).

- V_{RM} ---------- 8 kV
- I_{RSM} ---------- 150 mA
- V_F ---------- 14.0 V max.
- $I_{F(AV)}$ ---------- 350 mA
- t_{rr} ---------- 0.15 µs max.
  (I_F = 100 mA, I_{RP} = 100 mA, 90 % of R.P.)

Package

Axial (□7/φ1.2)

Applications

- High Voltage Control Circuits
- Inverter Microwave Oven, etc.

Absolute Maximum Ratings

- Unless otherwise specified, T_A is 25 °C

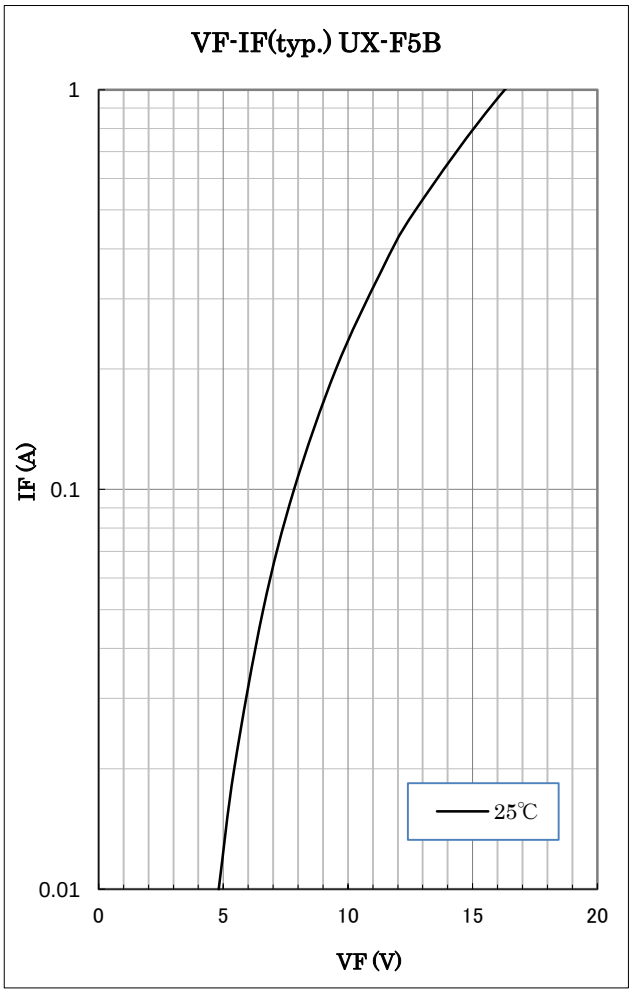
Parameter	Symbol	Rating	Unit	Notes
Peak Repetitive Reverse Voltage	V_{RM}	8	kV	
Average Forward Current	$I_{F(AV)}$	350	mA	
Surge Forward Current	I_{FSM}	15	A	50 Hz Half sinewave, one shot
Surge Reverse Current	I_{RSM}	150	mA	
Junction Temperature	T_j	120	°C	
Storage Temperature	T_{stg}	−40 to +130	°C	

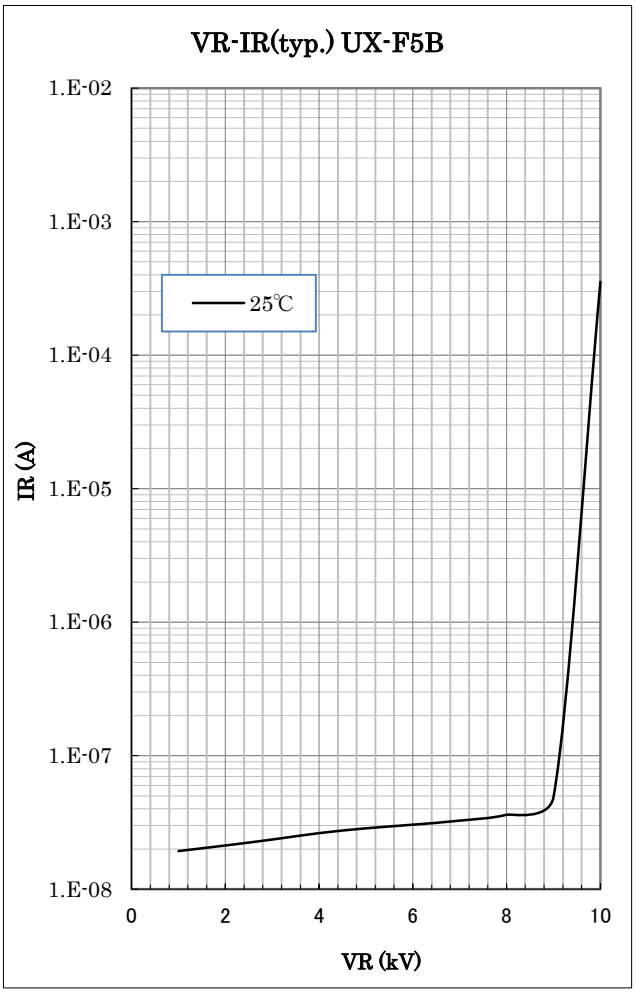
Electrical Characteristics

- Unless otherwise specified, T_A is 25 °C

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Forward Voltage Drop	V_F	I_F = 350 mA	—	11.0	14.0	V
Reverse Leakage Current	I_R	$V_R = V_{RM}$	—	—	10	µA
Reverse Breakdown Voltage	V_Z	I_R =100 µA	8.5	—	—	kV
Reverse Recovery Time	t_{rr}	$I_F = I_{RP}$ = 100 mA, T_j = 25 °C, 90 % recovery point	—	0.07	0.15	µs

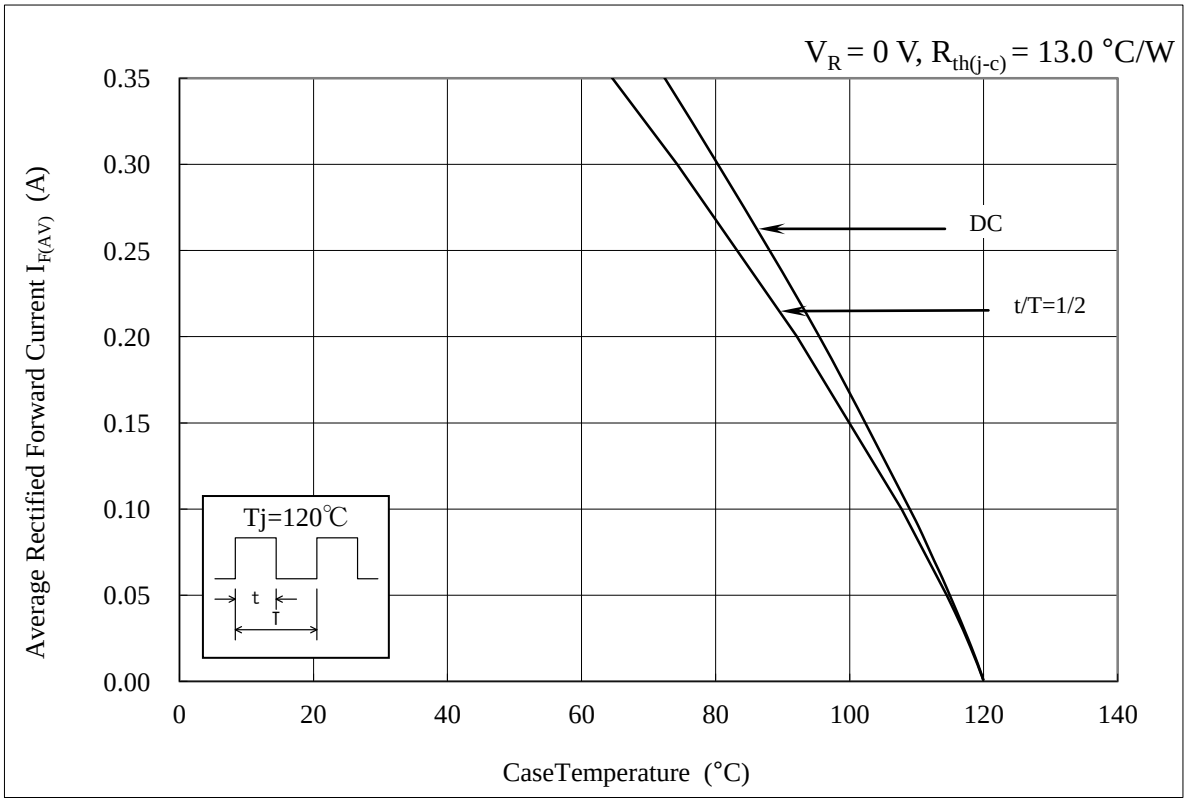
Performance Curves





Derating Curve

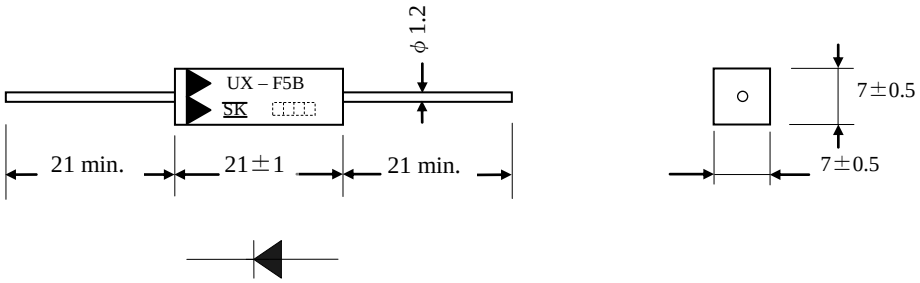
$Tc - I_{F(AV)}$



*Case temperature measured surface temperature of the seal center.

Package Outline

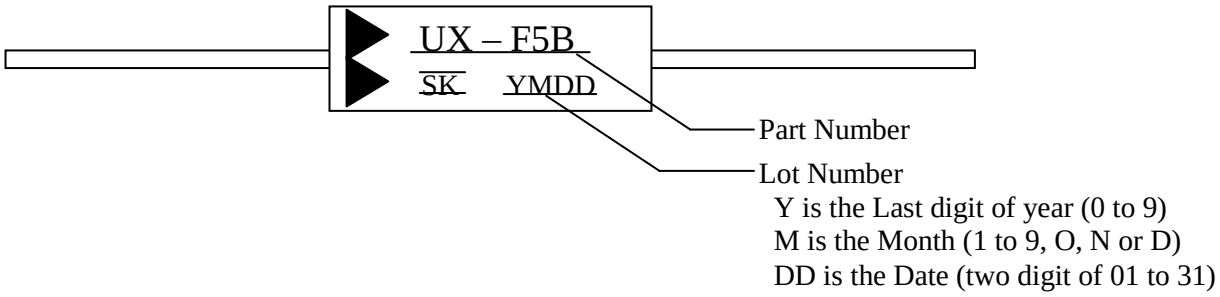
Axial (□7/φ1.2)



NOTES:

1) Dimension is in millimeters
2) Pb-free. Device composition compliant with the RoHS directive

Marking Diagram



Y is the Last digit of year (0 to 9)
M is the Month (1 to 9, O, N or D)
DD is the Date (two digit of 01 to 31)

OPERATING PRECAUTIONS

In the case that you use Sanken products or design your products by using Sanken products, the reliability largely depends on the degree of derating to be made to the rated values. Derating may be interpreted as a case that an operation range is set by derating the load from each rated value or surge voltage or noise is considered for derating in order to assure or improve the reliability. In general, derating factors include electric stresses such as electric voltage, electric current, electric power etc., environmental stresses such as ambient temperature, humidity etc. and thermal stress caused due to self-heating of semiconductor products. For these stresses, instantaneous values, maximum values and minimum values must be taken into consideration. In addition, it should be noted that since power devices or IC's including power devices have large self-heating value, the degree of derating of junction temperature affects the reliability significantly.

Because reliability can be affected adversely by improper storage environments and handling methods, please observe the following cautions.

Cautions for Storage

- Ensure that storage conditions comply with the standard temperature (5 to 35°C) and the standard relative humidity (around 40 to 75%); avoid storage locations that experience extreme changes in temperature or humidity.
- Avoid locations where dust or harmful gases are present and avoid direct sunlight.
- Reinspect for rust on leads and solderability of the products that have been stored for a long time.

Cautions for Testing and Handling

When tests are carried out during inspection testing and other standard test periods, protect the products from power surges from the testing device, shorts between the product pins, and wrong connections. Ensure all test parameters are within the ratings specified by Sanken for the products.

Soldering

- When soldering the products, please be sure to minimize the working time, within the following limits:
  - 260 ± 5 °C 10 ± 1 s (Flow, 2 times)
  - 380 ± 10 °C 3.5 ± 0.5 s (Soldering iron, 1 time)
- Soldering should be at a distance of at least 1.5 mm from the body of the products.

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