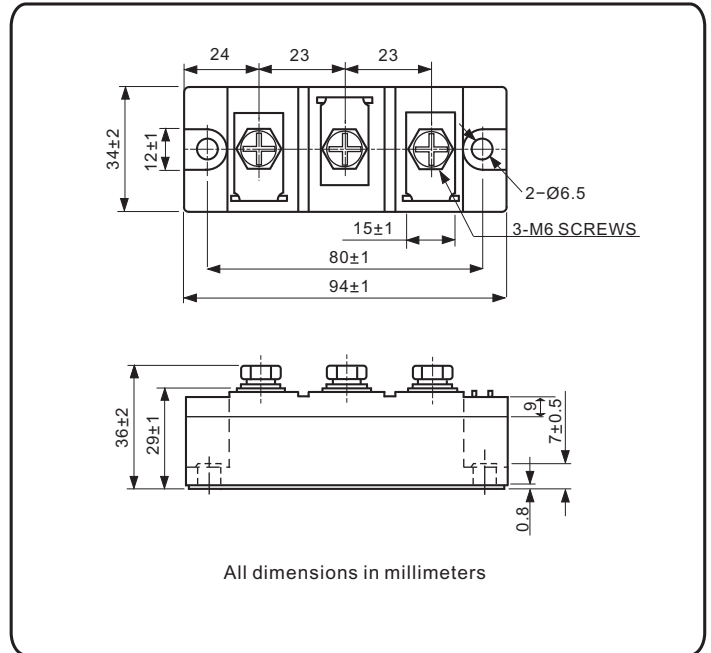


Standard Recovery Diodes, 240 A (INT-A-PAK Power Modules)



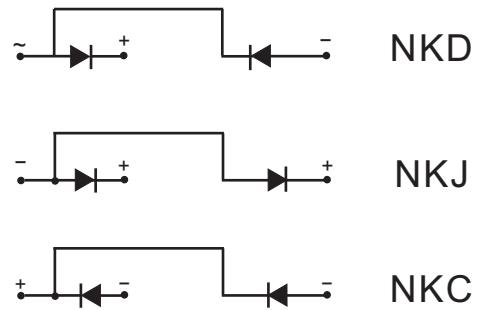
FEATURES

- High voltage
- Electrically isolated by DBC ceramic (Al_2O_3)
- 3000 V_{RMS} isolating voltage
- Industrial standard package
- High surge capability
- Glass passivated chips
- Modules uses high voltage power diodes in four 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



PRODUCT SUMMARY	
$I_{F(AV)}$	240 A
Type	Modules - Diode, High Voltage

MAJOR RATINGS AND CHARACTERISTICS			
SYMBOL	CHARACTERISTICS	VALUE	UNITS
$I_{F(AV)}$		240	A
	T_C	100	°C
$I_{F(RMS)}$		376	A
I_{FSM}	50 Hz	5730	
	60 Hz	6005	
I^2t	50 Hz	164	kA ² s
	60 Hz	150	
$I^2\sqrt{t}$		1642	kA ² \sqrt{s}
V_{RRM}		400 to 1600	V
T_J	Range	-40 to 150	°C

ELECTRICAL SPECIFICATIONS

VOLTAGE RATINGS				
TYPE NUMBER	VOLTAGE CODE	V_{RRM} , MAXIMUM REPETITIVE PEAK REVERSE VOLTAGE V	V_{RSM} , MAXIMUM NON-REPETITIVE PEAK REVERSE VOLTAGE V	I_{RRM} AT 150 °C mA
NKD240 NKJ240 NKC240	04	400	500	12
	08	800	900	
	12	1200	1300	
	14	1400	1500	
	16	1600	1700	

FORWARD CONDUCTION					
PARAMETER	SYMBOL	TEST CONDITIONS	VALUE	UNITS	
Maximum average on-state current at case temperature	$I_{F(AV)}$	180° conduction, half sine wave	240	A	
			100	°C	
Maximum RMS on-state current	$I_{F(RMS)}$	180° conduction, half sine wave ,50Hz , $T_C = 100^{\circ}C$	376	A	
Maximum peak, one-cycle, on-state non-repetitive surge current	I_{FSM}	No voltage reapplied	t = 10 ms	5730	
			t = 8.3 ms	6005	
Maximum I^2t for fusing	I^2t	100% V_{RRM} reapplied	Sine half wave, initial $T_J = T_J$ maximum	t = 10 ms	164
				t = 8.3 ms	150
				t = 10 ms	115
				t = 8.3 ms	105
Maximum $I^2\sqrt{t}$ for fusing	$I^2\sqrt{t}$	t = 0.1 ms to 10 ms, no voltage reapplied	1642	$kA^2\sqrt{s}$	
Maximum forward voltage drop	V_{FM}	$I_{FM} = 720A$, $T_J = 25^{\circ}C$, 180° conduction	1.4	V	

BLOCKING				
PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum peak reverse and off-state leakage current	I_{RRM}	$T_J = 150^{\circ}C$	12	mA
RMS isolation Voltage	V_{ISO}	50 Hz, circuit to base ,all terminals shorted ,t = 1s	3000	V
		t = 60s	2500	

THERMAL AND MECHANICAL SPECIFICATIONS				
PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum junction operating temperature range	T_{Stg} , T_J		- 40 to 150	°C
Maximum thermal resistance, junction to case per junction	R_{thJC}	DC operation	0.18	°C/W
Maximum thermal resistance, case to heatsink per module	R_{thCS}	Mounting surface, smooth , flat and greased	0.075	
Mounting torque $\pm 10\%$	IAP to heatsink, M6 busbar to IAP, M6	A mounting compound is recommended and the torque should be rechecked after a period of 3 hours to allow for the spread of the compound. Lubricated threads.	4 to 6	N.m
Approximate weight			220	g
			7.8	oz.
Case style			New INT-A-PAK	

Fig.1 On-state current vs. voltage characteristic

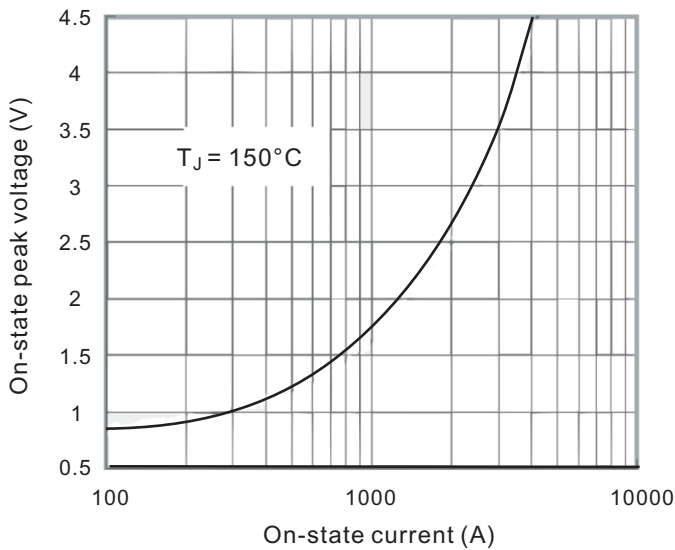


Fig.2 Transient thermal impedance(junction-case)

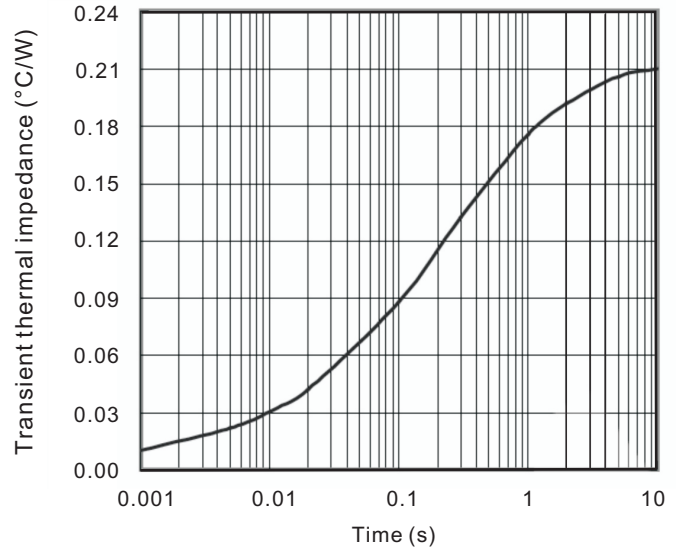


Fig.3 Power consumption vs. average current

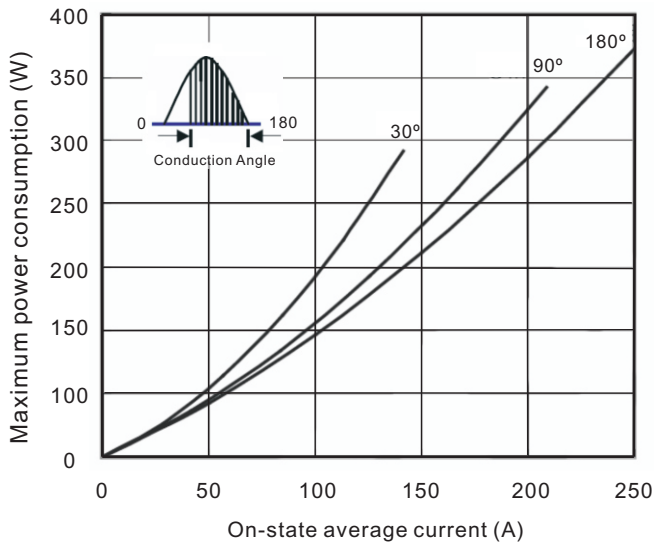


Fig.4 Case temperature vs. on-state average current

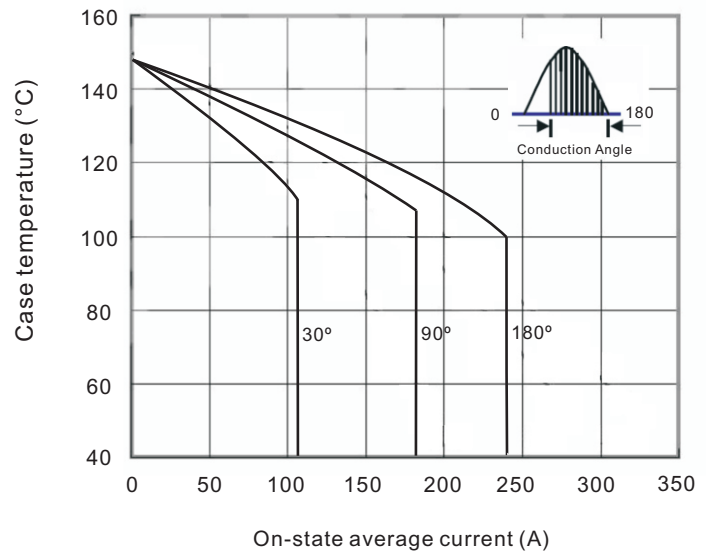


Fig.5 On-state surge current vs. cycles

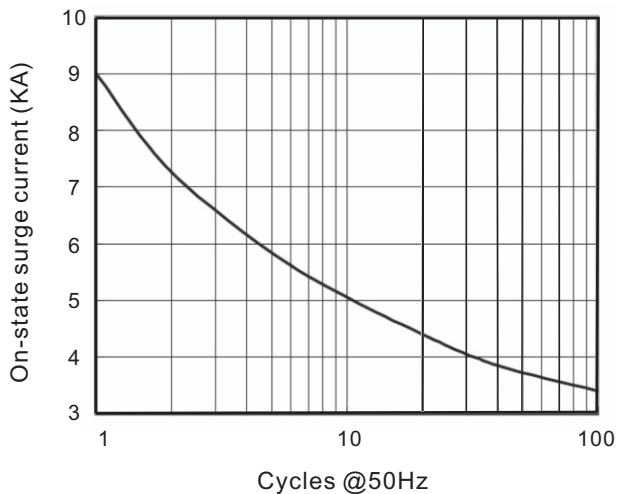


Fig.6 I²t Characteristic

