

FAST RECOVERY RECTIFIER

VOLTAGE RANGE 50 to 1000 Volts CURRENT 3.0 Amperes

FEATURES

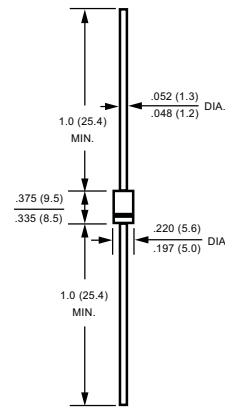
- * Fast switching
- * Low leakage
- * Low forward voltage drop
- * High current capability
- * High surge capability
- * High reliability

MECHANICAL DATA

- * Case: Molded plastic
- * Epoxy: Device has UL flammability classification 94V-0
- * Lead: MIL-STD-202E method 208C guaranteed
- * Mounting position: Any
- * Weight: 1.18 grams



DO-201AD



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 (@ TA=25 °C unless otherwise noted)

RATINGS	SYMBOL	FR301	FR302	FR303	FR304	FR305	FR305P	FR306	FR307	FR307P	UNITS
Maximum Recurrent Peak Reverse Voltage	V _{RRM}	50	100	200	400	600	600	800	1000	1000	Volts
Maximum RMS Voltage	V _{RMS}	35	70	140	280	420	420	560	700	700	Volts
Maximum DC Blocking Voltage	V _{DC}	50	100	200	400	600	600	800	1000	1000	Volts
Maximum Average Forward Rectified Current at T _A = 75 °C	I _O	3.0									Amps
Peak Forward Surge Current 8.3 ms single half sine-wave superimposed on rated load (JEDEC method)	I _{FSM}	200									Amps
Typical Current Squared Time	I ² _t	167									A ² /Sec
Typical Thermal Resistance (Note 3)	R _{θJA}	30									°C/W
	R _{θJL}	13									
Typical Junction Capacitance (Note 2)	C _J	65									pF
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to + 150									°C

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

CHARACTERISTICS	SYMBOL	FR301	FR302	FR303	FR304	FR305	FR305P	FR306	FR307	FR307P	UNITS	
Maximum Instantaneous Forward Voltage at 3.0A DC	V _F	1.3										Volts
Maximum DC Reverse Current at Rated DC Blocking Voltage	I _R	@T _A = 25 °C										uAmps
		@T _A = 125 °C										mAmps
Maximum Reverse Recovery Time (Note 1)	t _{rr}	150			250		150	500		250	nSec	

- NOTES : 1. Test Conditions: I_F = 0.5A, I_R = -1.0A, I_{RR} = -0.25A
 2. Measured at 1 MHz and applied reverse voltage of 4.0 volts.
 3. Typical Thermal Resistance : At 9.5mm lead lengths,PCB mounted.
 4. "Fully ROHS compliant", "100% Sn plating (Pb-free)"

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RATING AND CHARACTERISTICS CURVES (FR301 THRU FR307P)

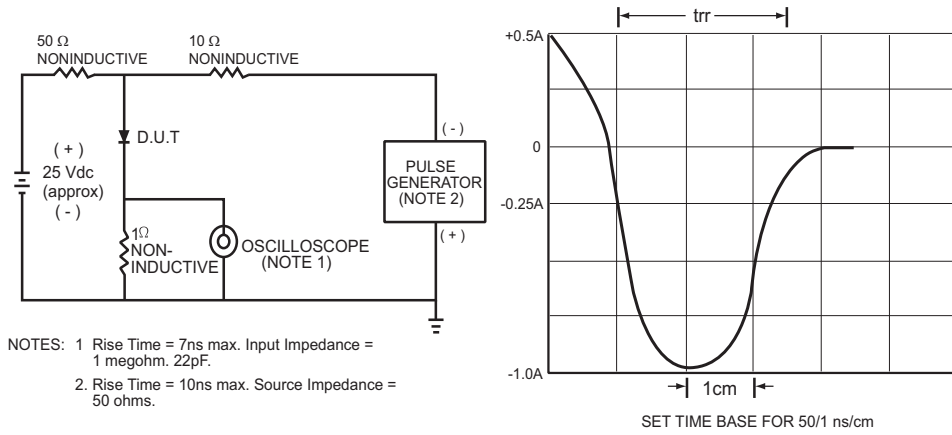


FIG.1 TEST CIRCUIT DIAGRAM AND REVERSE RECOVERY TIME CHARACTERISTIC

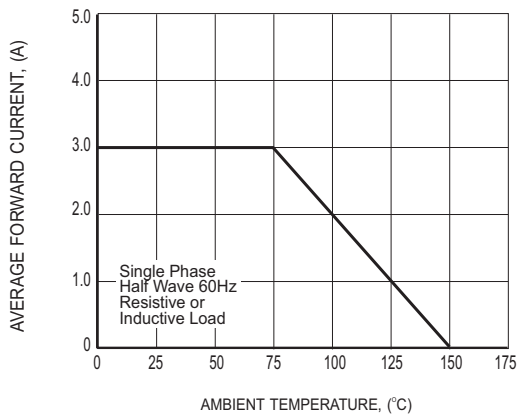


FIG.2 TYPICAL FORWARD CURRENT DERATING CURVE

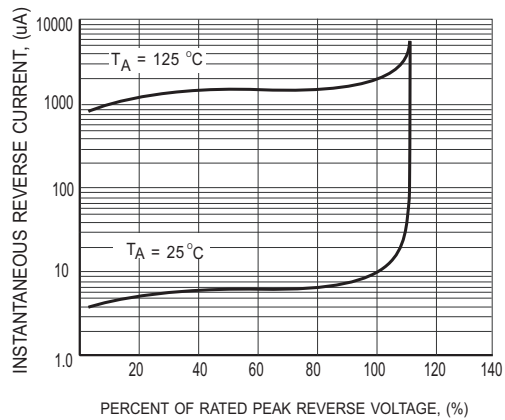


FIG.3 MAXIMUM REVERSE CHARACTERISTICS

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RATING AND CHARACTERISTICS CURVES (FR301 THRU FR307P)

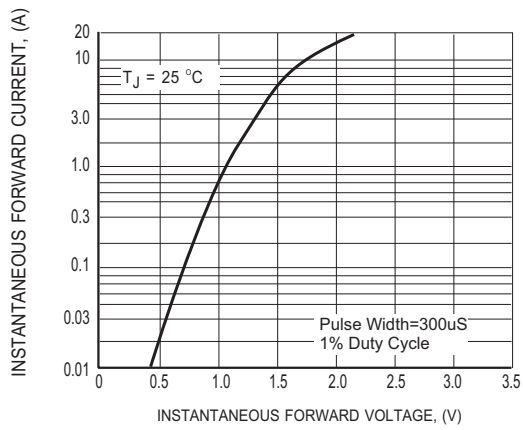


FIG.4 MAXIMUM INSTANTANEOUS FORWARD CHARACTERISTICS

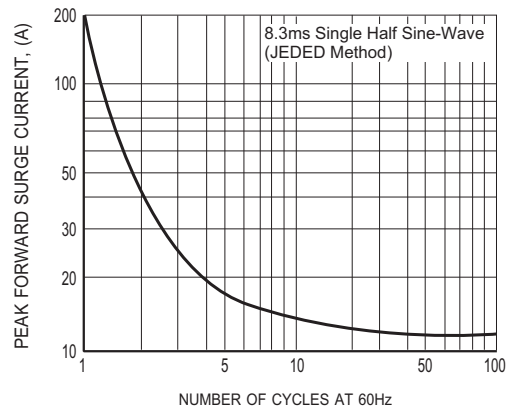


FIG.5 MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

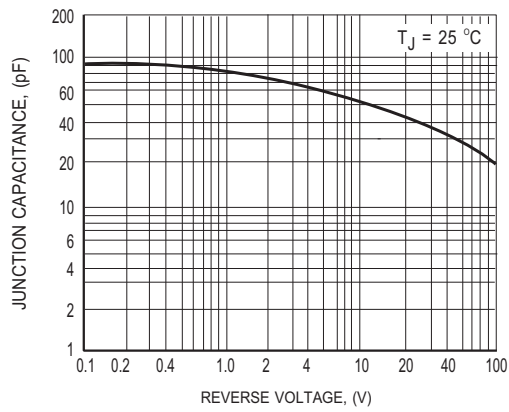


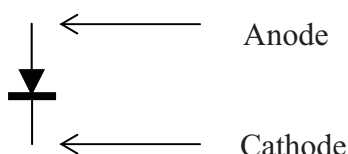
FIG.6 TYPICAL JUNCTION CAPACITANCE



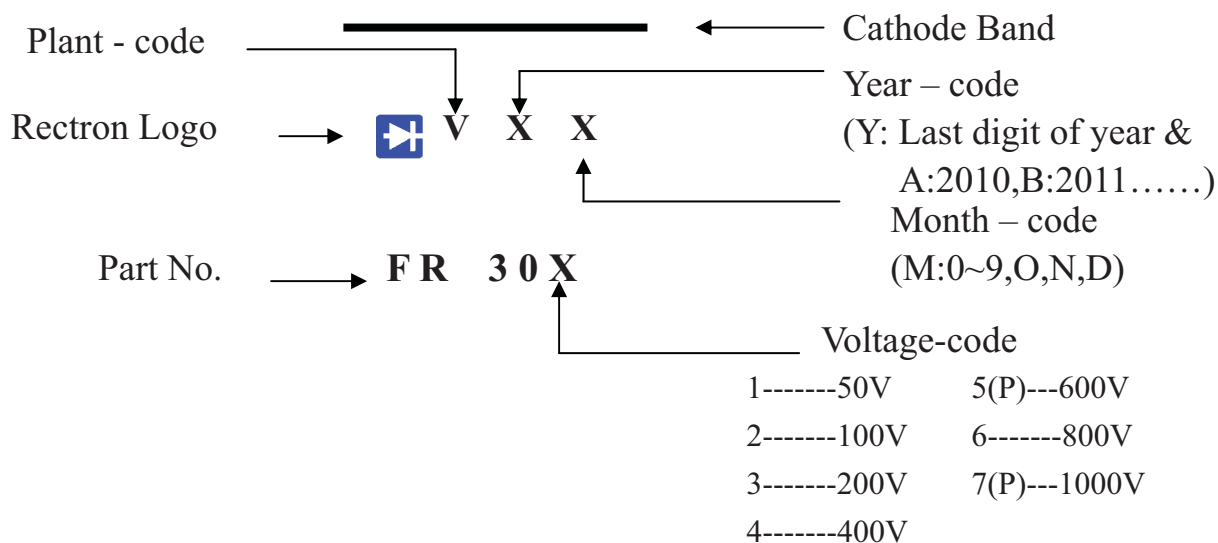


Attachment information about FR30X

1. Internal Circuit



2. Marking on the body



3. The net weight 1180mg / pcs

4. Taping packaging specification

4.1 All polarized components must be oriented in one direction.

4.2 For diode, at least one side of the cathode lead tape should be red, and anode lead tape should be white.

4.3 A minimum 300 mm (12") leader shall be provided at each end of the reel.

4.4 Staples shall not be used for splicing. Splice length shall be 4.0 inches minimum and shall not be misaligned more than 0.8mm.

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

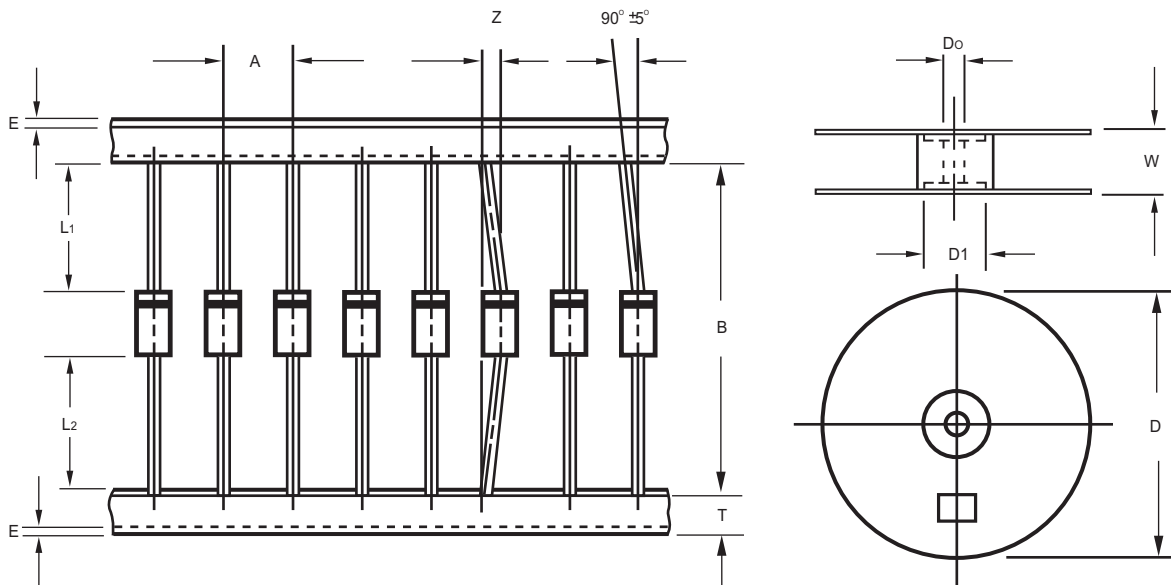


Fig.: Configuration of AXIAL LEAD TAPING

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 $50.0 \pm 1.0\text{mm} (1.97" \pm 0.040")$.

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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

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