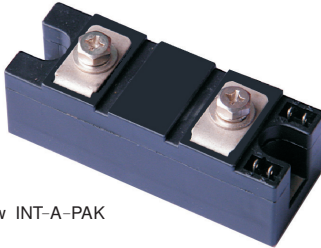




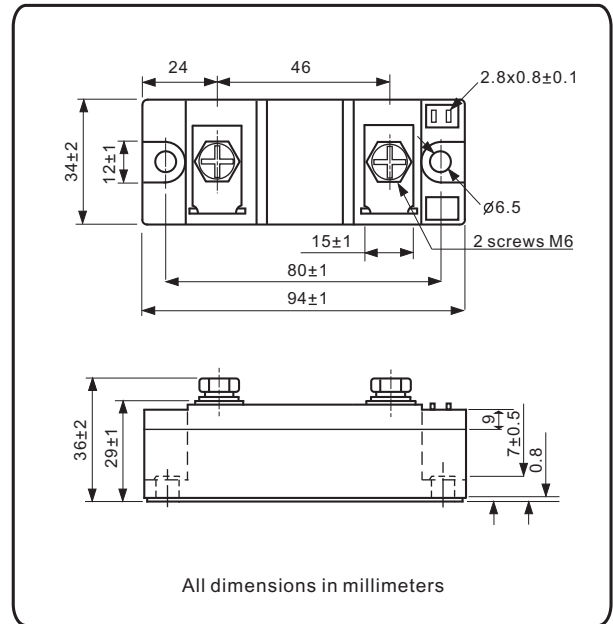
Phase Control Thyristor, 160A (New INT-A-PAK Power Modules)



New INT-A-PAK

FEATURES

- High voltage
- Electrically isolated by DBC ceramic (Al_2O_3)
- 3500 V_{RMS} isolating voltage
- Industrial standard package
- High surge capability
- Glass passivated chips
- Modules uses high voltage power thyristor/diodes in two basic configurations
- Simple mounting
- UL approved file E320098 
- Compliant to RoHS 
- Designed and qualified for multiple level



APPLICATIONS

- DC motor control and drives
- Battery charges
- Welders
- Power converters
- Lighting control
- Heat and temperature control



PRODUCT SUMMARY

$I_{T(AV)}$	160 A
-------------	-------

MAJOR RATINGS AND CHARACTERISTICS

SYMBOL	CHARACTERISTICS	VALUES	UNITS
$I_{T(AV)}$	85 C	160	A
$I_{T(RMS)}$	85 C	251	A
I_{TSM}	50 Hz	5400	
	60 Hz	5670	
I^2t	50 Hz	146	kA ² s
	60 Hz	133	
$I^2\sqrt{t}$		1458	kA ² \sqrt{s}
V_{DRM} / V_{RRM}	Range	400 to 1600	V
T_J	Range	-40 to 125	C

ELECTRICAL SPECIFICATIONS

VOLTAGE RATINGS				
TYPE NUMBER	VOLTAGE CODE	V_{RRM}/V_{DRM} , MAXIMUM REPETITIVE PEAK REVERSE VOLTAGE V	V_{RSM}/V_{DSM} , MAXIMUM NON-REPETITIVE PEAK REVERSE VOLTAGE V	I_{RRM}/I_{DRM} AT 125 °C mA
NKET160	04	400	500	20
	08	800	900	
	12	1200	1300	
	14	1400	1500	
	16	1600	1700	

FORWARD CONDUCTION								
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS			
Maximum average on-state current at case temperature	$I_{T(AV)}$	180 conduction, half sine wave ,50Hz		160	A			
				85	°C			
Maximum RMS on-state current	$I_{T(RMS)}$	180 conduction, half sine wave ,50Hz , $T_J = 85^{\circ}C$		251				
Maximum peak, one-cycle, on-state non-repetitive surge current	I_{TSM}	t = 10 ms	No voltage reappplied	Sine half wave, initial $T_J = T_J$ maximum	5400	A		
		t = 8.3 ms			5670			
Maximum I^2t for fusing	I^2t	t = 10 ms			100% V_{RRM} reappplied		146	kA ² s
		t = 8.3 ms					133	
		t = 10 ms	102					
		t = 8.3 ms	93					
Maximum $I^2\sqrt{t}$ for fusing	$I^2\sqrt{t}$	t = 0.1 ms to 10 ms, no voltage reappplied		1458	kA ² \sqrt{s}			
Maximum on-state voltage drop	V_{TM}	$I_{TM} = 480A$, $T_J = 25^{\circ}C$, 180 conduction		1.65	V			
Maximum holding current	I_H	Anode supply = 12 V initial $I_T = 30 A$, $T_J = 25^{\circ}C$		40~150	mA			
Maximum latching current	I_L	Anode supply = 12 V resistive load = 1 Ω Gate pulse: 10 V, 100 μs , $T_J = 25^{\circ}C$		400				

BLOCKING					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum peak reverse and off-state leakage current	I_{RRM}, I_{DRM}	$T_J = 125^{\circ}C$		30	mA
RMS isolation Voltage	V_{ISO}	50 Hz, circuit to base, all terminals shorted		2500 (1min) 3500 (1s)	V
Critical rate of rise of off-state voltage	dV/dt	$T_J = T_J$ maximum, exponential to 67 % rated V_{DRM}		500	V/ μs

Fig.1 On-state current vs. voltage characteristic

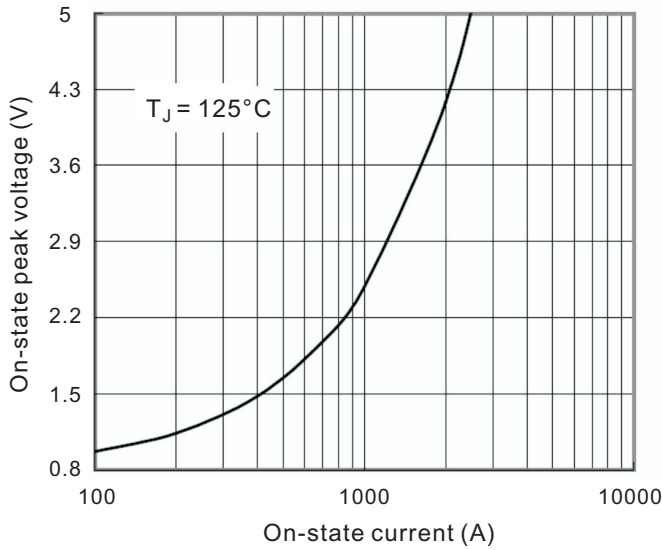


Fig.2 Transient thermal impedance(junction-case)

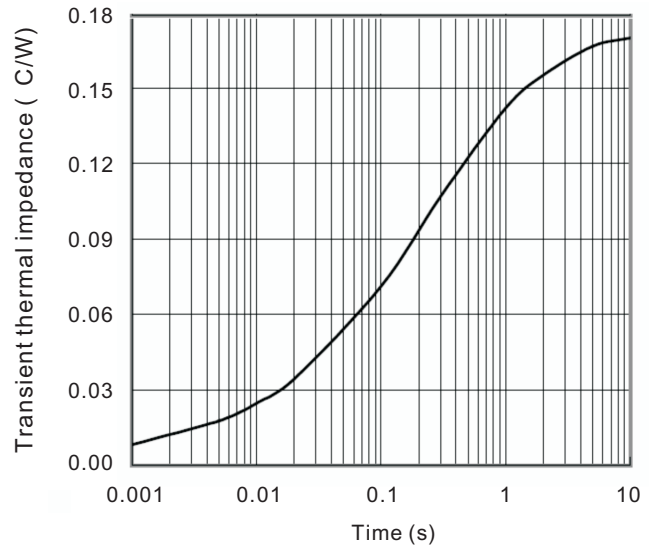


Fig.3 Power consumption vs. average current

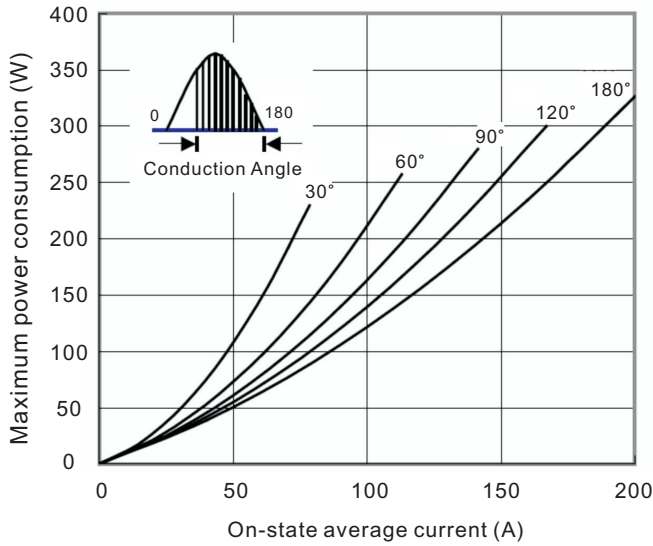


Fig.4 Case temperature vs. on-state average current

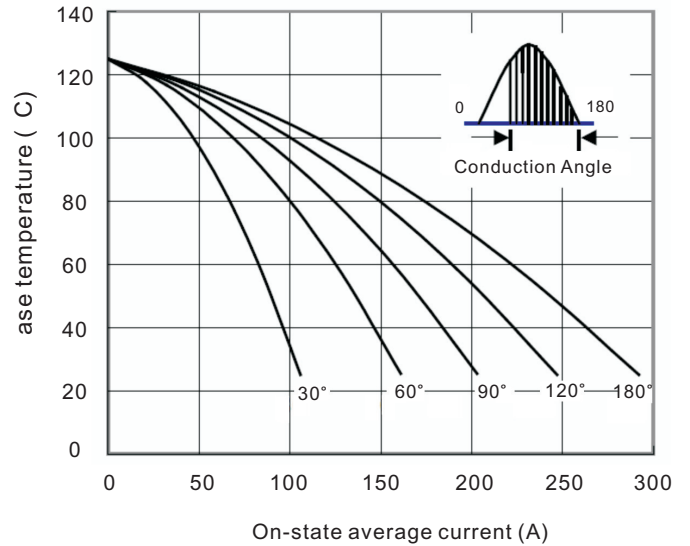


Fig.5 On-state surge current vs cycles

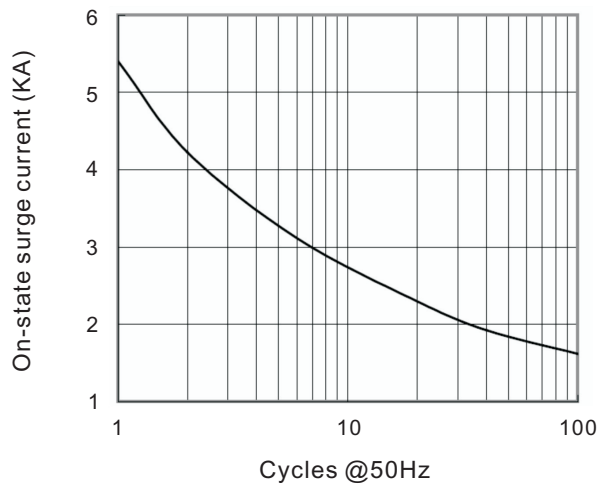


Fig.6 Gate characteristics

