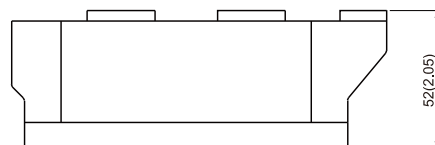
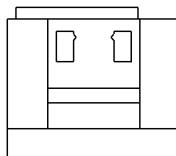
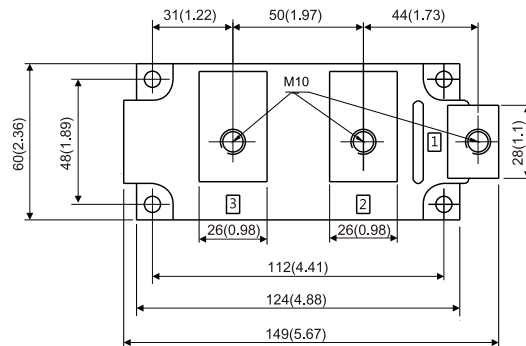
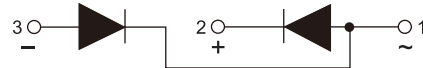


**Standard Diodes Module
(MAGN-A-PAK Power Modules)
700A/1200V~2400V**



SUPER MAGN A-PAK



All dimensions in millimeters (inches)

FEATURES

- UL approved file E320098 
- High surge capability
- High voltage ratings up to 2400 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
- Inverters

PRODUCT SUMMARY

I _{F(AV)}	700 A
Type	Modules - Diode, High Voltage

MAJOR RATINGS AND CHARACTERISTICS

SYMBOL	CHARACTERISTICS	VALUES	UNITS
$I_{F(AV)}$		700	A
	T_C	100	°C
$I_{F(RMS)}$		1100	A
	T_C	100	°C
I_{FSM}	50 Hz	17600	A
	60 Hz	18430	
I^2t	50 Hz	1550	kA ² s
	60 Hz	1410	
$I^2\sqrt{t}$		15490	kA ² $\sqrt{t}$
V_{RRM}	Range	1200 to 2400	V
T_{stg}, T_J	Range	- 40 to 150	°C

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
NKD700/xxT	12	1200	1300	40
	16	1600	1700	
	18	1800	1900	
	20	2000	2100	
	22	2200	2300	
	24	2400	2500	

FORWARD CONDUCTION

PARAMETER	SYMBOL	TEST CONDITIONS			VALUES	UNITS
Maximum average forward current at case temperature	I _{F(AV)}	180° conduction, half sine wave			700	A
					100	°C
Maximum RMS forward current	I _{F(RMS)}	180° conduction, half sine wave at T _C = 100°C			1100	A
Maximum peak, one-cycle forward, non-repetitive surge current	I _{FSM}	t = 10 ms	No voltage reapplied	Sinusoidal half wave, initial T _J = T _J maximum	17600	A
		t = 8.3 ms			18430	
		t = 10 ms	100 % V _{RRM} reapplied		14785	
		t = 8.3 ms			15480	
Maximum I ² √t for fusing	I ² t	t = 10 ms	No voltage reapplied		1550	kA ² s
		t = 8.3 ms			1410	
		t = 10 ms	100 % V _{RRM} reapplied		1093	
		t = 8.3 ms			994	
Maximum I ² √t for fusing	I ² √t	t = 0.1ms to 10 ms, no voltage reapplied			15490	kA ² √s
Maximum forward voltage drop	V _{FM}	I _{pk} = 2000A, T _J = 25 °C, t _p = 10 ms sine pulse			1.30	V
Threshold voltage	V _{F(TO)}				0.80	V
Slope resistance	r _t				0.30	mΩ

BLOCKING

PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
RMS insulation voltage	V_{INS}	Full sine wave, 50Hz, RMS	t=60s	3000	V
			t=1s	3600	
Maximum peak reverse and off-state leakage current	I_{RRM}	$T_J = T_J$ maximum, rated V_{RRM} applied		40	mA
		$T_J = 25^\circ\text{C}$		40	μA

THERMAL AND MECHANICAL SPECIFICATIONS

PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum junction operating and storage temperature range	T_J, T_{stg}		- 40 to 150	°C
Maximum thermal resistance, junction to ca se per junction	R_{thJC}	DC operation	0.065	K/W
Maximum thermal resistance, case to heatsink	R_{thC-hs}		0.02	
Mounting torque ± 10 %	SMAP to heatsink busbar to SMAP	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.	6 to 8	Nm
			12 to 15	
Approximate weight			1500	g
Case style		See dimensions - link at the end of datasheet	SUPER MAGN-A-PAK	

' R_{thJC} CONDUCTION

CONDUCTION ANGLE	SINUSOIDAL CONDUCTION	RECTANGULAR CONDUCTION	TEST CONDITIONS	UNITS
180°	0.009	0.006	$T_J = T_{J,maximum}$	K/W
120°	0.011	0.011		
90°	0.014	0.015		
60°	0.021	0.022		
30°	0.037	0.038		

Note

- The table above shows the increment of thermal resistance R_{thJC} when devices operate at different conduction angles than DC

ORDERING INFORMATION TABLE

Device code	NKD	700	/	16	T
	①	②		③	④

- ① - Module type: NKD for (Diode + Diode) module
- ② - Current rating: $I_{F(AV)}$, 700 = 700A
- ③ - Voltage code x 100 = V_{RRM}
- ④ - "T" for Flat terminal structure

Fig.1 Current Ratings Characteristics

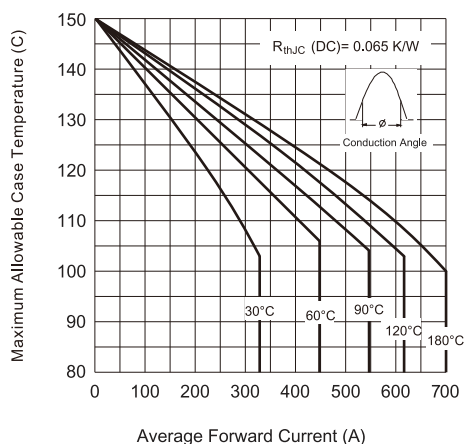


Fig.2 Current Ratings Characteristics

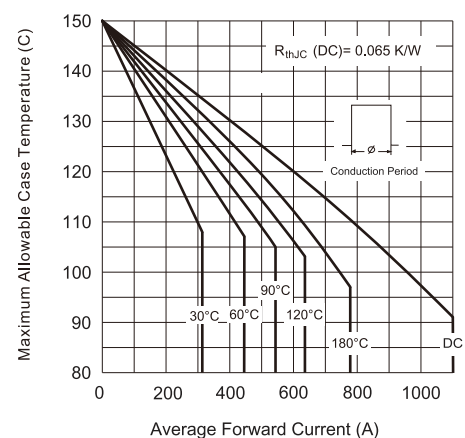


Fig.3 Forward Power Loss Characteristics

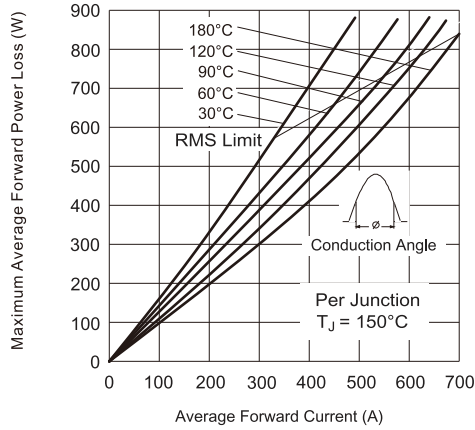


Fig.4 Forward Power Loss Characteristics

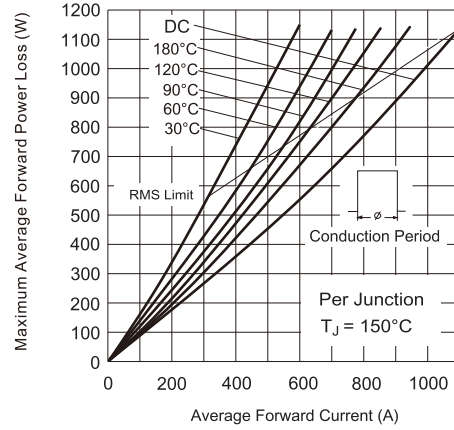


Fig.5 Maximum Non-Repetitive Surge Current

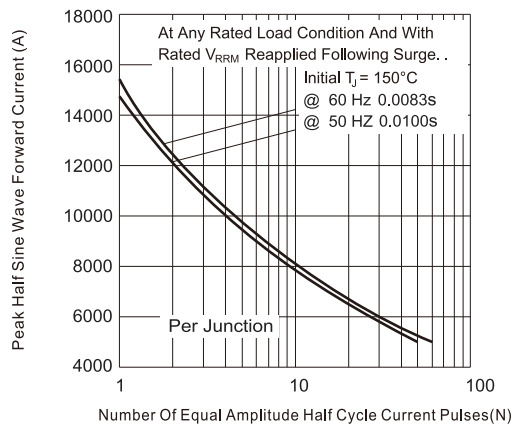


Fig.6 Maximum Non-Repetitive Surge Current

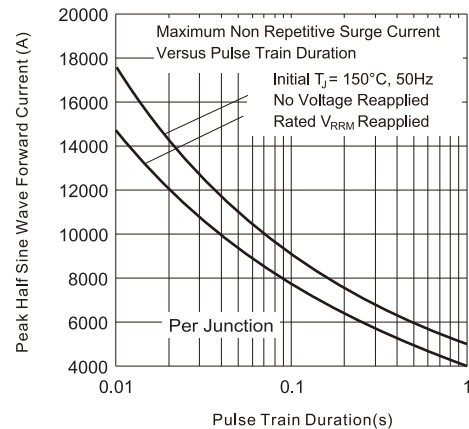


Fig.7 Forward Power Loss Characteristics

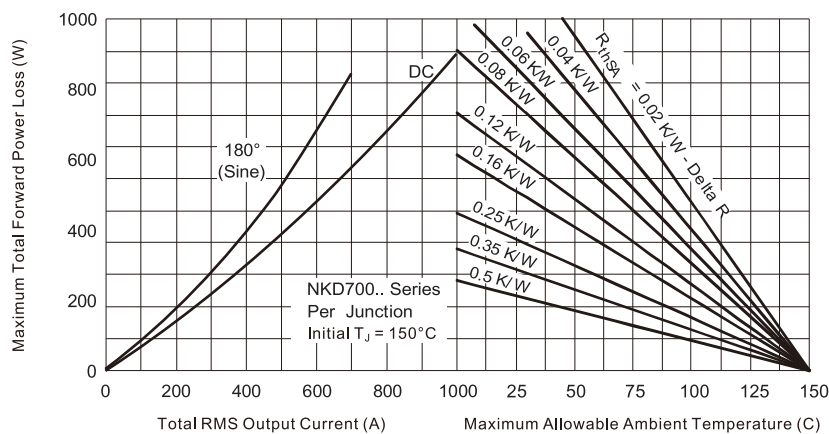


Fig.8 Forward Power Loss Characteristics

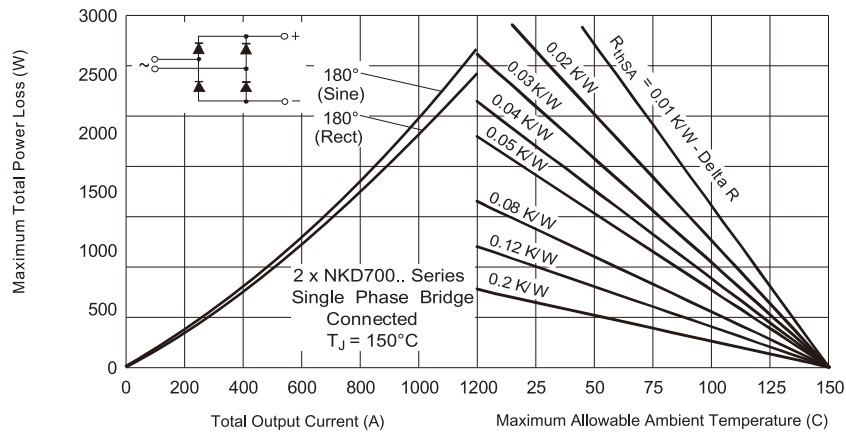


Fig.9 Forward Power Loss Characteristics

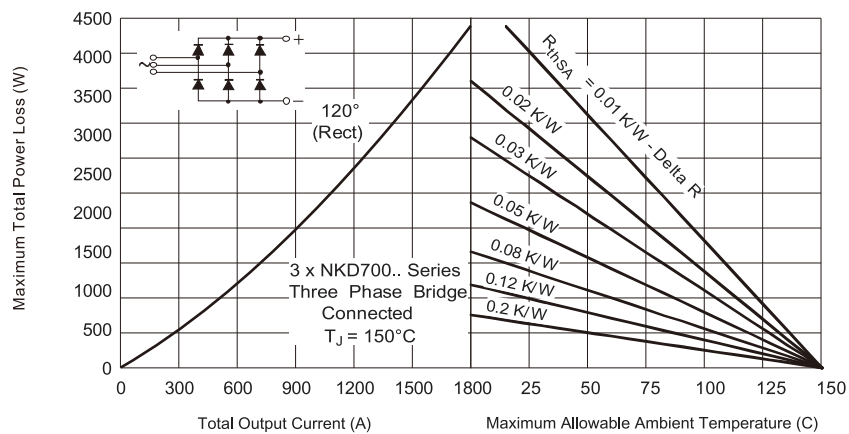


Fig.10 Instantaneous Forward Voltage

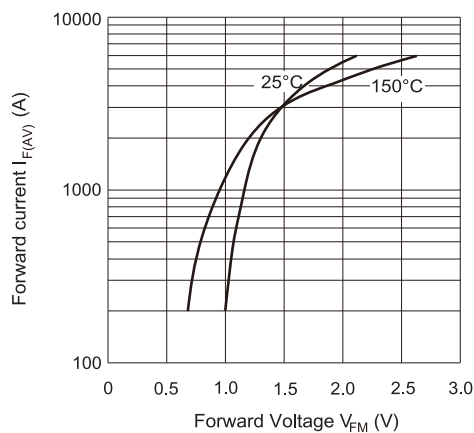


Fig.11 Thermal Impedance Z_{thJC} Characteristic

