

**FAST RECOVERY RECTIFIER**

**VOLTAGE RANGE 50 to 1000 Volts CURRENT 6.0 Amperes**

**FEATURES**

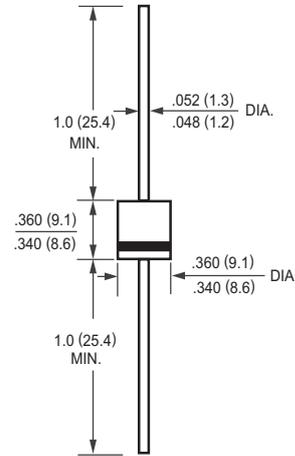
- \* Fast switching
- \* Low leakage
- \* Low forward voltage drop
- \* High current capability
- \* High current surge
- \* High reliability

**MECHANICAL DATA**

- \* Case: Molded plastic
- \* Epoxy: Device has UL flammability classification 94V-O
- \* Lead: MIL-STD-202E method 208C guaranteed
- \* Mounting position: Any
- \* Weight: 2.08 grams



**R-6**



Dimensions in inches and (millimeters)

**MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS**

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

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

RATINGS	SYMBOL	FR601	FR602	FR603	FR604	FR605	FR606	FR607	UNITS
Maximum Recurrent Peak Reverse Voltage	VRRM	50	100	200	400	600	800	1000	Volts
Maximum RMS Voltage	VRMS	35	70	140	280	420	560	700	Volts
Maximum DC Blocking Voltage	VDC	50	100	200	400	600	800	1000	Volts
Maximum Average Forward Rectified Current at TA = 75°C	IO	6.0							Amps
Peak Forward Surge Current 8.3 ms single half sine-wave superimposed on rated load (JEDEC method)	IFSM	300							Amps
Typical Current Squared Time	i <sup>2</sup> T	374							A <sup>2</sup> S
Typical Junction Capacitance (Note 2)	CJ	150							pF
Operating and Storage Temperature Range	TJ, TSTG	-55 to + 150							°C

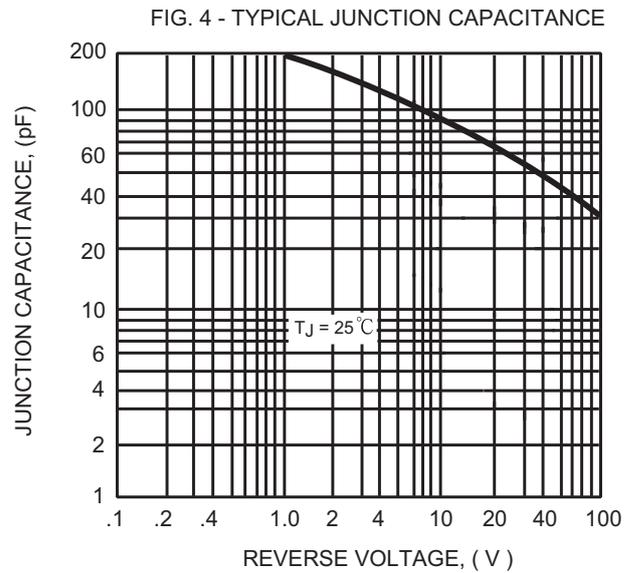
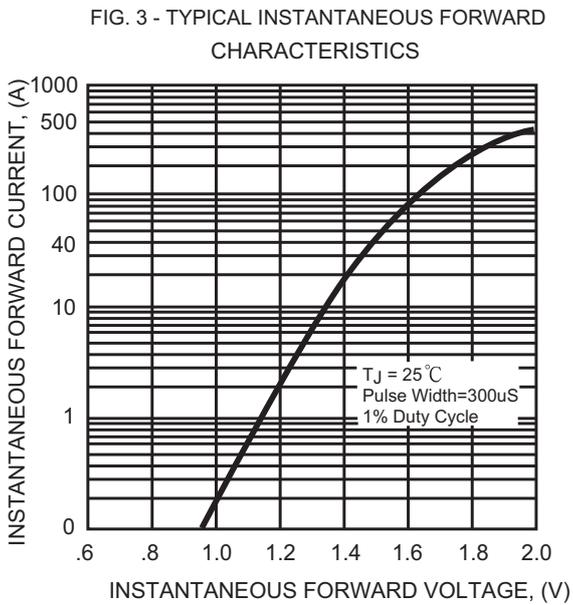
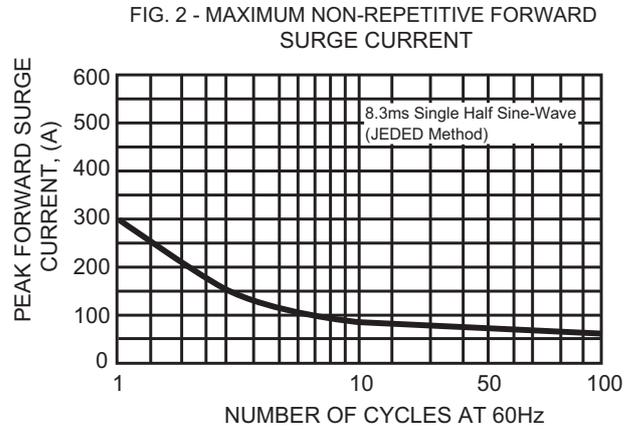
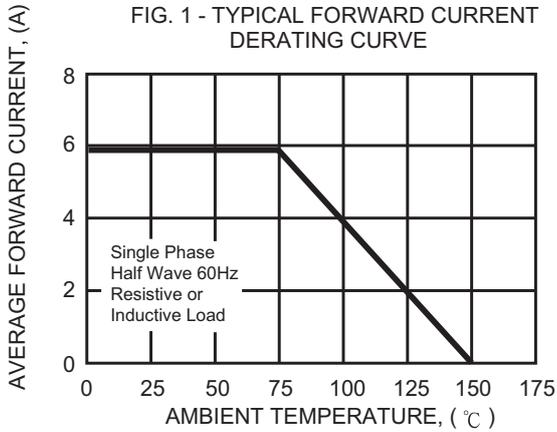
**ELECTRICAL CHARACTERISTICS** (At TA = 25°C unless otherwise noted)

CHARACTERISTICS	SYMBOL	FR601	FR602	FR603	FR604	FR605	FR606	FR607	UNITS
Maximum Instantaneous Forward Voltage at 6.0A DC	VF	1.3							Volts
Maximum DC Reverse Current at Rated DC Blocking Voltage TA = 25°C	IR	10							uAmps
Maximum Full Load Reverse Current Average, Full Cycle .375" (9.5mm) lead length at TL = 55°C		150							uAmps
Maximum Reverse Recovery Time (Note 1)	trr	150			250		500		nSec

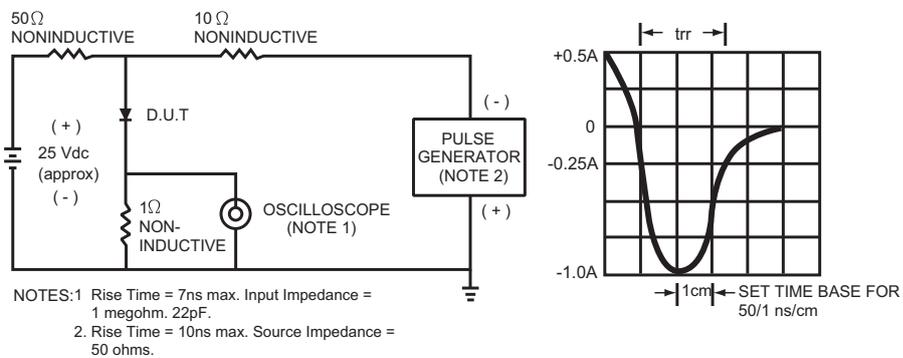
NOTES : 1. Test Conditions: IF = 0.5A, IR = -1.0A, IRR = -0.25A  
2. Measured at 1 MHz and applied reverse voltage of 4.0 volts

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## RATING AND CHARACTERISTIC CURVES ( FR601 THRU FR607 )



**FIG. 5 - TEST CIRCUIT DIAGRAM AND REVERSE RECOVERY TIME CHARACTERISTIC**



# AXIAL LEAD TAPING SPECIFICATIONS FOR RECTIFIERS

Axial lead devices are packed in accordance with EIA standard RS-296-D and specifications given below.

COMPONENT OUTLINE	COMPONENT PITCH A	INNER TAPE PITCH B		CUMULATIVE PITCH TOLERANCE
	$\pm 0.5\text{mm} (.020")$	$\pm 0.5\text{mm} (.020")$	$\pm 1.5\text{mm} (.059")$	
T-1	5.0mm	26.0mm		2.0mm/20pitch
R-1	5.0mm	26.0mm		2.0mm/20pitch
R-1	5.0mm		52.4mm	2.0mm/20pitch
A-405	5.0mm	26.0mm		2.0mm/20pitch
A-405	5.0mm		52.4mm	2.0mm/20pitch
DO-41	5.0mm	26.0mm		2.0mm/20pitch
DO-41	5.0mm		52.4mm	2.0mm/10pitch
DO-15	5.0mm		52.4mm	2.0mm/10pitch
R-3	5.0mm		52.4mm	2.0mm/10pitch
DO-201AD	10.0mm		52.4mm	2.0mm/10pitch
R-6	10.0mm		52.4mm	2.0mm/10pitch
1.5KE	10.0mm		52.4mm	2.0mm/10pitch

Note: -E for 26mm inner tape pitch  
-F & -T for 52mm inner tape pitch

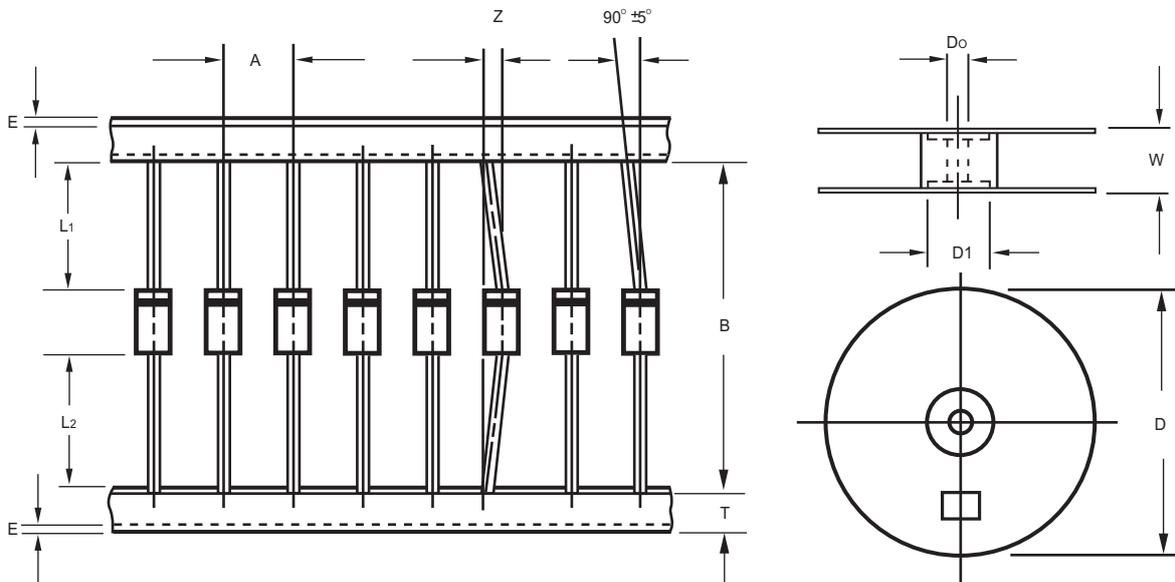


Fig.: Configuration of AXIAL LEAD TAPING

ITEM	SYMBOL	SPECIFICATIONS (mm)	SPECIFICATIONS (inch)
Component alignment	Z	1.2 Max.	0.048 Max.
Tape width	T	6.0 ± 0.4	0.236 ± 0.016
Exposed adhesive	E	0.8 Max.	0.032 Max.
Body eccentricity	L1-L2	1.0 Max.	0.040 Max.
Reel outside diameter	D	330.0	13.0
Reel inner diameter	D1	85.7 ± 0.3	3.375 ± 0.012
Feed hole diameter	Do	30.5 ± 0.4	1.201 ± 0.016
Reel width	W	79.0 ± 1.0	3.110 ± 0.040

Notes : 1. Each component lead shall be sandwiched between tapes for a minimum of 3.2mm (0.126").  
2. The reel width "W" for 26mm taping is 50.0 ± 1.0mm (1.97" ± 0.040").

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# PACKAGING OF DIODE AND BRIDGE RECTIFIERS

## REEL PACK

PACKAGE	PACKING CODE	EA PER REEL	COMPONENT SPACE(mm)	TAPE SPACE (mm)	REEL DIA (mm)	CARTON SIZE (mm)	EA PER CARTON	GROSS WEIGHT(Kg)
R-1	-T	5,000	5.0	52	330	355*350*335	20,000	7.37
A-405	-T	5,000	5.0	52	330	355*350*335	20,000	8.13
DO-41	-T	5,000	5.0	52	330	355*350*335	20,000	10.49
DO-15	-T	4,000	5.0	52	330	355*350*335	16,000	10.05
R-3	-T	3,000	5.0	52	330	355*350*335	12,000	10.60
DB	-T	1,000	9.5	52	176	355*360*350	8,000	9.80
DO-201	-T	1,200	9.5	52	330	355*350*335	4,800	9.10
R-6	-T	500	9.5	52	330	355*350*335	2,000	7.5
3KP28A	-T	500	9.5	52	330	355*350*335	2,000	7.5
SMA	-T	1,500	---	---	178	390*205*310	48,000	8.40
SMA	-W	5,000	---	---	330	355*360*350	80,000	14.20
MELF	-T	1,500	---	---	178	390*205*310	48,000	11.20
MELF	-W	5,000	---	---	330	355*360*350	80,000	19.60
MD	-T	500	---	---	178	390*205*310	16,000	---
MD	-W	3,000	---	---	330	355*360*350	48,000	15.50
SMB	-T	500	---	---	178	390*205*310	16,000	---
SMB	-W	3,000	---	---	330	355*360*350	48,000	13.90
SMC	-T	500	---	---	176	390*205*310	12,000	6.65
SMC	-W	3,000	---	---	330	355*360*350	24,000	11.50
SMX	-T	1,500	---	---	330	390*205*310	48,000	---
SMX	-W	5,000	---	---	180	355*360*350	80,000	15.20
1.5KE	-T	1,200	10.0	52.4	330	355*360*350	4,800	8.05
SOD-123F/ SOD-123FL	-W	2,500	---	---	178	390*205*310	100,000	5.804

## AMMO PACK

PACKAGE	PACKING CODE	REEL ( EA )	COMPONENT SPACE(mm)	TAPE SPACE (mm)	BOX SIZE (mm)	CARTON SIZE(mm)	CARTON ( EA )	GROSS WEIGHT (Kg)
R-1	-F	3,000	5.0	52	255*73*100	400*268*225	30,000	8.5
A-405	-F	3,000	5.0	52	255*73*100	400*268*225	30,000	9.6
DO-41	-F	3,000	5.0	52	255*73*100	400*268*225	30,000	13.0
DO-15	-F	1,500	5.0	52	255*73*100	400*268*225	15,000	8.8
R-3	-F	1,500	5.0	52	255*73*100	400*268*225	15,000	11.2
DO-201	-F	600	9.5	52	255*73*100	400*268*225	6,000	9.9
R-6	-F	300	9.5	52	255*73*100	400*268*225	3,000	8.5
R-1	-E	3,000	5.0	26	256*48*94	365*270*217	42,000	8.35
A-405	-E	3,000	5.0	26	256*48*94	365*270*217	42,000	9.61
DO-41	-E	3,000	5.0	26	256*48*94	365*270*217	42,000	12.41
R-1	-J	3,000	12.7	---	325*170*40	355*350*335	42,000	13.93
R-1	-I	2,000	12.7	---	325*170*40	355*350*335	28,000	9.69
A405	-N	2,000	12.7	---	325*170*40	355*350*335	28,000	11.41

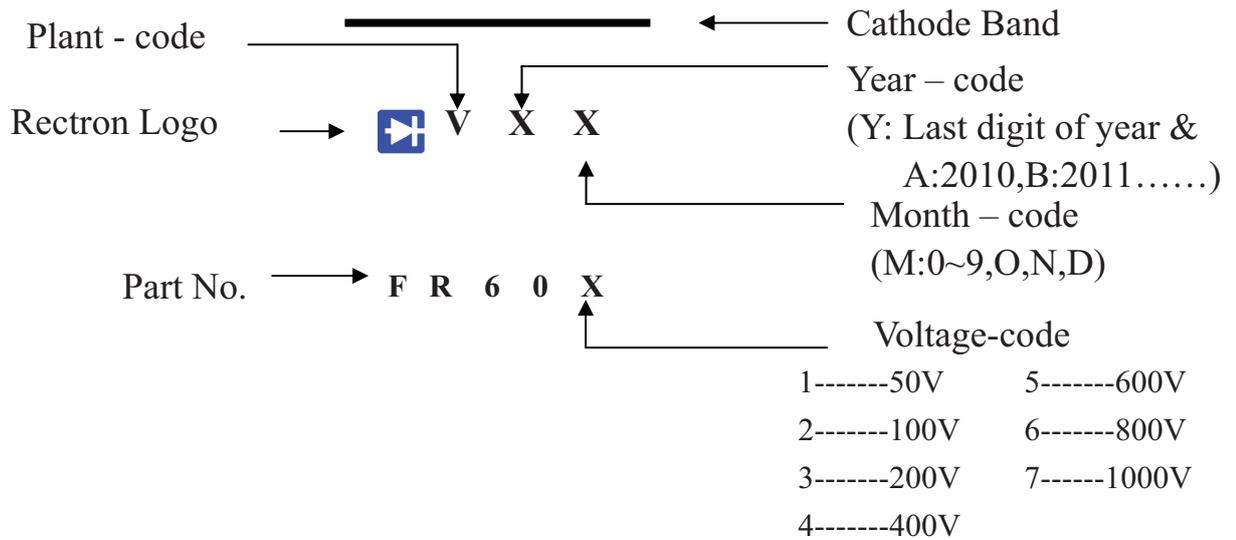


## Attachment information about FR60X

### 1. Internal Circuit



### 2. Marking on the body





## **Attachment information about FR60X**

### **5. Items marked on the reel box and carton**

#### **5.1 On the reel (for -T)**

**CUSTOMER**

**TYPE**

**QUANTITY**

**LOT NO.**

**Q.A.**

**REMARK**

#### **5.2 On the box (for -E & -F)**

**TYPE**

**QUANTITY**

**LOT NO.**

**Q.A.**

#### **5.3 On the carton**

**CUSTOMER**

**TYPE**

**QUANTITY**

**LOT NO.**

**REMARK**

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