

Standard Diodes, 350 A (MAGN-A-PAK Power Modules)



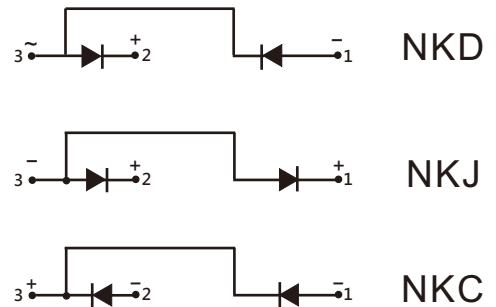
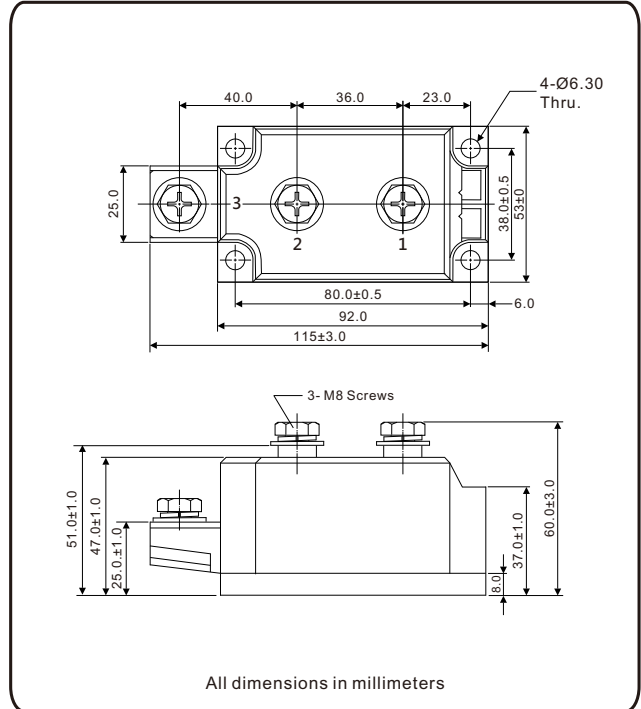
MAGN A-PAK

FEATURES

- UL approved file E320098
- High current capability
- High surge capability
- High voltage ratings up to 2000 V
- 3000 V_{RMS} isolating voltage with non-toxic substrate
- Industrial standard package
- Compliant to RoHS

APPLICATIONS

- Rectifying bridge for large motor drives
- Rectifying bridge for large UPS
- Rectifying power supplier
- Frequency converters



PRODUCT SUMMARY	
I _{F(AV)}	350A
Type	Modules-Diode, High Voltage

MAJOR RATINGS AND CHARACTERISTICS			
SYMBOL	CHARACTERISTICS	VALUES	UNIT
I _{F(AV)}		350	A
	T _C	100	°C
I _{F(RMS)}		550	A
		100	°C
I _{FSM}	50 HZ	15000	A
	60 HZ	15705	
I ² t	50 HZ	1125	kA ² s
	60 HZ	934	
I ² √t		11250	kA ² √s
V _{RRM}	Range	800 to 2000	V
T _{Stg} , T _J		-40 to 150	°C

ELECTRICAL SPECIFICATIONS

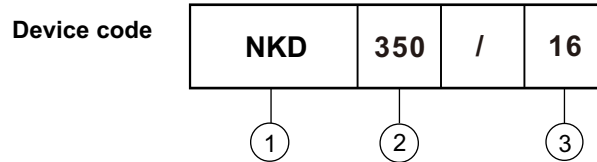
VOLTAGE RATINGS				
TYPE NUMBER	VOLTAGE CODE	V_{RRM} , MAXIMUM REPETITIVE PEAK REVERSE VOLTAGE V	V_{RSM} , MAXIMUM NON-REPETITIVE PEAK REVERSE VOLTAGE V	I_{RRM} MAXIMUM AT T_J MAXIMUM mA
NKD350 NKJ350 NKC350	08	800	900	20
	12	1200	1300	
	16	1600	1700	
	18	1800	1900	
	20	2000	2100	

FORWARD CONDUCTION					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNIT
Maximum average forward current at case temperature	$I_{F(AV)}$	180° conduction, half sine wave		350	A
				100	°C
Maximum RMS forward current	$I_{F(RMS)}$	180° conduction, half sine wave at $T_C = 100^\circ\text{C}$		550	A
Maximum peak, one-cycle forward non-repetitive surge current	I_{FSM}	t = 10ms	No voltage reapplied	15	kA
		t = 8.3ms		15.7	
Maximum I^2t for fusing	I^2t	t = 10ms	Sine half wave, initial $T_J = T_J$ maximum	1125	kA ² s
		t = 8.3ms		934	
		t = 10ms		790	
		t = 8.3ms	100% V_{RRM} reapplied	660	
		t = 8.3ms		660	
Maximum $I^2\sqrt{t}$ for fusing	$I^2\sqrt{t}$	t = 0.1 to 10 ms, no voltage reapplied		11250	kA ² √s
Maximum forward voltage drop	V_{FM}	$I_{pk} = 1050\text{A}$, $T_J = 25^\circ\text{C}$		1.4	V

BLOCKING					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNIT
RMS insulation Voltage	V_{INS}	t = 1s		3000	V
Maximum peak reverse and off-state leakage current	I_{RRM}	$T_J = T_J$ maximum, rated V_{RRM} applied		20	mA
		$T_J = 25^\circ\text{C}$		20	μA

THERMAL AND MECHANICAL SPECIFICATIONS					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNIT
Maximum junction operating and storage temperature range	T_J, T_{stg}			-40 to 150	°C
Maximum thermal resistance, junction to case per junction	R_{thJC}	DC operation		0.12	°C/W
Maximum thermal resistance, case to heatsink	R_{thCS}	Mounting surface, smooth, flat and greased		0.044	
Mounting torque, ±10%	MAP to heatsink, 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.		4	N·m
	busbar to MAP, M8			12	
Approximate weight				900	g
Case style		See dimensions - link at the end of datasheet		MAGN-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}

Fig.1 On-state current vs. voltage characteristic

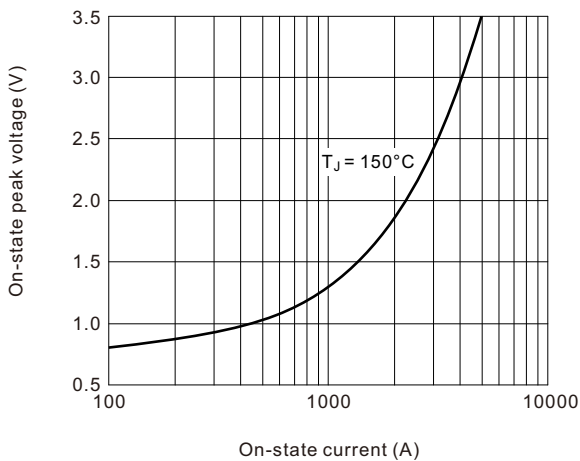


Fig.2 Transient thermal impedance (junction-case)

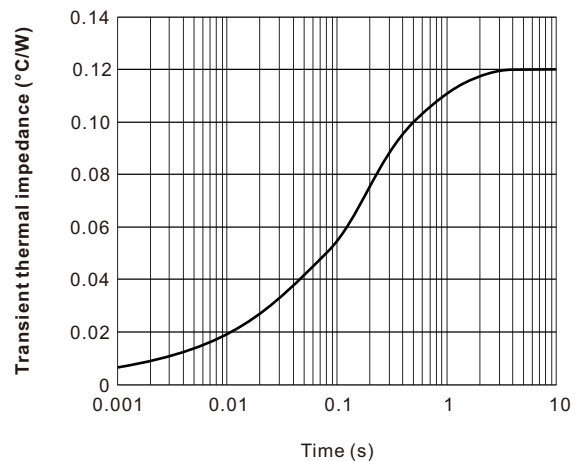


Fig.3 Power consumption vs. average current

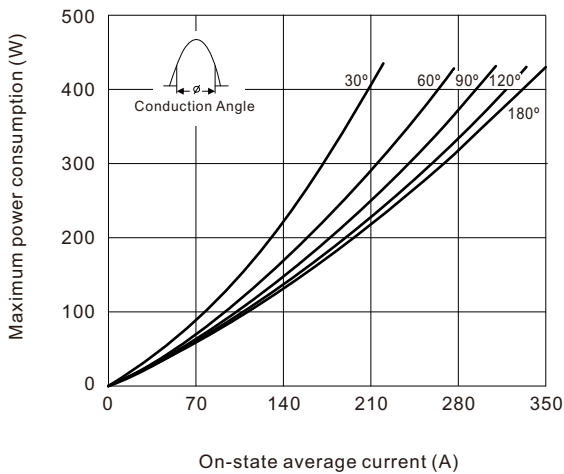


Fig.4 Case temperature vs. on-state average current

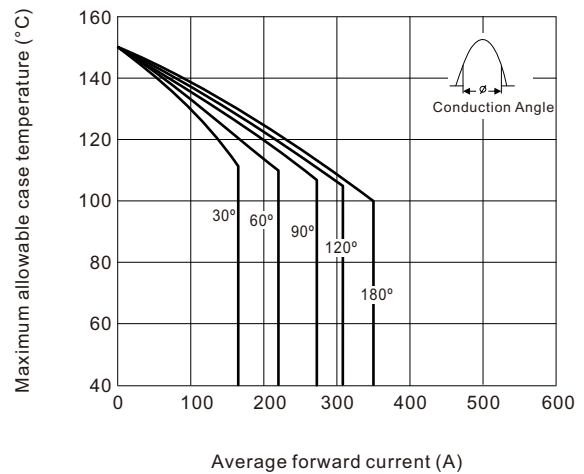


Fig.5 On-state surge current vs cycles

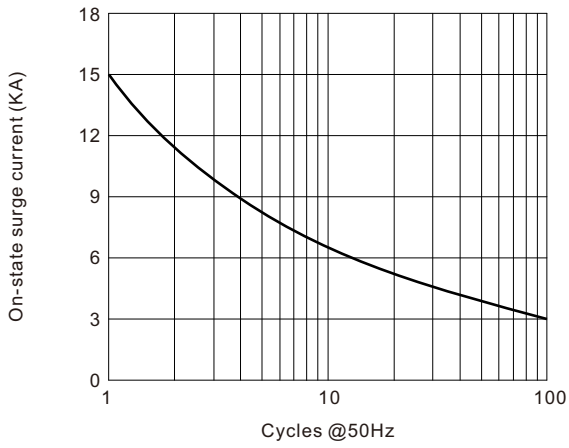


Fig.6 I²t Characteristic

