

**GLASS PASSIVATED SUPER FAST RECTIFIER**  
**VOLTAGE RANGE 50 to 200 Volts CURRENT 2.0 Ampere**

**FEATURES**

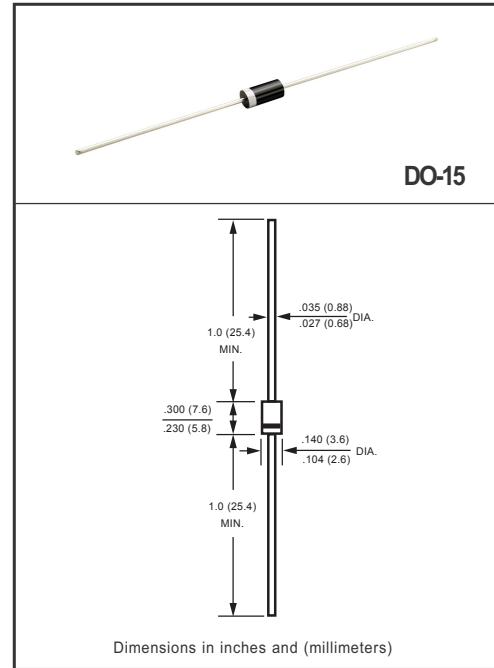
- \* Glass passivated device
- \* For surface mounted applications
- \* Ultrafast recovery times for high efficiency
- \* Low forward voltage, low power loss
- \* Low leakage current

**MECHANICAL DATA**

- \* Epoxy: Device has UL flammability classification 94V-0
- \* Metallurgically bonded construction
- \* Mounting position: Any
- \* Weight: 0.40 gram

**MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS**

Ratings at 25 °C ambient temperature unless otherwise specified.  
Single phase, half wave, 60 Hz, resistive or inductive load.



**MAXIMUM RATINGS (@ TA=25 °C unless otherwise noted)**

RATINGS	SYMBOL	USF21	USF22	USF23	USF24	UNITS
Maximum Recurrent Peak Reverse Voltage	$V_{RRM}$	50	100	150	200	Volts
Maximum RMS Voltage	$V_{RMS}$	35	70	105	140	Volts
Maximum DC Blocking Voltage	$V_{DC}$	50	100	150	200	Volts
Maximum Average Forward Rectified Current at $T_A = 55^\circ\text{C}$	$I_O$	2.0				Amps
Peak Forward Surge Current 8.3 ms single half sine-wave superimposed on rated load (JEDEC method)	$I_{FSM}$	75				Amps
Current Squared Time	$I^2T$	23.3				A <sup>2</sup> /Sec
Typical Thermal Resistance (Note 1)	$R_{\theta JA}$	45				°C/W
Typical Thermal Resistance (Note 1)	$R_{\theta JL}$	12				°C/W
Typical Junction Capacitance (Note 2)	$C_J$	18				pF
Operating Temperature Range	$T_J$	150				°C
Storage Temperature Range	$T_{STG}$	-55 to + 150				°C

**ELECTRICAL CHARACTERISTICS (@TA=25 °C unless otherwise noted)**

CHARACTERISTICS	SYMBOL	USF21	USF22	USF23	USF24	UNITS
Maximum Instantaneous Forward Voltage at 2.0A DC	$V_F$	0.95				Volts
Maximum Average Reverse Current at Rated DC Blocking Voltage	@ $T_A = 25^\circ\text{C}$	5				$\mu\text{A}$
	@ $T_A = 100^\circ\text{C}$	350				$\mu\text{A}$
Maximum Reverse Recovery Time (Note 4)	$t_{rr}$	20				nSec

- NOTES : 1. Thermal Resistance :At 9.5mm lead length, PCB mounted.  
2. Measured at 1 MHz and applied reverse voltage of 4.0 volts.  
3. " ROHS compliant"  
4. Test Conditions:  $I_F = 0.5\text{A}$ ,  $I_R = -1.0\text{A}$ ,  $I_{RR} = -0.25\text{A}$ .

## RATING AND CHARACTERISTICS CURVES ( USF21 THRU USF24 )

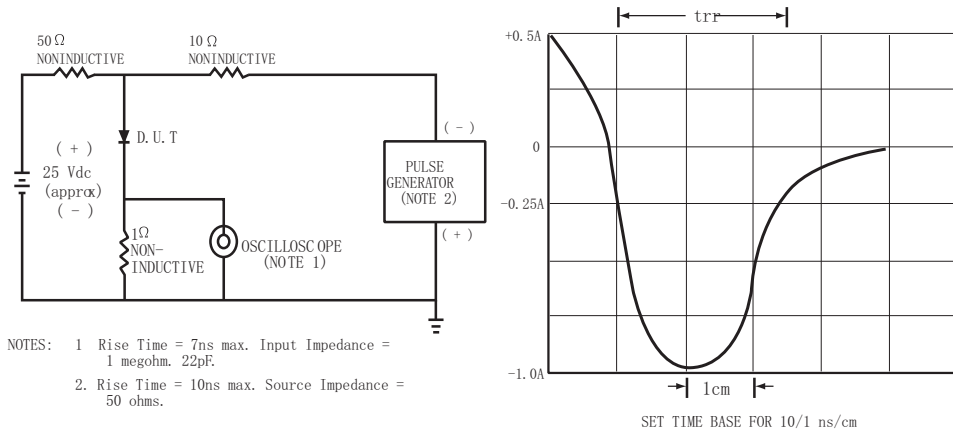


FIG. 1 TEST CIRCUIT DIAGRAM AND REVERSE RECOVERY TIME CHARACTERISTIC

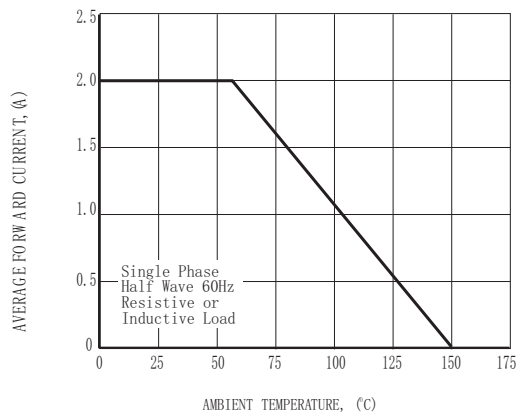


FIG. 2 TYPICAL FORWARD CURRENT DERATING CURVE

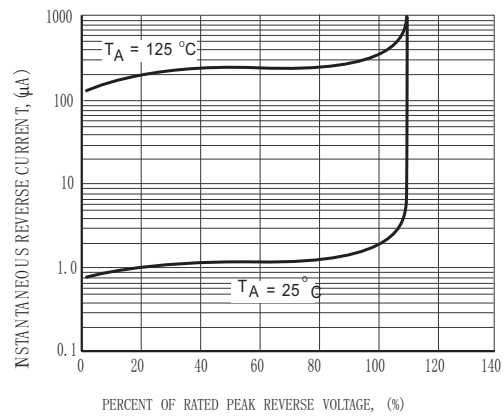
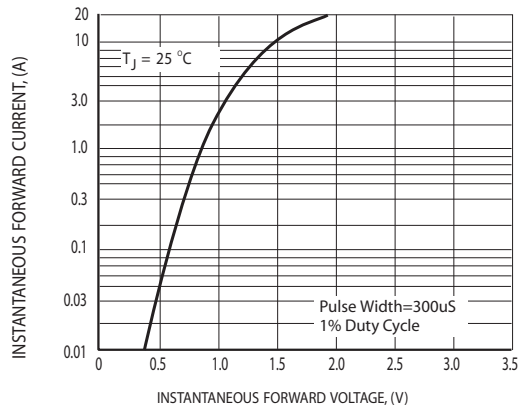
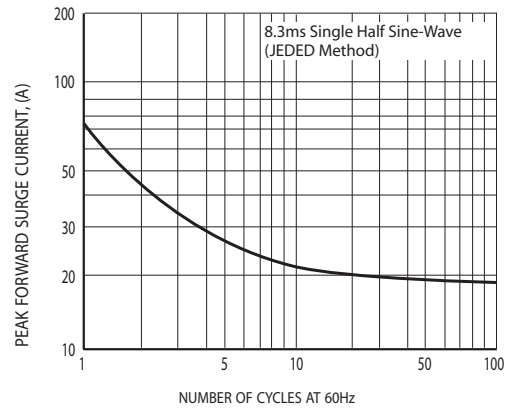


FIG. 3 TYPICAL REVERSE CHARACTERISTICS

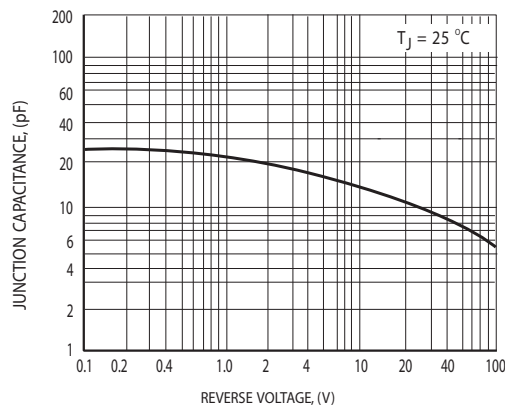
## RATING AND CHARACTERISTICS CURVES ( USF21 THRU USF24 )



**FIG.4 TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS**

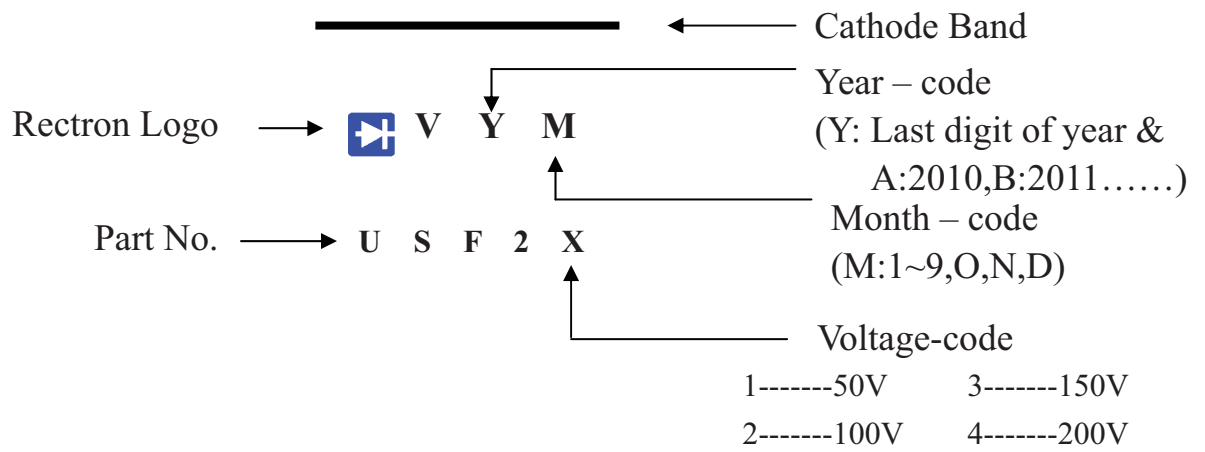


**FIG.5 MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT**



**FIG.6 TYPICAL JUNCTION CAPACITANCE**

## Marking Description



## PACKAGING OF DIODE AND BRIDGE RECTIFIERS

### BULK PACK

PACKAGE	PACKING CODE	EA PER BOX	INNER BOX SIZE (mm)	CARTON SIZE (mm)	EA PER CARTON	GROSS WEIGHT(Kg)
DO-15	-B	500	194*84*21	415*220*255	25,000	12.74

### REEL PACK

PACKAGE	PACKING CODE	EA PER REEL	EA PER INNER BOX	COMPONENT SPACE (mm)	TAPE SPACE (mm)	REEL DIA (mm)	CARTON SIZE (mm)	EA PER CARTON	GROSS WEIGHT(Kg)
DO-15	-T	4,000	4,000	5.0	52	330	355*350*335	16,000	10.05

### AMMO PACK

PACKAGE	PACKING CODE	REEL ( EA )	COMPONENT SPACE(mm)	TAPE SPACE (mm)	BOX SIZE (mm)	CARTON SIZE(mm)	CARTON ( EA )	GROSS WEIGHT (Kg)
DO-15	-F	1,500	5.0	52	255*73*100	400*268*225	15,000	8.8