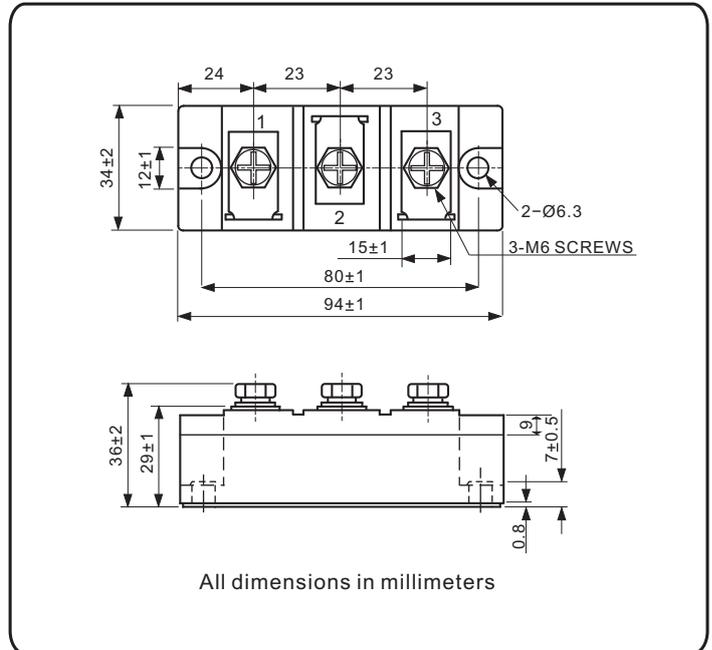


Standard Recovery Diodes, 135 A (INT-A-PAK Power Modules)



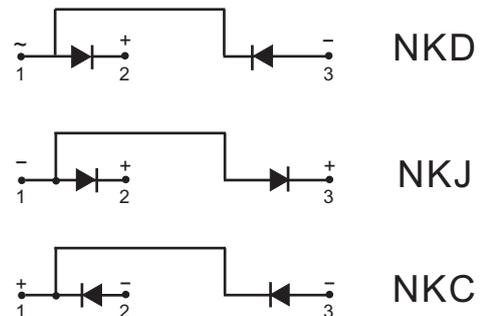
FEATURES

- 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

BENEFITS

- DC motor control and drives
- Battery charges
- Welders
- Power converters

PRODUCT SUMMARY	
$I_{F(AV)}$	135A
Type	Modules-Diode, High Voltage



MAJOR RATINGS AND CHARACTERISTICS

SYMBOL	CHARACTERISTICS	VALUES	UNIT
$I_{F(AV)}$		135	A
	T_C	100	$^{\circ}C$
$I_{F(RMS)}$		212	A
I_{FSM}	50 HZ	3800	
	60 HZ	3979	
I^2t	50 HZ	72.2	kA^2s
	60 HZ	65.7	
$I^2\sqrt{t}$		722	$kA^2\sqrt{s}$
V_{RRM}	Range	400 to 1600	V
t_J		-40 to 150	$^{\circ}C$

ELECTRICAL SPECIFICATIONS

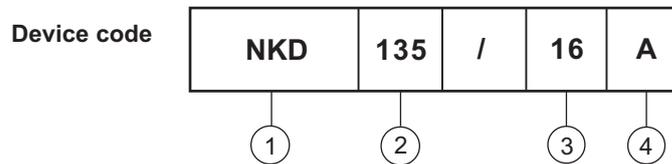
VOLTAGE RATINGS				
TYPE NUMBER	VOLTAGE CODE	V_{RRM} , MAXIMUM REPETITIVE PEAK REVERSE VOLTAGE V	V_{RSM} , MAXIMUM NON-REPETITIVE PEAK REVERSE VOLTAGE V	I_{RRM} AT $T_J = 150^\circ\text{C}$ mA
NKD135 NKJ135 NKC135	04	400	500	8
	08	800	900	
	12	1200	1300	
	14	1400	1500	
	16	1600	1700	

FORWARD CONDUCTION					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNIT
Maximum average on-state current at case temperature	$I_{F(AV)}$	180° conduction, half sine wave		135	A
				100	°C
Maximum RMS on-state current	$I_{F(RMS)}$	DC at 100°C case temperature		212	A
Maximum peak, one-cycle, on-state non-repetitive surge current	I_{FSM}	t = 10ms	No voltage reapplied	3800	
		t = 8.3ms		3979	
Maximum I^2t for fusing	I^2t	t = 10ms	Sine half wave, initial $T_J = T_J$ maximum	72.2	kA ² s
		t = 8.3ms		65.7	
		t = 10ms	100% V_{RRM} reapplied	50.5	
		t = 8.3ms		46	
Maximum $I^2\sqrt{t}$ for fusing	$I^2\sqrt{t}$	t = 0.1 to 10 ms, no voltage reapplied		722	kA ² √s
Maximum forward voltage drop	V_{FM}	$I_{FM} = 400\text{A}$, $T_J = 25^\circ\text{C}$, 180° conduction		1.4	V

BLOCKING					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum peak reverse and off-state leakage current	I_{RRM}	$T_J = 150^\circ\text{C}$		8	mA
RMS insulation 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	UNIT
Maximum junction operating temperature range	T_J, T_{stg}		-40 to 150	°C
Maximum thermal resistance, junction to case per junction	R_{thJC}	DC operation	0.31	°C/W
Maximum thermal resistance, case to heatsink per module	R_{thCS}	Mounting surface, smooth, flat and greased	0.09	
Mounting torque, ±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 Tabel



- 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

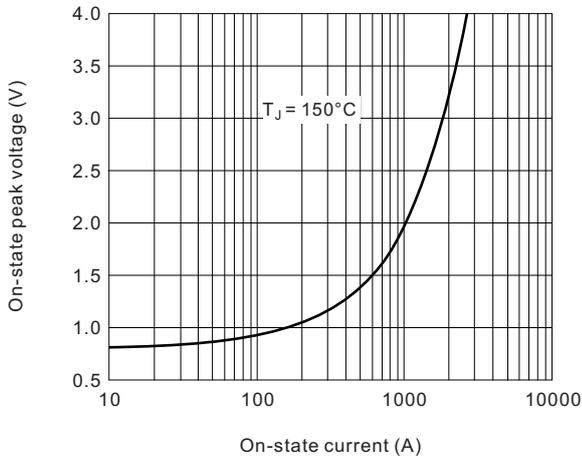


Fig.2 Transient thermal impedance (junction-case)

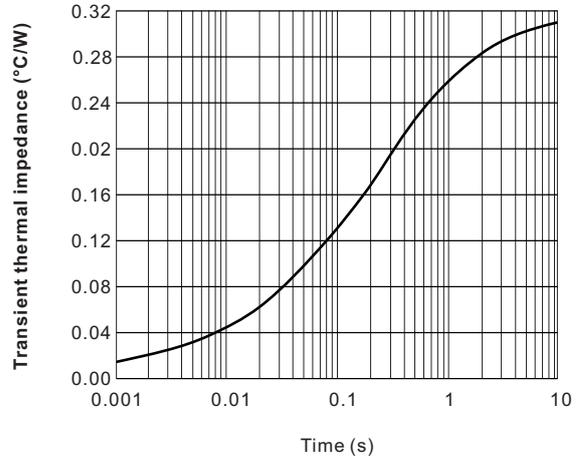


Fig.3 Power consumption vs. average current

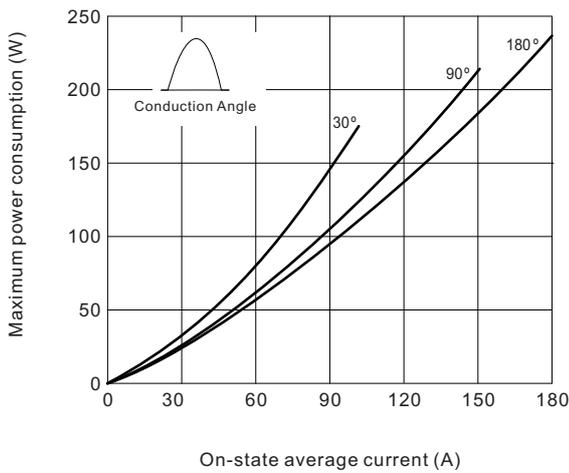


Fig.4 Case temperature vs. on-state average current

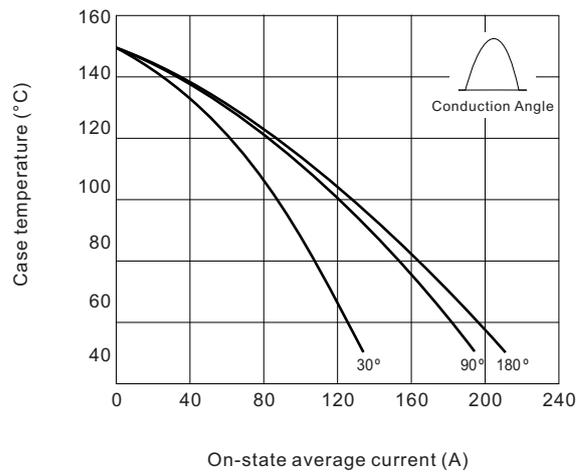


Fig.5 On-state surge current vs cycles

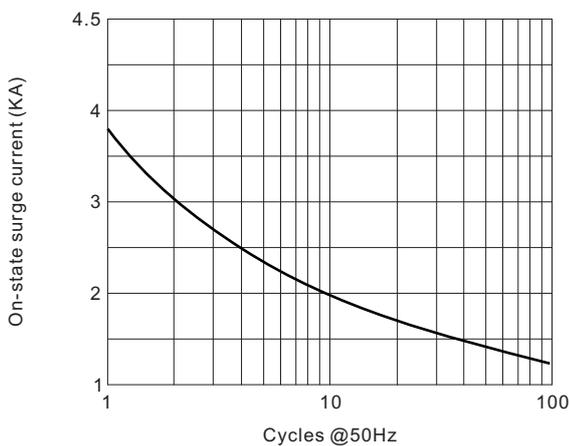


Fig.6 I²t Characteristic

