

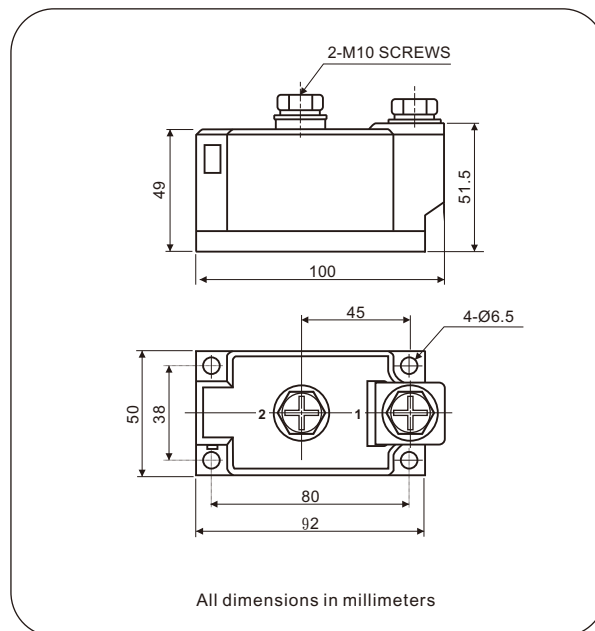
Standard Recovery Diodes, 350 A (MAGN-A-PAK Power Modules)



MAP Module

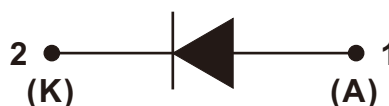
FEATURES

- 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 basic configuration
- 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

$I_{F(AV)}$	350A
Type	Modules-Diode, High Voltage

MAJOR RATINGS AND CHARACTERISTICS

SYMBOL	CHARACTERISTICS	VALUES	UNIT
$I_{F(AV)}$		350	A
	T_C	100	$^{\circ}\text{C}$
$I_{F(RMS)}$		550	A
I_{FSM}	50 HZ	12500	
	60 HZ	13088	
I^2t	50 HZ	781	kA^2s
	60 HZ	711	
$I^2\sqrt{t}$		7813	$\text{kA}^2\sqrt{\text{s}}$
V_{RRM}		400 to 3000	V
t_J	Range	-40 to 150	$^{\circ}\text{C}$

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
NKE350	04	400	500	30
	08	800	900	
	12	1200	1300	
	16	1600	1700	
	20	2000	2100	
	25	2500	2600	
	30	3000	3100	

FORWARD CONDUCTION								
PARAMETER	SYMBOL	TEST CONDITIONS				VALUES	UNIT	
Maximum average on-state current at case temperature	I _{F(AV)}	180° conduction, half sine wave				350	A	
						100	°C	
Maximum RMS on-state current	I _{F(RMS)}	180° conduction, half sine wave, 50HZ, T _C = 100°C				550	A	
Maximum peak, one-cycle, on-state non-reptitive surge current	I _{FSM}	t = 10ms	No voltage reapplied	Sine half wave, initial T _J = T _J maximum		12500		
		t = 8.3ms				13088		
Maximum I ² t for fusing	I ² t	t = 10ms	No voltage reapplied	Sine half wave, initial T _J = T _J maximum		781	kA ² s	
		t = 8.3ms				711		
		t = 10ms	100%V _{RRM} reapplied			547		
		t = 8.3ms				498		
Maximum I ² √t for fusing	I ² √t	t = 0.1 to 10 ms, no voltage reapplied				7813	kA ² √s	
Maximum forward voltage drop	V _{FM}	I _{FM} = 1050A, T _J = 25°C, 180° conduction				1.40	V	

BLOCKING				
PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum peak reverse and off-state leakage current	I_{RRM}	$T_J = 150^{\circ}\text{C}$	30	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	0.125	°C/W
Maximum thermal resistance, case to heatsink per module	R_{thCS}	Mounting surface, smooth, flat and greased	0.035	
Mounting torque, $\pm 10\%$ MAP to heatsink, M6 busbar to MAP, M8		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
			8 to 10	
Approximate weight			900	g
			31.7	oz.
Case style			MAGN-A-PAK (MAP)	

ΔR_{thJC} CONDUCTION											
DEVICES	SINE HALF WAVE CONDUCTION AT TJ MAXIMUM					RECTANGULAR WAVE CONDUCTION AT TJ MAXIMUM					UNITS
	180°	120°	90°	60°	30°	180°	120°	90°	60°	30°	
NKE350	0.008	0.010	0.013	0.020	0.032	0.007	0.011	0.015	0.020	0.033	°C/W

Note

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

Ordering Information Tabel

Device code

NKE	350	/	08
①	②		③

- ① - Module type, NKE for single diode module
- ② - Current rating : $I_{F(AV)}$
- ③ - Voltage code x 100 = V_{RRM}

Fig.1 Current ratings characteristics

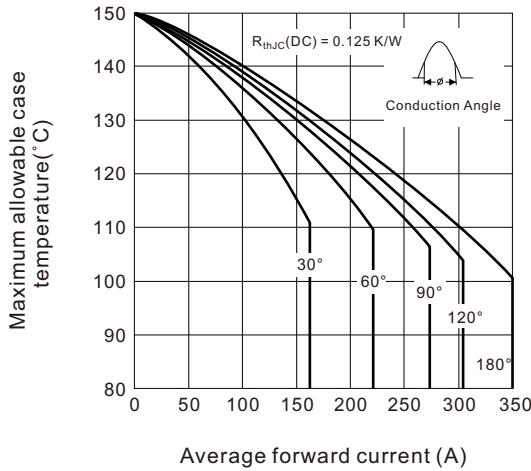


Fig.2 Current ratings characteristics

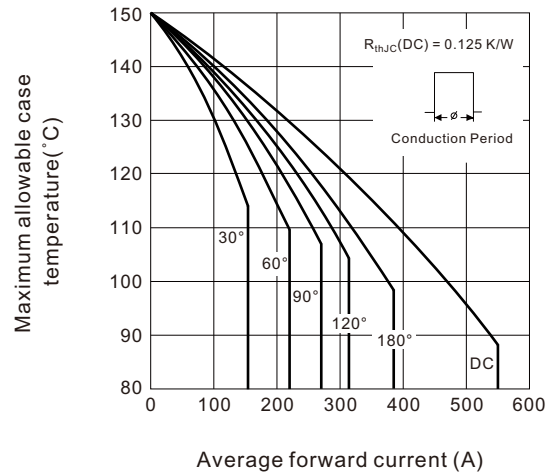


Fig.3 Forward Power Loss characteristics

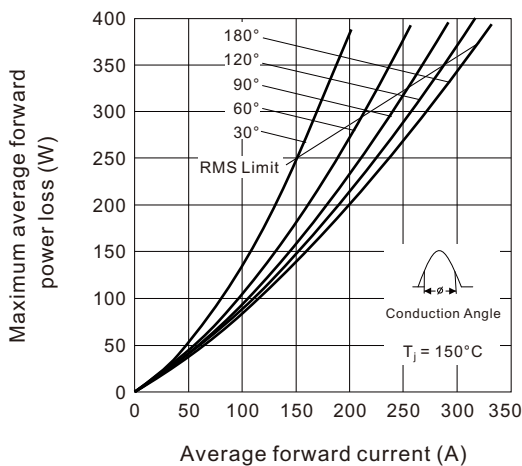


Fig.4 Forward Power Loss characteristics

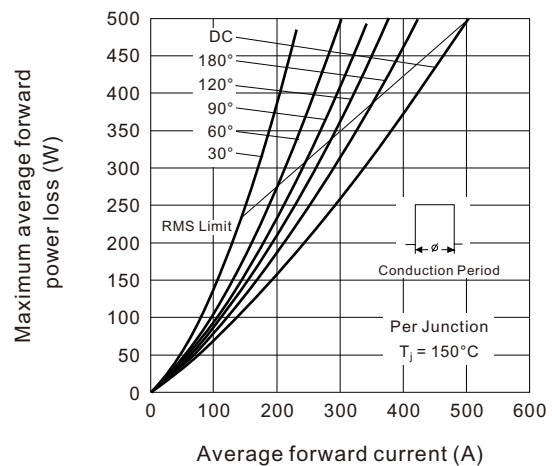


Fig.5 Forward power loss characteristics

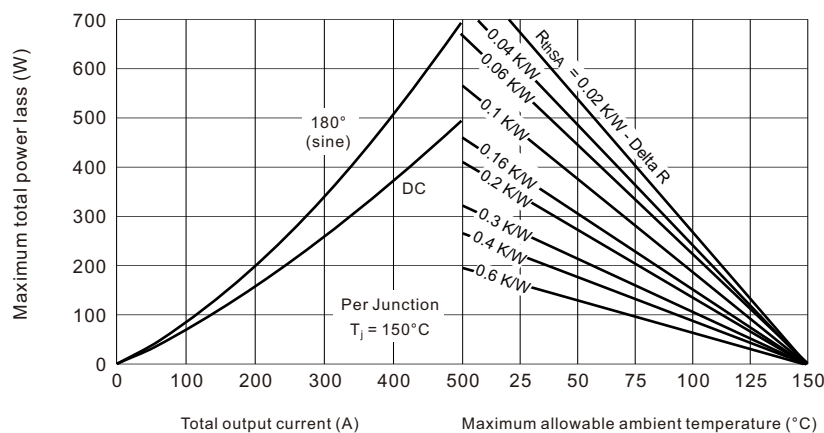


Fig.6 Maximum non-repetitive surge current

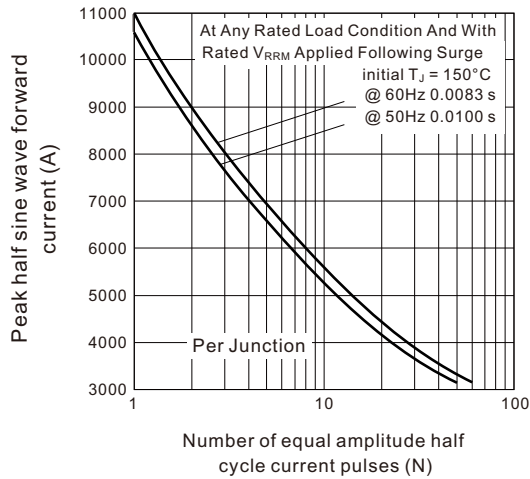


Fig.7 Maximum non-repetitive surge current

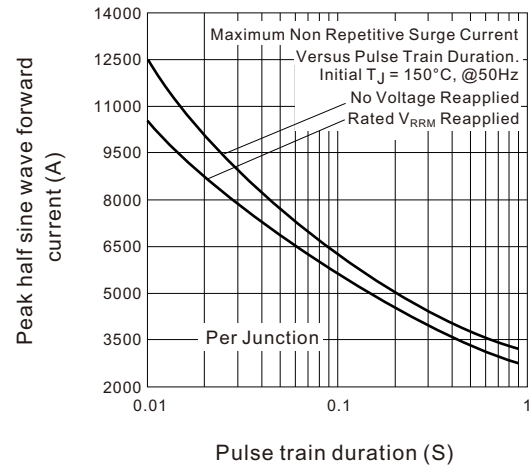


Fig.8 Forward voltage drop characteristics

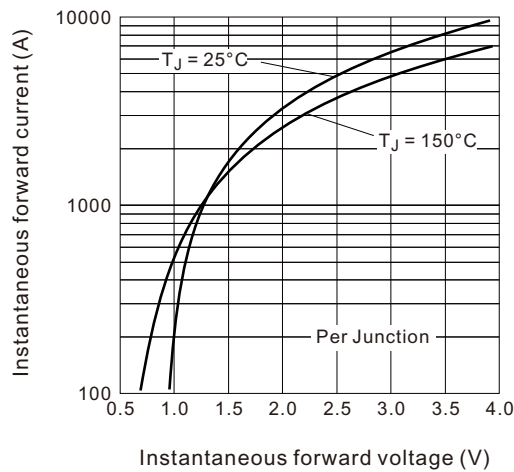


Fig.9 Thermal Impedance Z_{thJ-HS} characteristics

