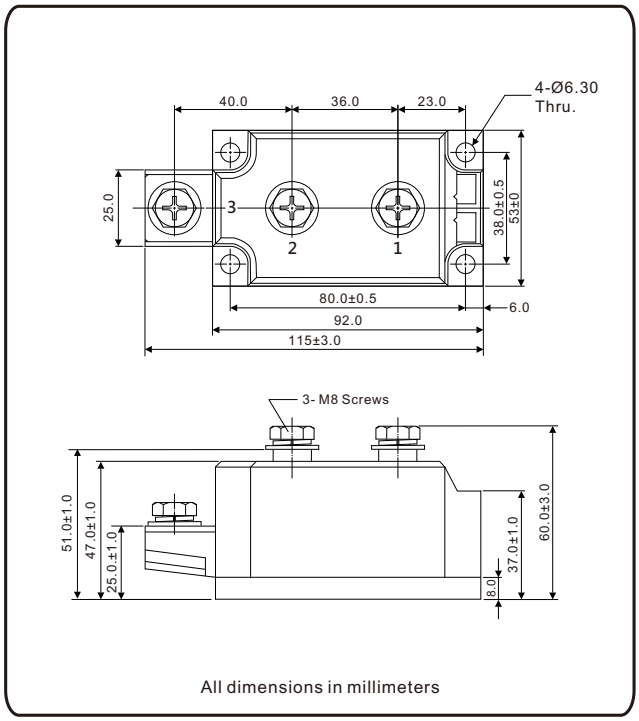
Nell Semiconductors

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



MAGN A-PAK



All dimensions in millimeters

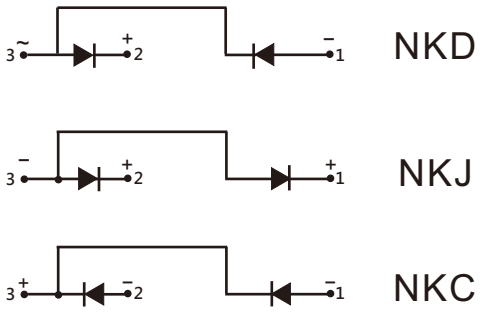
FEATURES

- 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

RoHS COMPLIANT

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^2t	50 HZ	1125	kA^2s
	60 HZ	934	
$I^2\sqrt{t}$		11250	$kA^2\sqrt{s}$
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°C			550	A
Maximum peak, one-cycle forward non-reptitive surge current	I_{FSM}	t = 10ms	No voltage reapplied	Sine half wave, initial T_J = T_J maximum	15	kA
		t = 8.3ms			15.7	
Maximum I^2t for fusing	I^2t	t = 10ms			1125	kA^2s
		t = 8.3ms			934	
		t = 10ms	100%V_{RRM} reapplied		790	
		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	$kA^2\sqrt{s}$
Maximum forward voltage drop	V_{FM}	I_{pk} = 1050A, T_J = 25°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°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

Device code

NKD	350	/	16
①	②		③

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

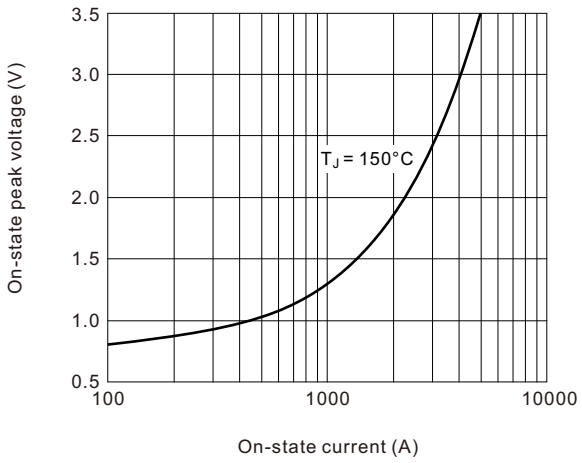


Fig.2 Transient thermal impedance (junction-case)

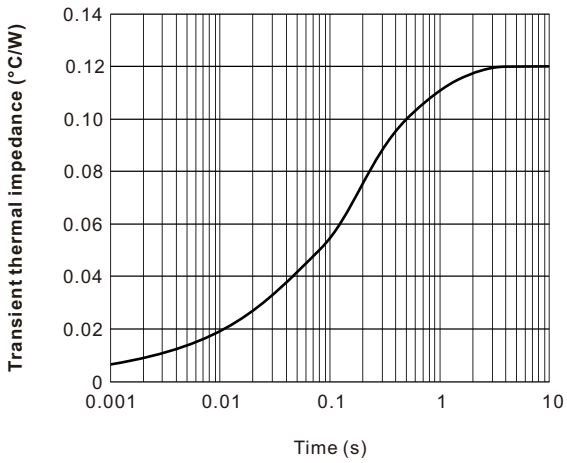


Fig.3 Power consumption vs. average current

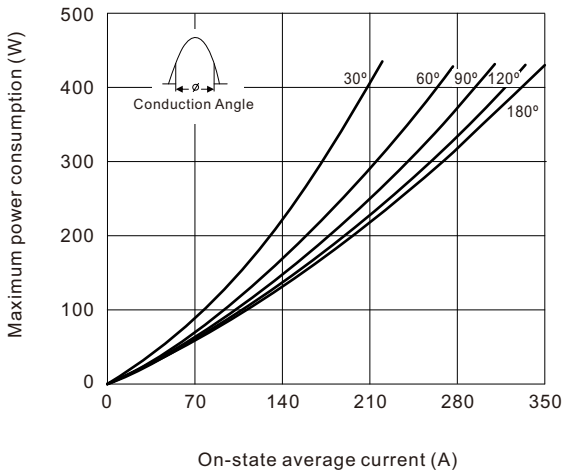


Fig.4 Case temperature vs. on-state average current

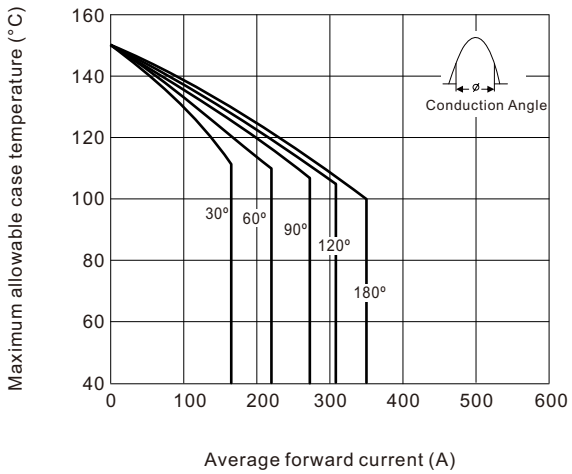


Fig.5 On-state surge current vs cycles

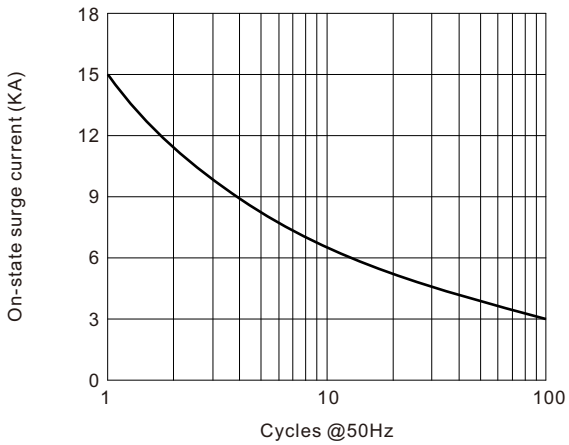


Fig.6 I^2t Characteristic

