Bulletin I2032 rev. A 12/94

International
IOR Rectifier

301U(R) SERIES

STANDARD RECOVERY DIODES **Stud Version**

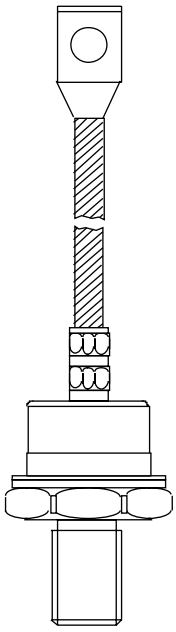
300A

Features

- Wide current range
- High voltage ratings up to 2500V
- High surge current capabilities
- Stud cathode and stud anode version

TypicalApplications

- Converters
- Power supplies
- Machine tool controls
- High power drives
- Medium traction applications



case style
DO-205AB (DO-9)

Major Ratings and Characteristics

Parameters		301U(R)		Units
		80 to 200	250	
$I_{F(AV)}$		330	300	A
	@ T_C	120	120	°C
$I_{F(RMS)}$		520	470	A
I_{FSM}	@ 50Hz	8250	6050	A
	@ 60Hz	8640	6335	A
I^2t	@ 50Hz	340	183	KA^2s
	@ 60Hz	311	167	KA^2s
V_{RRM} range		800 to 2000	2500	V
T_J		- 40 to 180	- 40 to 180	°C

ELECTRICAL SPECIFICATIONS

Voltage Ratings

Type number	Voltage Code	V_{RRM} , maximum repetitive peak reverse voltage V	V_{RSM} , maximum non-repetitive peak rev. voltage V	I_{RRM} max. @ $T_J = T_J$ max. mA
301U(R)	80	800	900	15
	120	1200	1300	
	160	1600	1700	
	200	2000	2100	
	250	2500	2600	

Forward Conduction

Parameter		301U(R) 80 to 200	301U(R) 250	Units	Conditions		
$I_{F(AV)}$	Max. average forward current	330	300	A	180° conduction, half sine wave		
	@ Case temperature	120	120	°C			
$I_{F(RMS)}$	Max. RMS forward current	520	470	A	DC @ T_C = 115°C (08 to 20), T_C = 102°C (25)		
I_{FSM}	Max. peak, one-cycle forward, non-repetitive surge current	8250	6050	A	t = 10ms	No voltage reapplied	Sinusoidal half wave, Initial $T_J = T_J$ max.
		8640	6335		t = 8.3ms		
		6940	5090		t = 10ms	100% V_{RRM} reapplied	
		7270	5330		t = 8.3ms		
I^2t	Maximum I^2t for fusing	340	183	KA^2s	t = 10ms	No voltage reapplied	
		311	167		t = 8.3ms		
		241	129		t = 10ms	100% V_{RRM} reapplied	
		220	118		t = 8.3ms		
$I^2\sqrt{t}$	Maximum $I^2\sqrt{t}$ for fusing	3400	1830	$KA^2\sqrt{s}$	t = 0.1 to 10ms, no voltage reapplied		
$V_{F(TO)1}$	Low level value of threshold voltage	0.77	0.90	V	(16.7% x π x $I_{F(AV)}$ < I < π x $I_{F(AV)}$), $T_J = T_J$ max.		
$V_{F(TO)2}$	High level value of threshold voltage	0.84	0.97		(I > π x $I_{F(AV)}$), $T_J = T_J$ max.		
r_{f1}	Low level value of forward slope resistance	0.49	0.59	mΩ	(16.7% x π x $I_{F(AV)}$ < I < π x $I_{F(AV)}$), $T_J = T_J$ max.		
r_{f2}	High level value of forward slope resistance	0.49	0.55		(I > π x $I_{F(AV)}$), $T_J = T_J$ max.		
V_{FM}	Max. forward voltage drop	1.22	1.46	V	I_{pk}= 942A, $T_J = T_J$ max, t_p = 10ms sinusoidal wave		

Thermal and Mechanical Specifications

	Parameter		301U(R)	Units	Conditions
T_J	Max. junction operating temperature range		-40 to 180	°C	
T_{stg}	Max. storage temperature range		-40 to 200		
R_{thJC}	Max. thermal resistance, junction to case		0.14	K/W	DC operation
R_{thCS}	Max. thermal resistance, case to heatsink		0.08		Mounting surface, smooth, flat and greased
T	Max. allowed mounting torque +0 -20%		37	Nm	Not lubricated threads
			28		Lubricated threads
wt	Weight	301U	250 ± 5	g	
		303U	152 ± 5		
		305U	177 ± 5		
		307U	197 ± 5		
		309U	160 ± 5		
	Case style		DO-205AB (DO-9)		See Outline Table

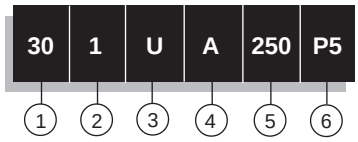
ΔR_{thJC} Conduction

(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
	80 to 200	250	00 to 200	250		
180°	0.015	0.015	0.011	0.011	K/W	$T_J = T_J$ max.
120°	0.018	0.018	0.019	0.019		
90°	0.023	0.023	0.025	0.025		
60°	0.034	0.034	0.035	0.035		
30°	0.056	0.056	0.057	0.057		

Ordering Information Table

Device Code



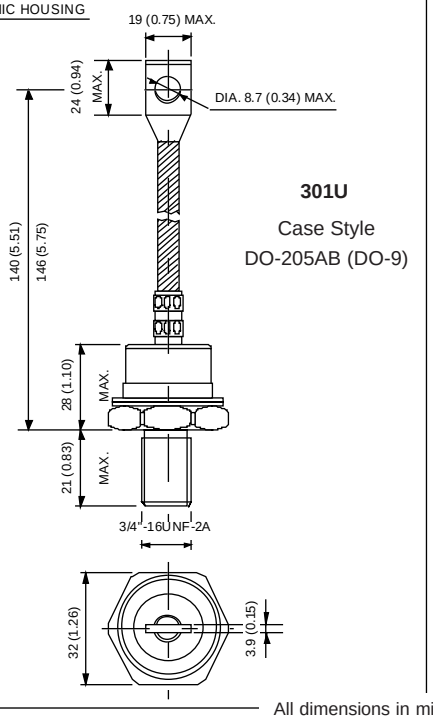
1 - 30 = Essential Part Number
2 - 1 = Standard Device
3 = Top Threaded version
5 = Type for rotating application with Top Threaded version 3/8 16UNC-2A
7 = Type for rotating application with flexible lead
9 = Type for rotating application with Top Threaded version 3/8 24UNF
3 - U = Stud Normal Polarity (Cathode to Stud)
UR = Stud Reverse Polarity (Anode to Stud)
4 - A = Max. Leakage selection I_{RRM} = 2mA T_J = 25°C
None = Std. Leakage selection I_{RRM} = 10mA T_J = 25°C
5 - Voltage code: Code x 10=V_{RRM} (See Voltage Ratings table)
6 - P. = Forward selection
None = Standard Forward selection

RANGE	I_{FM} T_J = 25°C (A)	V_{FM} min. (V)	V_{FM} max. (V)
P2 *	1000	1.16	1.25
P3 *		1.26	1.30
P4		1.31	1.40
P5		1.41	1.45

* 2500V not available

Outline Table

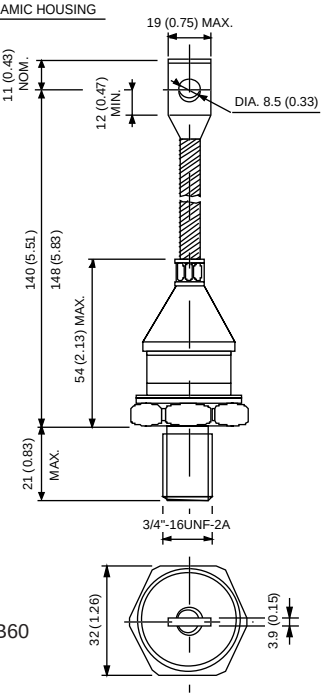
CERAMIC HOUSING



301U

Case Style
DO-205AB (DO-9)

CERAMIC HOUSING

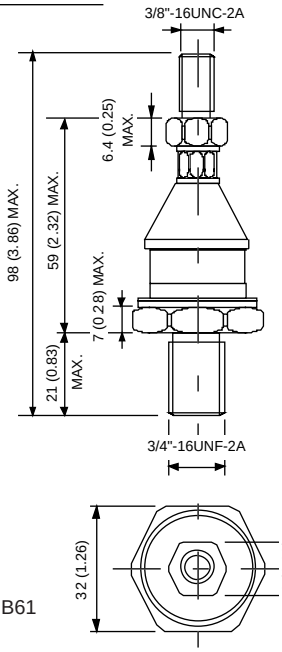


307U

IR Case Style B60

All dimensions in millimeters (inches)

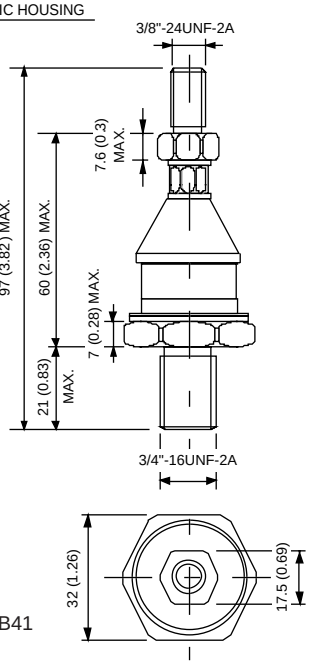
CERAMIC HOUSING



305U

IR Case Style B61

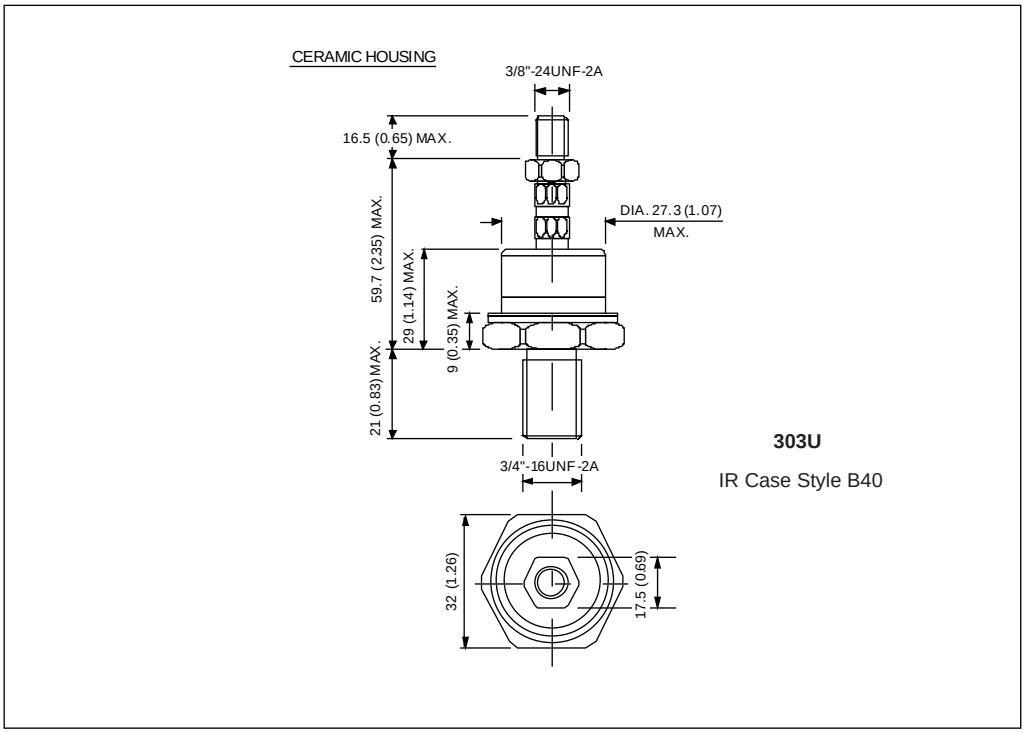
CERAMIC HOUSING



309U

IR Case Style B41

Outline Table



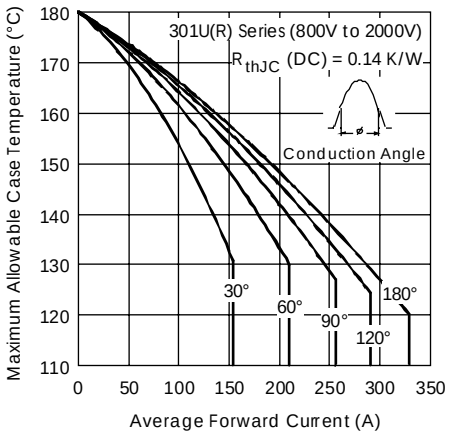


Fig. 1 - Current Ratings Characteristics

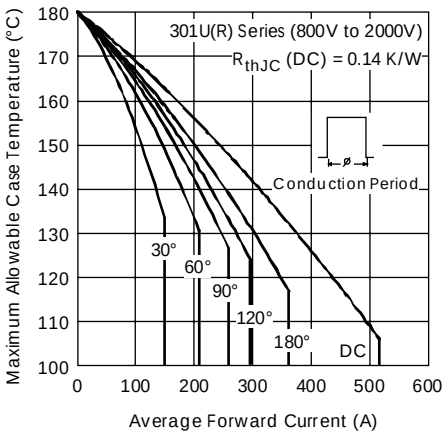


Fig.2 - Current Ratings Characteristics

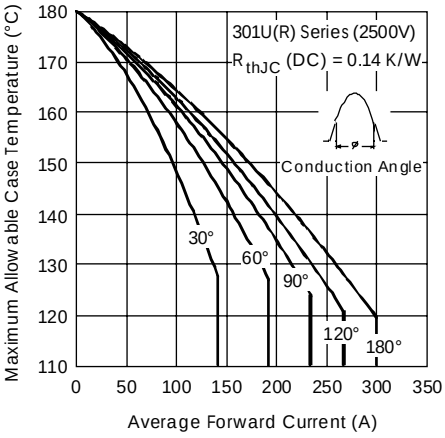


Fig. 3 - Current Ratings Characteristics

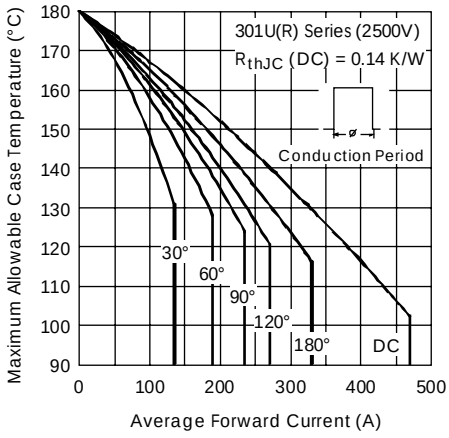


Fig. 4 - Current Ratings Characteristics

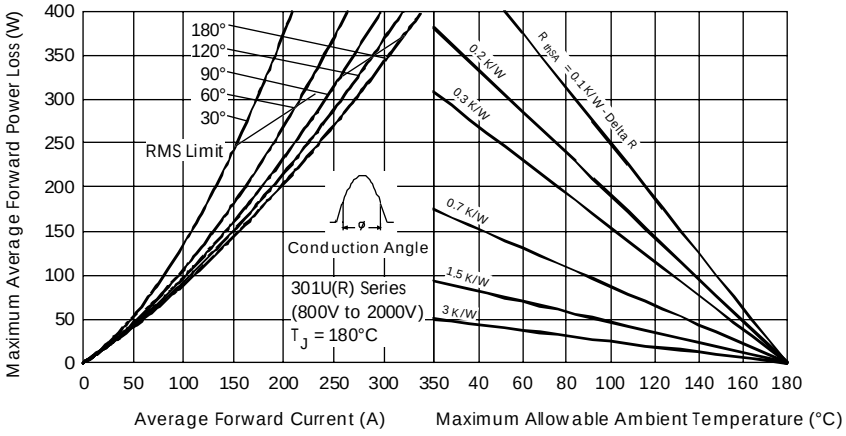


Fig. 5 - Forward Power Loss Characteristics

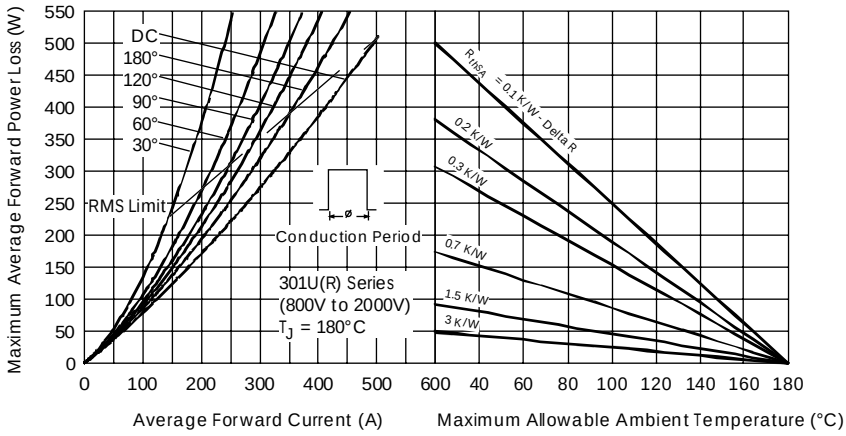


Fig. 6 - Forward Power Loss Characteristics

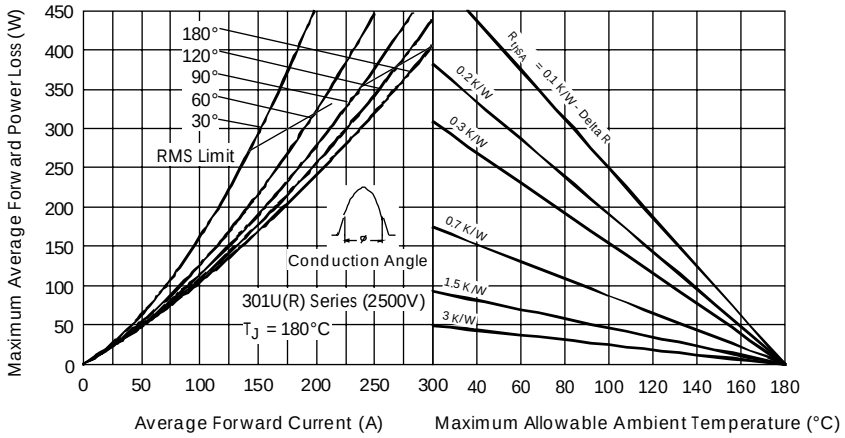


Fig. 7 - Forward Power Loss Characteristics

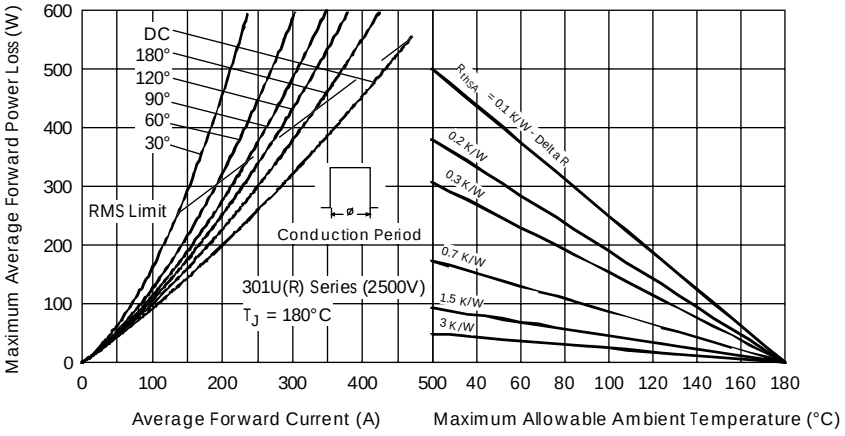


Fig. 8 - Forward Power Loss Characteristics

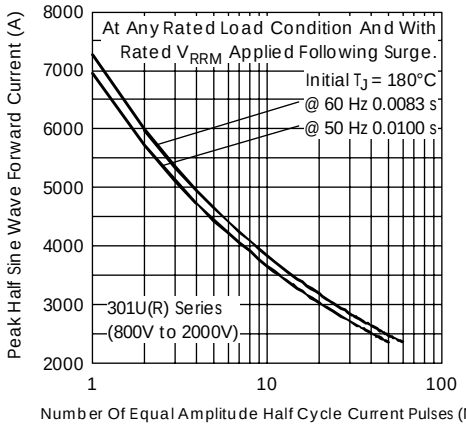


Fig. 9 - Maximum Non-Repetitive Surge Current

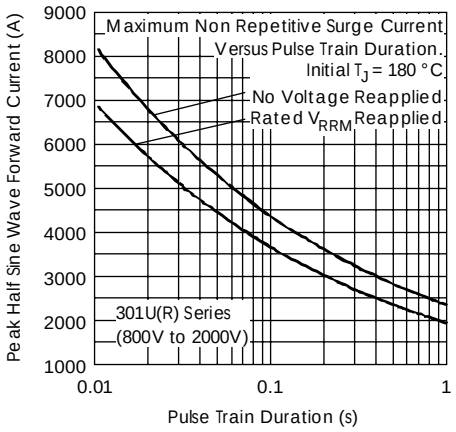


Fig. 10 - Maximum Non-Repetitive Surge Current

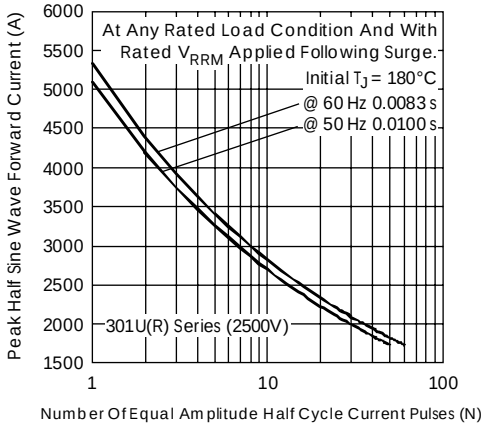


Fig. 11 - Maximum Non-Repetitive Surge Current

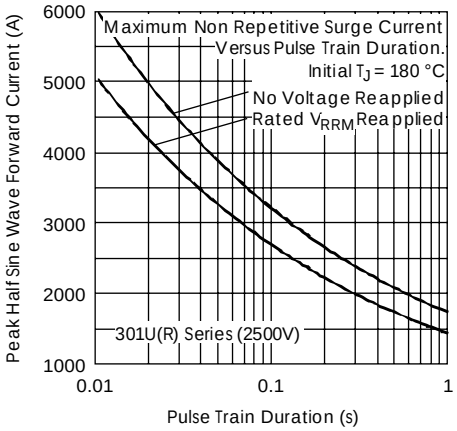


Fig. 12 - Maximum Non-Repetitive Surge Current

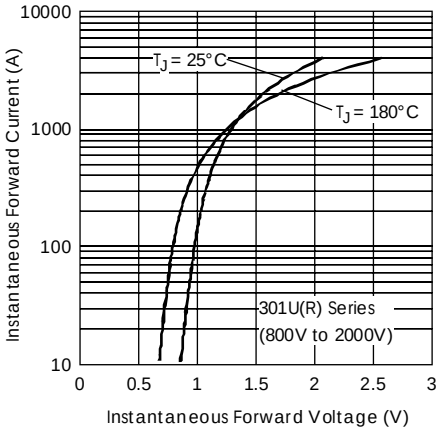


Fig. 13 - Forward Voltage Drop Characteristics

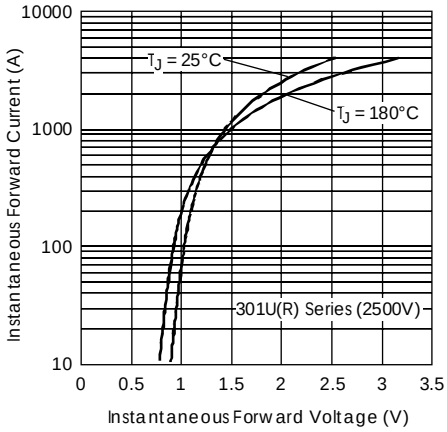


Fig. 14 - Forward Voltage Drop Characteristics

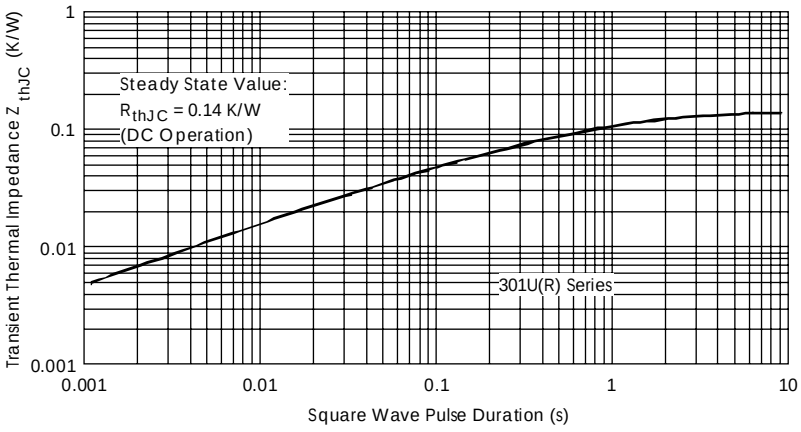


Fig. 15 - Thermal Impedance Z_{thJC} Characteristic

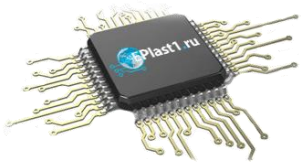
Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits,General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

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