

S P E C I F I C A T I O N

POWER THYRISTOR FOR INVERTER APPLICATIONS

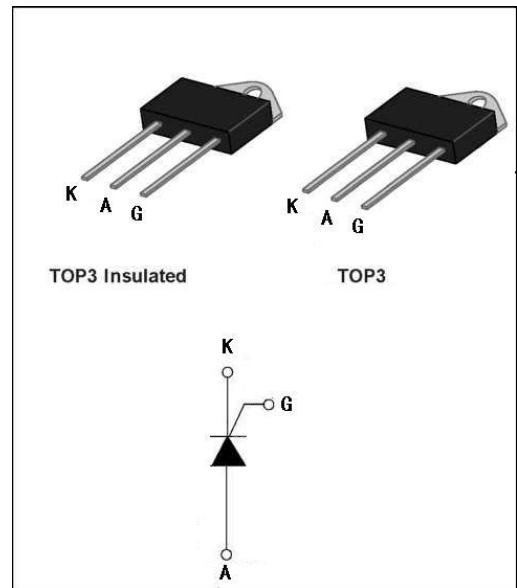
Inverter Grade Thyristors Version Type :KK165-1000 TOP3

Features

- RoHS Compliant
- All diffused design
- Glass-passivated chip
- Guaranteed high dV/dt
- Guaranteed high dI/dt
- High surge current capability
- Low thermal impedance
- High speed performance , t_q is less than $50\mu\text{Sec}$
- Electrically-isolated package
- High voltage capability — 200 V to 1000 V

Typical Applications

- Inverters
- Choppers
- Induction heating
- All types of force-commutated converters



MAIN FEATURES

Symbol	Value	Unit
I_T	165	A
$V_{DRM/RRM}$	600 / 800 / 1000	V
V_{TM}	1.5	V

ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Storage junction temperature range		T_{stg}	- 40 to +150	$^{\circ}\text{C}$
Operating junction temperature range		T_j	- 40 to +125	$^{\circ}\text{C}$
Repetitive Peak Off-state Voltage	$T_j=25^{\circ}\text{C}$	V_{DRM}	600 / 800 / 1000	V
Repetitive Peak Reverse Voltage	$T_j=25^{\circ}\text{C}$	V_{RRM}	600 / 800 / 1000	
Non repetitive Surge Peak Off-state Voltage	$t_p=10\text{ms}, T_j=25^{\circ}\text{C}$	V_{DSM}	$V_{DRM}+100$	V
Non repetitive Peak Reverse Voltage		V_{RSM}	$V_{RRM}+100$	
RMS on-state current (full sine wave)	TO - P3 $T_c=80^{\circ}\text{C}$	I_T	165	A



	TG - C Tc=90°C			
Non repetitive surge peak on-state current (full cycle, Tj=25°C)	f = 60 Hz t=16.7ms	I _{TSM}	605	A
	f = 50 Hz t=20ms		605	
I ² t Value for fusing	tp=10ms	I ² t	1100	A ² s
Critical rate of rise of on-state current I _G =2× I _{GT} , tr<100 ns, f =120Hz, Tj=125°C		di/dt	50	A/μs
Peak gate current tp=20us, Tj=125°C		I _{GM}	4	A
Peak Gate Power Dissipation tp=20us, Tj=125°C		P _{GM}	10	W
Average gate power dissipation Tj=125°C		P _{G(AV)}	1	W

ELECTRICAL CHARACTERISTICS(Tj=25°C unless otherwise specified)

Symbol	Test Condition		Limits	Unit
			BW(B)	
I _{GT}	V _D =12V R _L =33Ω	MAX.	80	mA
V _{GT}		MAX.	1.5	V
V _{GD}	V _D =V _{DRM} R _L =3.3KΩ Tj =125°C	MIN.	0.2	V
I _L	I _G =1.2I _{GT}	MAX.	100	mA
I _H	I _T = 100mA	MAX.	80	mA
dV/dt	V _D =67%V _{DRM} gate open Tj=125°C	MIN.	500	V/μs
Tq		MAX.	50	μs

STATIC CHARACTERISTICS

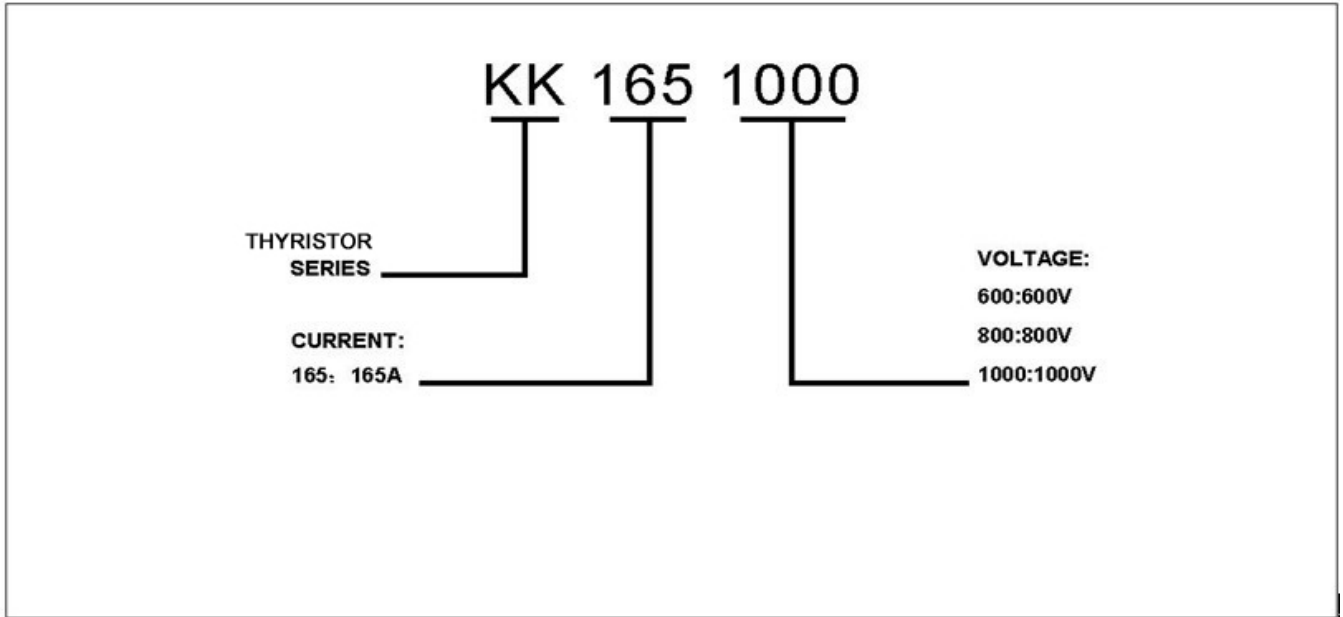
Symbol	Parameter	Value(MAX.)	Unit
V _{TM}	I _{TM} =90A, tp=380μs Tj=25°C	1.80	V
I _{DRM} I _{RPM}	V _D =V _{DRM} V _R =V _{RPM} Tj=25°C	10	μA
		Tj=125°C	5

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
R _{th} (J - C)	Junction to Case(AC)	TO-P3	0.9
		TG - C	0.8

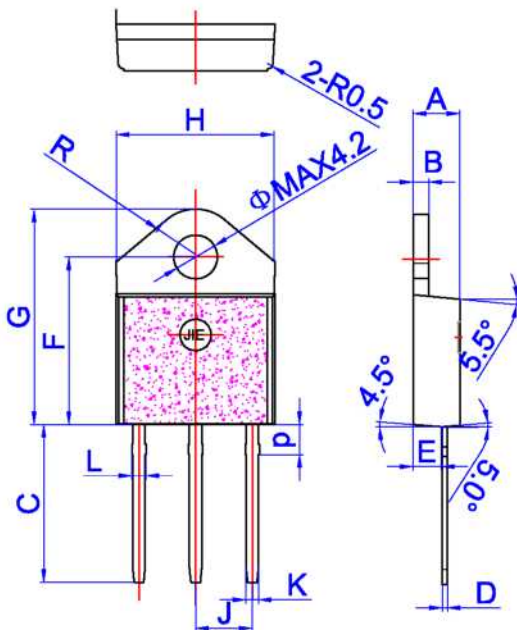
ORDERING INFORMATION





PACKAGE MECHANICAL DATA

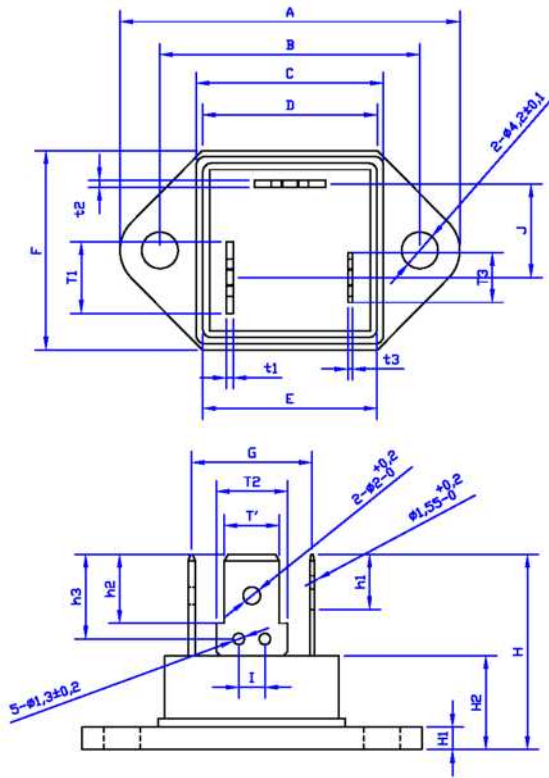
T0-P3 insulated Package



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.4		4.6	0.173		0.181
B	1.45		1.55	0.057		0.061
C	14.35		15.6	0.565		0.614
D	0.5		0.7	0.020		0.028
E	2.7		2.9	0.106		0.114
F	15.8		16.5	0.622		0.650
G	20.4		21.1	0.815		0.831
H	15.1		15.5	0.594		0.610
J	5.4		5.65	0.213		0.222
K	1.2		1.4	0.047		0.055
L	1.35		1.50	0.053		0.059
P	2.8		3.0	0.110		0.118
R		4.6			0.181	

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A			39.2			1.543
B	29.8	30.0	30.2	1.173	1.181	1.189

TG-C Package



C			21.6			0.85
D			20.2			0.795
E			20.1			0.791
F			23			0.906
T1、T2		8.25				0.325
T3		5.7				0.224
T'		6.35				0.25
t1、t2		0.8				0.031
t3		0.5				0.020
G		13.9				0.547
H1		2.6				0.102
H2		10.8				0.425
H			22.5			0.886
h1	6.2	6.35	6.5	0.244	0.25	0.256
h2	7.8	7.95	8.1	0.307	0.313	0.319
h3	9.45	9.75	10.05	0.372	0.384	0.396
I	2.7	3.0	3.3	0.106	0.118	0.130
J		10.8				0.425