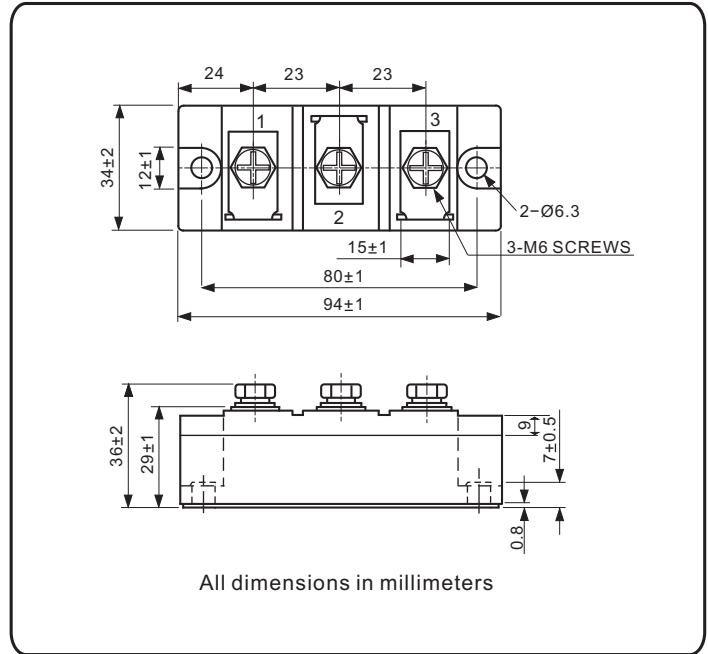


Standard Recovery Diodes, 240 A (INT-A-PAK Power Modules)



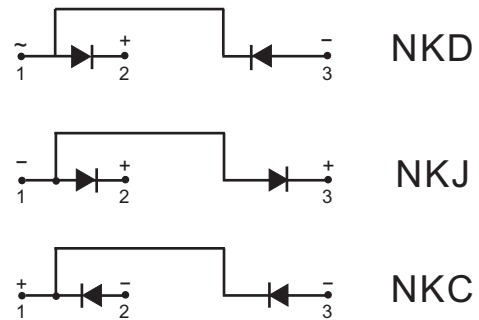
FEATURES

- High voltage
- Electrically isolated by DBC ceramic (Al_2O_3)
- 3000 V_{RMS} isolating voltage
- Industrial standard package
- High surge capability
- 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	9600	
	60 Hz	10051	
I^2t	50 Hz	460	kA ² s
	60 Hz	419	
$I^2\sqrt{t}$		4608	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°C		376	A		
Maximum peak, one-cycle, on-state non-repetitive surge current	I _{FSM}	t = 10 ms	No voltage reapplied	Sine half wave, initial T _J = T _J maximum	9600		
		t = 8.3 ms			10051		
Maximum I ² t for fusing	I ² t	t = 10 ms			100%V _{RRM} reapplied		460
		t = 8.3 ms					419
		t = 10 ms	322				
		t = 8.3 ms	293				
Maximum I ² √t for fusing	I ² √t	t = 0.1 ms to 10 ms, no voltage reapplied		4608	kA ² √s		
Maximum forward voltage drop	V _{FM}	I _{FM} = 720A , T _J = 25 °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 °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	

ORDERING INFORMATION TABLE

Device code	NKD	240	/	16	A
	①	②	③	④	
①	- Module type: NKD, NKJ and NKC for (Diode + Diode) module				
②	- Current rating: $I_{F(AV)}$				
③	- Voltage code x 100 = V_{RRM}				
④	- Assembly type, "A" for soldering type				

Fig.1 On-state current vs. voltage characteristic

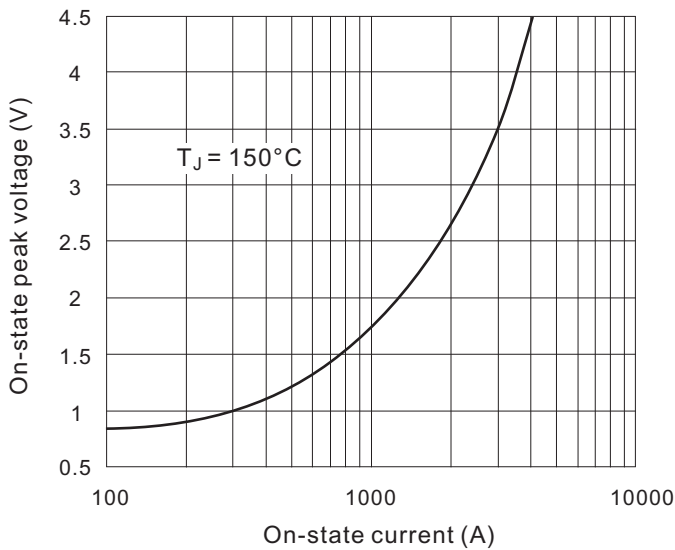


Fig.2 Transient thermal impedance(junction-case)

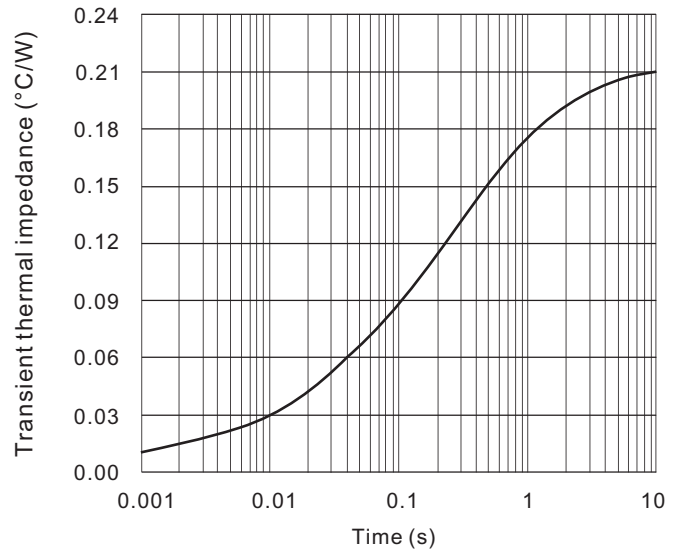


Fig.3 Power consumption vs. average current

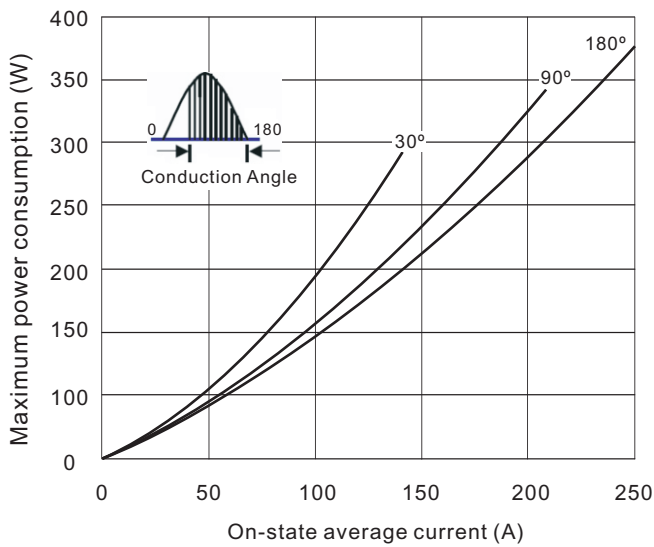


Fig.4 Case temperature vs. on-state average current

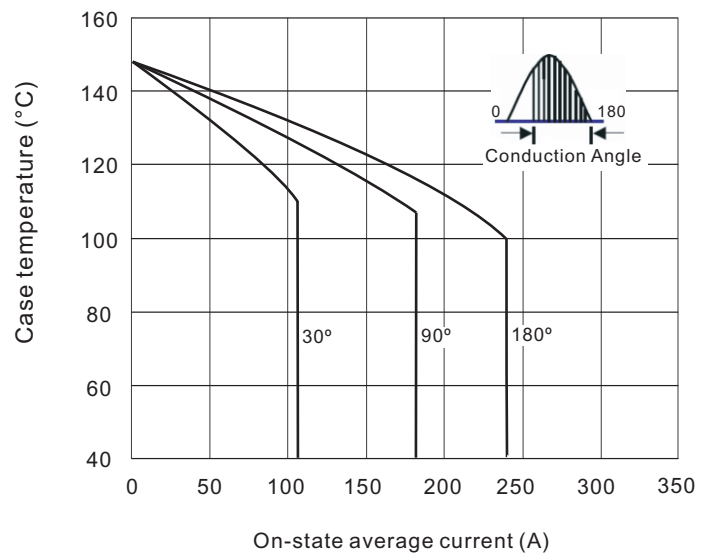


Fig.5 On-state surge current vs. cycles

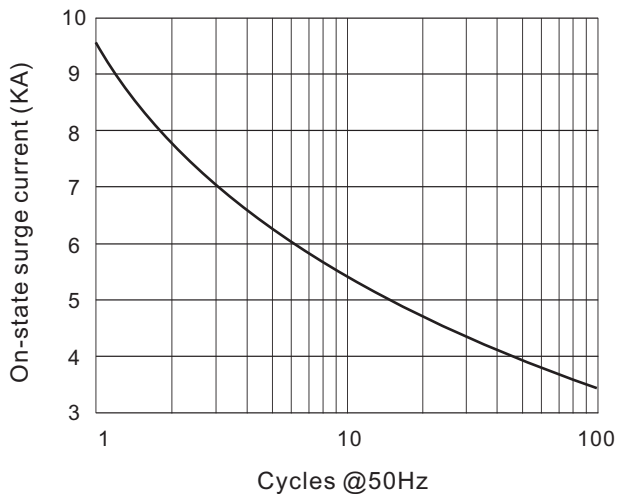


Fig.6 I²t Characteristic

