300U(R)

Standard Recovery Diodes

STUD VERSION

Liujing rectifier co., Ltd.

FEATURES

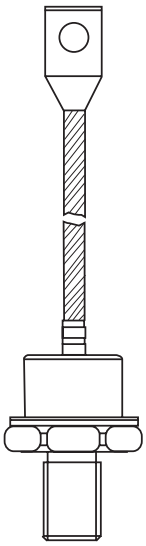
1). Alloy diode
2). Peak reverse voltage up to 1000V
3). Popular series for rough service
4). Standard JEDEC types
5). Stud cathode and stud anode version

TYPICAL APPLICATIONS

1). Welders
2).Power supplies
3).Motor controls
4).Battery chargers
5).General industrial current rectification

MAJOR RATINGS AND CHARACTERISTICS

Parameters		300U(R)	UNIT
$I_{F(AV)}$		300	A
	@ TC	130	℃
I_{FSM}	@ 50Hz	6550	A
	@ 60Hz	6850	A
I^2t	@ 50Hz	214	KA2s
	@ 60Hz	195	KA2s
V_{RRM}	range	50 to 1000	V
T_J	range	-65 to 200	℃



ELECTRICAL SPECIFICATIONS

1). Voltage Ratings

Type number	Voltage Code	V_{RRM}, maximum repetitive peak reverse voltage	V_{RSM}, maximum non-repetitive peak reverse voltage	I_{RRM} max. T_J = 175℃
		V	V	mA
300U(R)	5	50	100	40
	10	100	200	40
	20	200	300	40
	30	300	400	40
	40	400	500	40
	60	600	720	40
	80	800	960	35
	100	1000	1200	30

* Also available as JEDEC series: 1N3735 through 1N3743; 1N2054 through 1N2068; 1N4044 through 1N4056.

2). Forward Conduction

Parameters		6F(R)	Unit	Conditions		
$I_{F(AV)}$	Max. average forward current	300	A	180° conduction, half sine wave		
	@ Case temperature	130	℃			
I_{FSM}	Max. peak, one-cycle forward, non-repetitive surge current	6550	A	t = 10ms	No voltage reapplied	Sinusoidal half wave, Initial $T_J = T_J$ max.
		6850		t = 8.3ms		
		5500		t = 10ms	100% V_{RRM} reapplied	
		5750		t = 8.3ms		
I^2t	Maximum I^2t for fusing	214	KA^2s	t = 10ms	No voltage reapplied	
		195		t = 8.3ms		
		151		t = 10ms	100% V_{RRM} reapplied	
		138		t = 8.3ms		
$I^2\sqrt{t}$	Maximum $I^2\sqrt{t}$ for fusing	2140	$KA^2\sqrt{s}$	t = 0.1 to 10ms, no voltage reapplied		
$V_{F(TO)}$	Max. value of threshold voltage	0.610	V	T_J = 200℃		
r_f	Max. value of forward slope resistance	0.751	mΩ			
V_{FM}	Max. peak forward voltage	--	V	(I_{FM} x π x $I_{F(AV)}$ (785A peak), T_J = 25℃		
		1.40	V	(I_{FM} x π x $I_{F(AV)}$ (942A peak), T_J = 25℃		
T_J	Max. junction operating temperature range	-65 to 200	℃			
T_{stg}	Max. storage temperature range	-65 to 200				
R_{thJC}	Max. thermal resistance, junction to case	0.18	K/W	DC operation		
R_{thCS}	Max. thermal resistance, case to heatsink	0.08		Mounting surface, smooth, flat and greased		
T	Mounting torque, ± 10%	37	Nm	Not lubricated threads		
		28		Lubricated threads		
wt	Approximate weight	250	g			
	Case style	DO-9		See Outline Table		

ΔR_{thJC} Conduction

(The following table shows the increment of thermal resistence R_{thJC} when devices operate at different conduction angles than DC)

Conduction angle	Sinusoidal conduction	Rectangular conduction	Units	Conditions
180°	0.020	0.015	K/W	$T_J = T_J$ max.
120°	0.024	0.025		
90°	0.031	0.034		
60°	0.045	0.047		
30°	0.077	0.077		

PERFORMANCE CURVES FIGURE

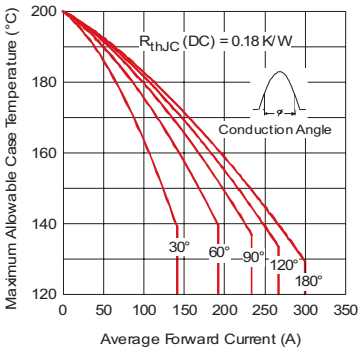


Fig. 1 - Current Ratings Characteristics

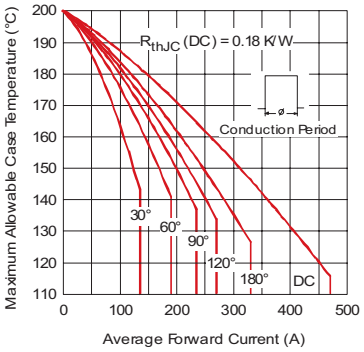


Fig. 2 - Current Ratings Characteristics

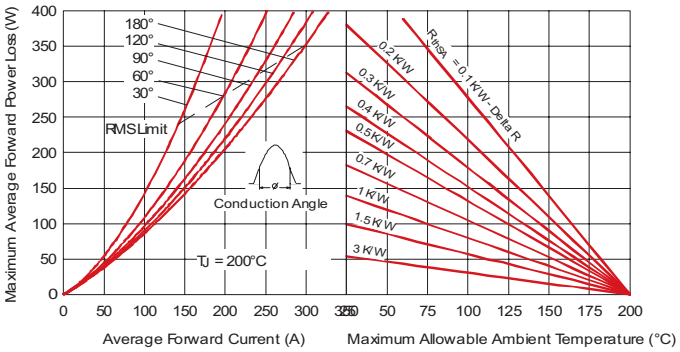


Fig. 3 - Forward Power Loss Characteristics

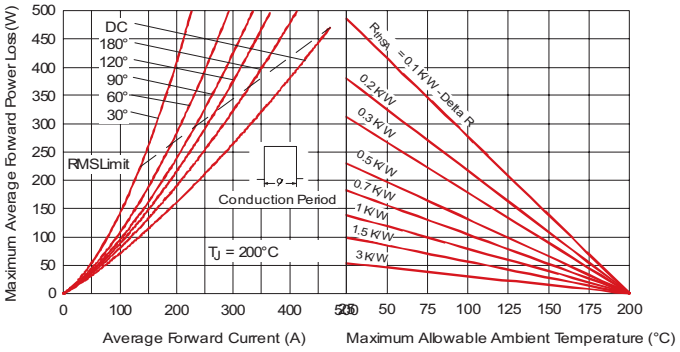


Fig. 4 - Forward Power Loss Characteristics

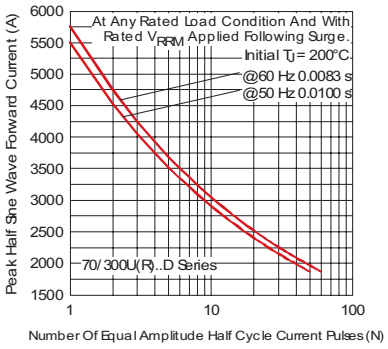


Fig. 5 - Maximum Non-Repetitive Surge Current

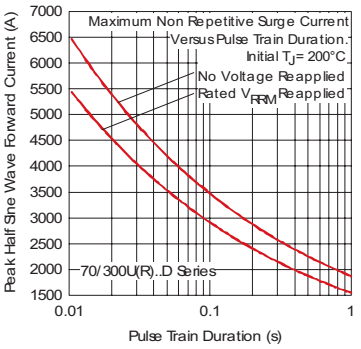


Fig. 6 - Maximum Non-Repetitive Surge Current

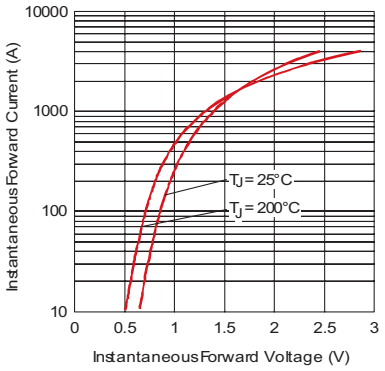


Fig. 7 - Forward Voltage Drop Characteristics

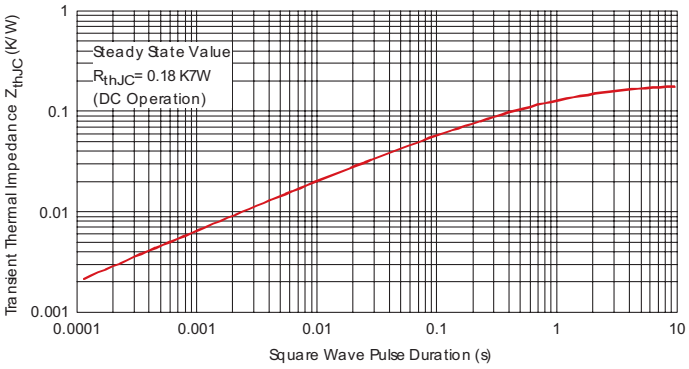
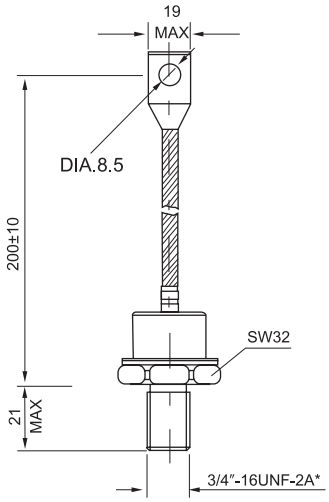


Fig. 8 - Thermal Impedance Z_{thJC} Characteristic

OUTLINE



*FOR METRIC DEVICE:M16×1.5/M20×1.5

Case Style DO-8

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