

STUD TYPE DIODE

Features

- Hermetic metal case with ceramic insulator
- High surge current capabilities
- Stud cathode and stud anode version

300A**Typical Applications**

- Converters
- Power supplies
- Machine tool controls

Major Ratings and Characteristics

Parameters	D301A(K)2K6V	Units
$I_{F(AV)}$	300	A
@ T_{hs}	120	°C
$I_{F(RMS)}$	520	A
I_{FSM} @ 50Hz	8250	A
@ 60Hz	8640	A
$I^2 t$ @ 50Hz	340	KA ² s
@ 60Hz	311	KA ² s
V_{RRM} range	2600	V
T_J	- 40 to 180	°C

Voltage Ratings

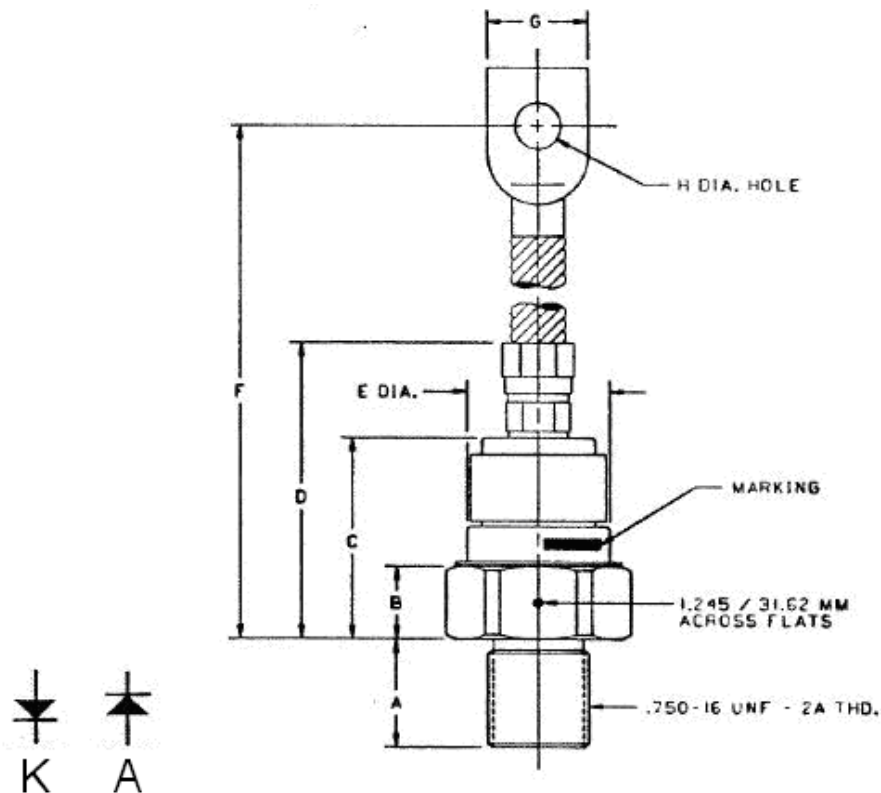
D301A(K)	Voltage Code	V_{RRM} , maximum repetitive peak reverse voltage V	V_{RSM} , maximum non-repetitive peak rev. voltage V	I_{RRM} max. @ $T_J = T_J$ max. mA
	08	800	900	15
	12	1200	1300	
	14	1400	1500	
	26	2600	2700	

Forward Conduction

Parameter	D301A (K)	Units	Conditions
$I_{F(AV)}$ Max. average forward current @ Heatsink temperature	300	A	180° conduction, half sine wave
	120	°C	Double side (single side) cooled
$I_{F(RMS)}$ Max.RMS forward current	520	A	DC@110°C case temperature
I_{FSM} , Max. peak, one-cycle forward, non-repetitive surge current	8250	A	t = 10ms No voltage reappplied
	8640		t = 8.3ms
	6940		t = 10ms 100% V_{RRM} reappplied
	7270		t = 8.3ms
$I^2 t$ Maximum $I^2 t$ for fusing	340	KA ² s	t = 10ms No voltage reappplied
	311		t = 8.3ms
	241		t = 10ms 100% V_{RRM} reappplied
	220		t = 8.3ms
$I^2 \sqrt{t}$ Maximum $I^2 \sqrt{t}$ for fusing	3400	KA ² √s	t = 0.1 to 10ms, no voltage reappplied
V_{FM} Max. forward voltage drop	1.22	V	$I_{pk} = 942A$, $T_J = T_J$ max, $t_p=10ms$ sinusoidal wave
r_{f1} Low level value of threshold voltage	0.49	MΩ	$(16.7\% \times \pi \times I_{F(AV)} < 1 < \pi \times I_{F(AV)})$, $T_J=T_J$ max
r_{f2} High level value of forward slope resistance	0.49		$(1 > \pi \times I_{F(AV)})$, $T_J=T_J$ max

Thermal and Mechanical Specification

Parameter	D301A(K)	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		DC operation single(double) side cooled
T Max.allowed Mounting torque, ± 10%	37	N	
wt Approximate weight	300	g	



CASE NUMBER R60

NOMINAL DIMENSIONS

STRIKE DISTANCE = .48 INCH / 12.2 MM MIN.

CREEPAGE DISTANCE = .48 INCH / 12.2 MM MIN.

SYM.	A	B	C	D	E	F	G	H	J	K
INCHES	.81	.55	1.50	2.30	1.05	5.44	.73	.343	-----	-----
MM	20.6	14.0	38.1	58.4	26.7	138.2	18.5	8.71	-----	-----

ALL DIMENSIONS ARE REFERENCE

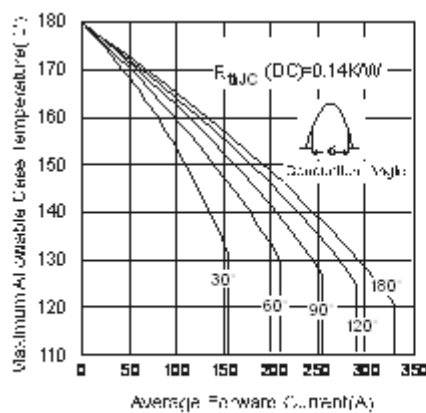


Fig. 1-Current Ratings Characteristics

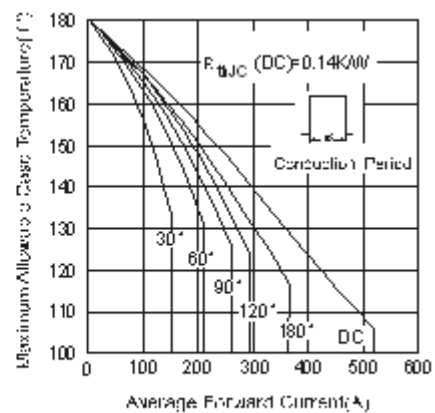


Fig. 2-Current Ratings Characteristics

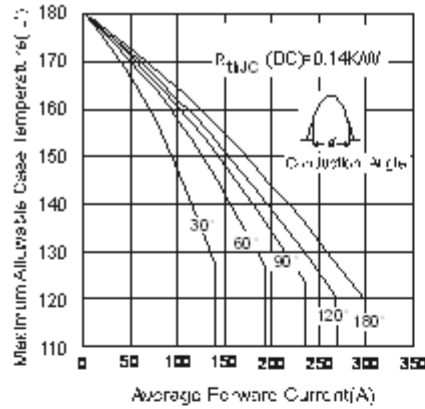


Fig.3-Current Ratings Characteristics

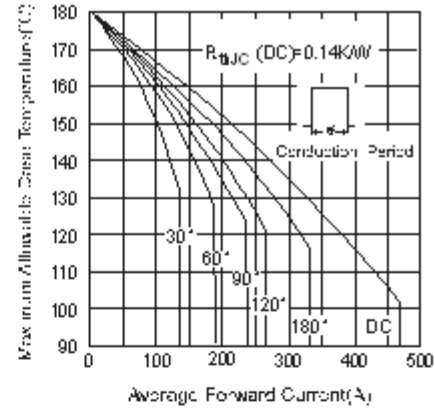


Fig.4-Current Ratings Characteristics

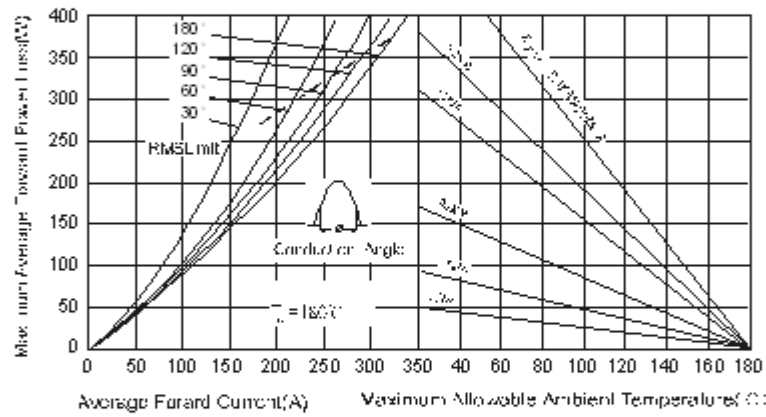


Fig.5-Forward Power Loss Characteristics

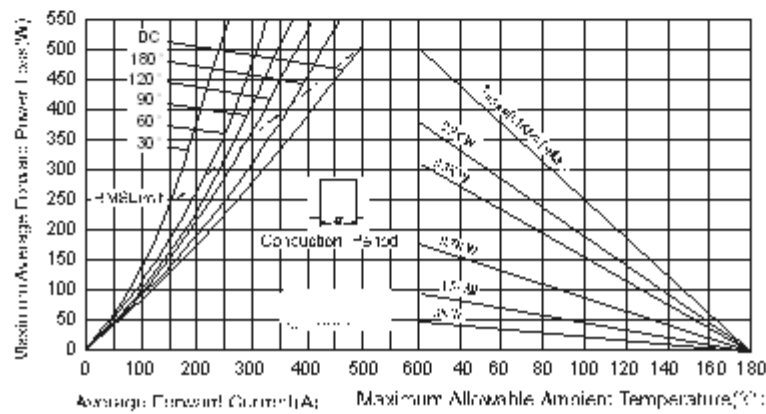
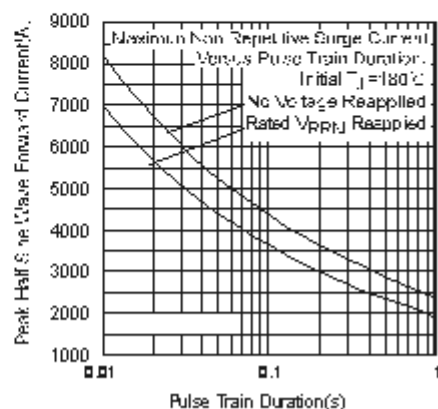
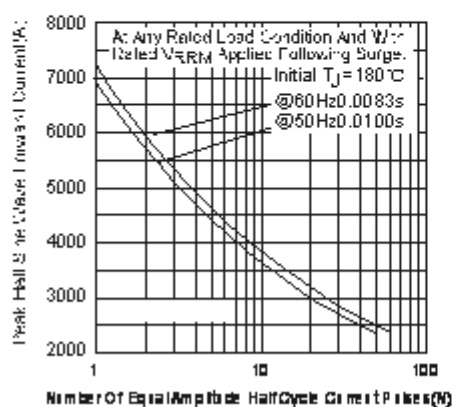
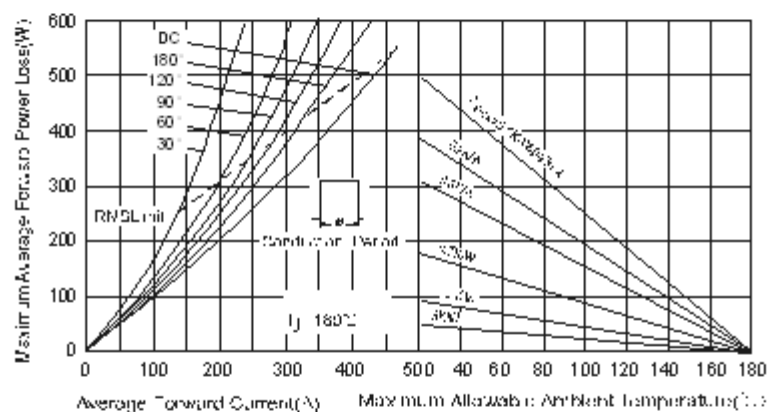
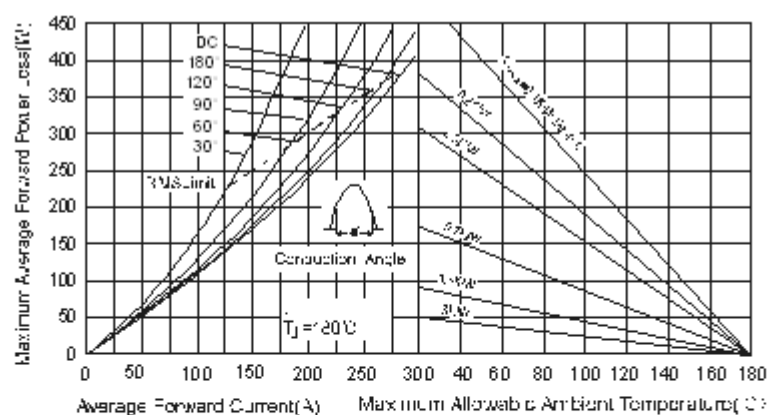


Fig.6-Forward Power Loss Characteristics



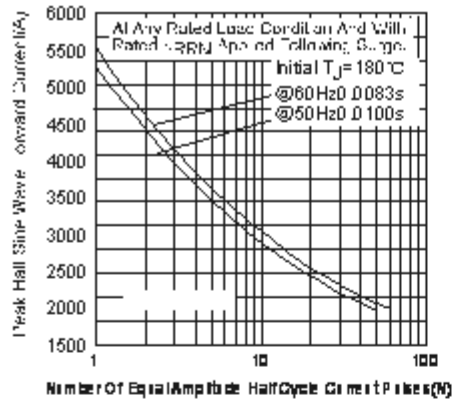


Fig.11-Maximum Non-Repetitive Surge Current

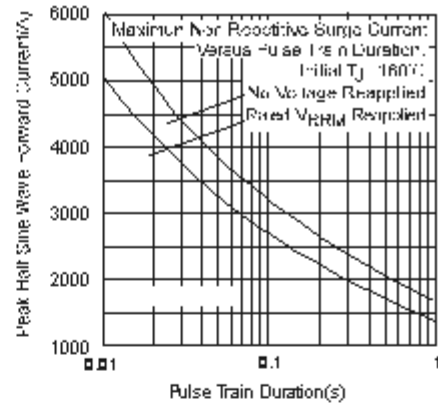


Fig.12-Maximum Non-Repetitive Surge Current

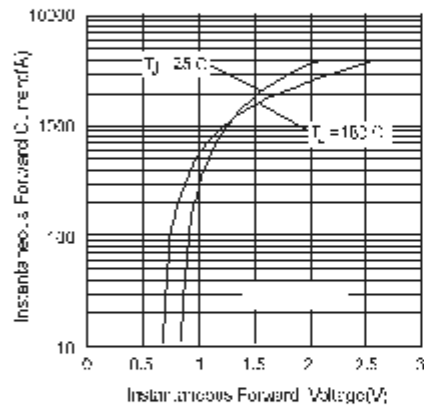


Fig.13-Forward Voltage Drop Characteristics

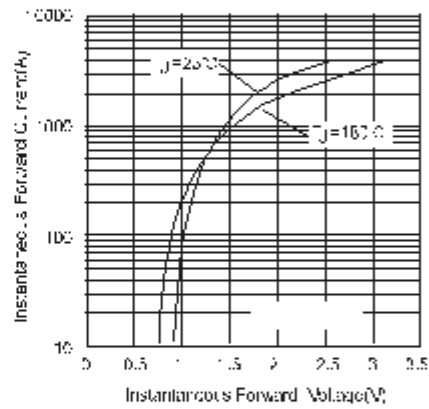


Fig.14-Forward Voltage Drop Characteristics

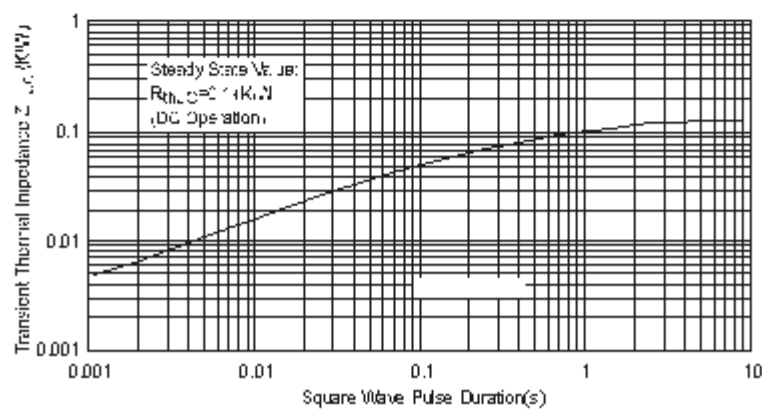


Fig.15-Thermal Impedance Z_{thJC} Characteristics