



Ruttonsha International Rectifier Ltd.

HIGH POWER THYRISTOR

INVERTER GRADE THYRISTOR

Hockey Puk Version K-PUK SERIES 1450PK

Type : 1450 PK120 F

Features

- Low Switching loss at high frequency.
- 60 μ s maximum turn-off time with feedback diode.
- Involute, interdigitate gate

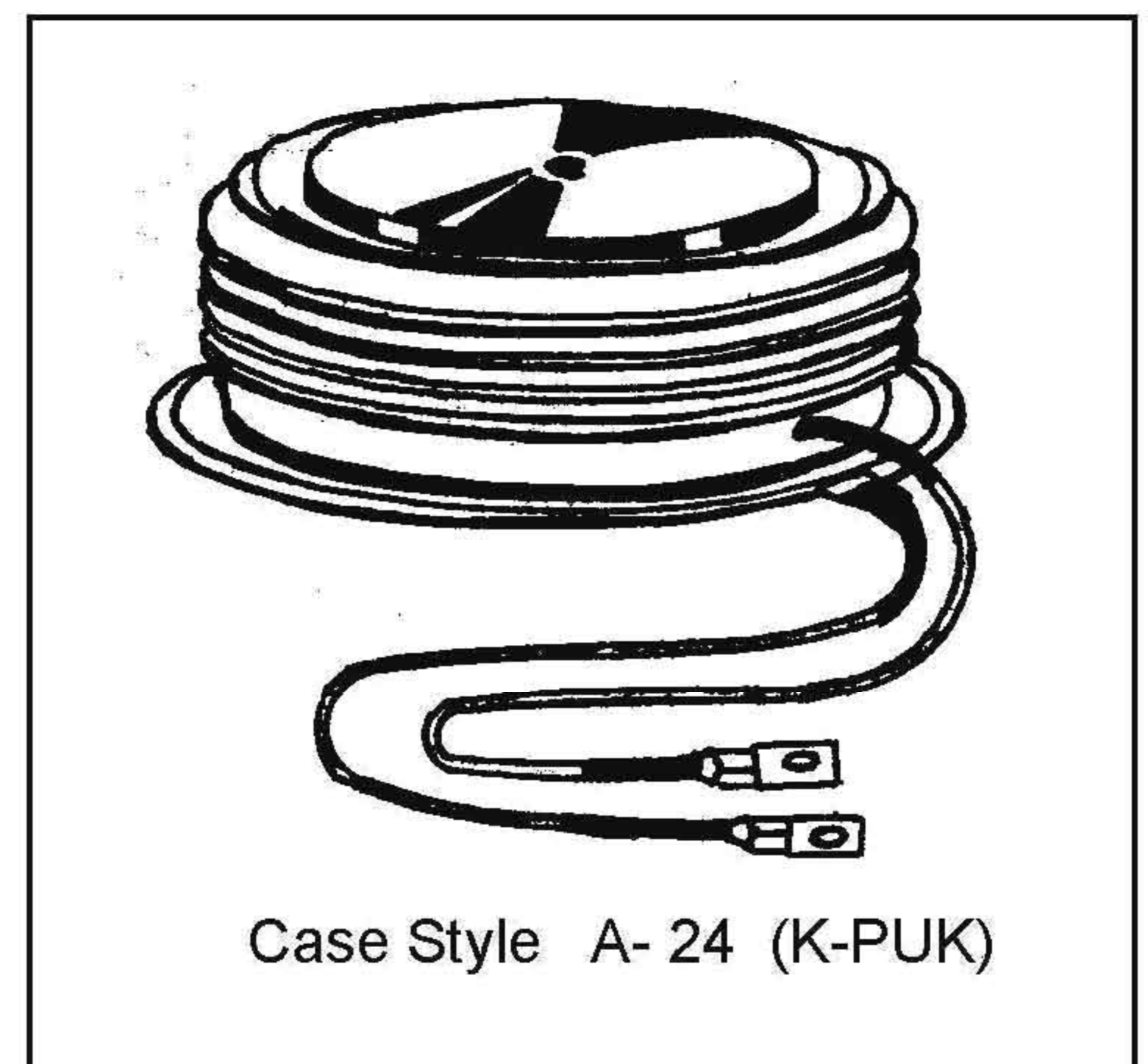
Typical Applications

- Inverters
- Choppers
- Induction heating
- All type of forced-Commutated converters

Major Ratings and Characteristics :-

PARAMETERS	1450PK...F	UNITS
$I_{T(AV)}$	1446	A
@ T_{hs}	55	$^{\circ}$ C
$I_{T(RMS)}$	2270	A
@ T_{hs}	55	$^{\circ}$ C
I_{TSM}	20000	A
I^2t	2000	KA ² s
V_{DRM} / V_{RRM}	1200	V
T_q typical	600 to 1200	μ s
T_J	125	$^{\circ}$ C

1450A



Case Style A- 24 (K-PUK)

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Electrical Specifications

Voltage Ratings

Type Number	Voltage Code	V_{DRM}/V_{RRM} , max repetitive peak voltage V	V_{RSM} , maximum non-repetitive peak voltage V	I_{DRM}/I_{RRM} max. mA	
				25 ⁰ C	125 ⁰ C
1450PK...F	60	600	700	60	150
	80	800	900		
	100	1000	1100		
	120	1200	1300		

On-state Conduction

	Parameter	1450 PK...F	Units	Conditions
$I_{T(AV)}$	Max. average on-state current	1450	A	180° conduction, half sine wave
	@ Heatsink temperature	55	°C	double side cooled
$I_{T(RMS)}$	Max RMS on-state current	2270	A	DC @ 55°C heatsink temperature double side cooled
V_{TM}	Max. on-state voltage	1.7	V	$I_T=2000A$, $T_J=T_J$ max.

Switching

	Parameter	1450 PK...F	Units	Conditions
di/dt	Max. Repetitive rate of rise of turned-on current	100	A/μs	$T_J=T_J$ max. $V_{DRM}=67\%$, V_{DRM} ,
t_d	Max. delay time	1.0	μs	$V_D=67\%$ V_{DRM} $I_{TM}=2000A$, di/dt =60 A/μs $I_{FG}=2A$. $tr \leq 0.5\mu s$ $T_C = 25^\circ C$
t_q	Typical turn-off time	20-35	μs	$T_J=T_J$ max., $I_T = 1000A$, $V_R = 50V$, di/dt=60A/us 80 % V_{DRM} Reapplied, dv/dt = 400 V / μs, tp = 1000 μs
V_{TO}	Threshold Voltage	1.30	v	$T_J=T_J$ max.
r_T	Slope resistance	0.22	mΩ	$T_J=T_J$ max.

Blocking

	Parameter	1450 PK...F	Units	Conditions
dv/dt	Min. critical rate of rise of off-state voltage	500	V/μs	$T_J = T_J$ max. linear to 80% rated V_{DRM}
I_{RRM}	Max. peak reverse and off-state	150	mA	$T_J = T_J$ max., rated V_{DRM}/V_{RRM} applied
I_{DRM}	leakage current			

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Triggering

Parameter	1450PK...F	Units	Conditions
P_{GM} Maximum peak gate power	30	W	
$P_{G(AV)}$ Maximum average gate power	2	W	
I_{GT} Max. DC gate current required to trigger	200	mA	$T_J = 25^\circ\text{C}, V_D = 10 \text{ V dc}$ $I_T=2\text{A}$
V_{GT} Max. DC gate voltage required to trigger	3.0	V	$T_J = 25^\circ\text{C}, V_D = 10 \text{ V dc}$ $I_T=2\text{A}$

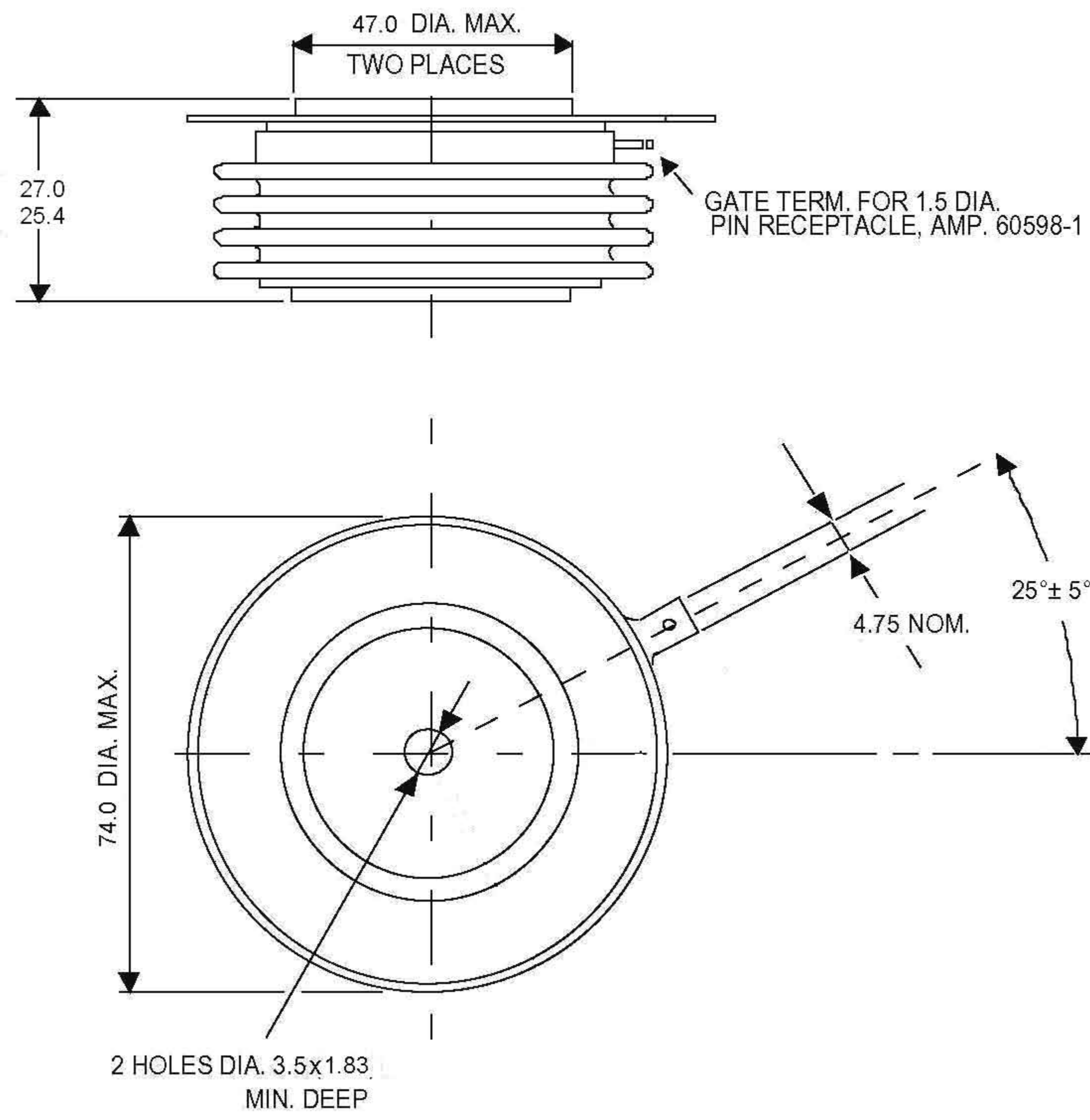
Thermal and Mechanical Specifications

Parameter	1450PK...F	Units	Conditions
T_J Max.operating temperature	125	$^\circ\text{C}$	
T_{stg} Max.storage temperature range	- 40 to +125	$^\circ\text{C}$	
R_{thJ-hs} Max. thermal resistance, junction to heat sink	0.023	$^\circ\text{C/W}$	DC operation double side cooled
F Mounting force, $\pm 10\%$	24.5 (2500)	KN (Kg.)	
Case style	A-24 (K-PUK)		

HIGE POWER THYRISTOR

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OUTLINE DRAWING



Unit : MM