Rectifier Diode, 60A x 2
1200V / 1600V

Pb Available RoHS* COMPLIANT

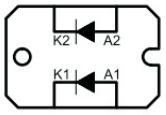
FEATURES

- International standard package mini BLOC, ISOTOP compatible
- Isolation voltage 2500V above
- Glass passivated chips
- 2 independent diodes in one package
- Compliant to RoHS
- Designed and for industrial level

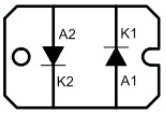
APPLICATIONS

- Switching mode power supplies
- Inductive heating and melting
- Input rectifier diode
- Uninterruptible power supplies (UPS)
- Ultrasonic cleaners and welders

CIRCUIT CONFIGURATION



Parallel
NST120Dxx



Anti-Parallel
NST120Dxx-A

PRODUCT SUMMARY	
$I_{F(AV)}$ @ 80ºC per diode	60A
V_{RRM}	1200 to 1600V
Type	Modules-Diode, High Voltage

MAJOR RATINGS AND CHARACTERISTICS			
SYMBOL	CHARACTERISTICS	VALUES	UNIT
$I_{F(AV)}$	T_C = 80°C	60	A
$I_{F(RMS)}$		94	
I_{FSM}	50 HZ	750	
	60 HZ	785	
I^2t	50 HZ	2.81	kA^2s
	60 HZ	2.56	
$I^2\sqrt{t}$		28.1	$kA^2\sqrt{s}$
V_{RRM}	Range	1200 to 1600	V
T_J		-40 to 150	ºC
T_{stg}			

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 = 150°C mA
NST120DXX NST120DXX-A	12	1200	1300	5.0
NST120DXX NST120DXX-A	16	1600	1700	

FORWARD CONDUCTION (Per Diode)						
PARAMETER	**SYMBOL**	**TEST CONDITIONS**			**VALUES**	**UNIT**
Maximum average forward current at case temperature	$I_{F(AV)}$	180° conduction, half sine wave			60	A
					80	°C
Maximum RMS forward current	$I_{F(RMS)}$	DC at 80°C case temperature			94	A
Maximum peak, one-cycle forward, non-reptitive surge current	I_{FSM}	t = 10ms	No voltage reapplied	Sinusoidal half wave, initial $T_J = T_J$ maximum	750	A
		t = 8.3ms			785	
		t = 10ms	100%V_{RRM} reapplied		630	
		t = 8.3ms			660	
Maximum I^2t for fusing	I^2t	t = 10ms	No voltage reapplied		2.81	kA^2s
		t = 8.3ms			2.56	
		t = 10ms	100%V_{RRM} reapplied		1.98	
		t = 8.3ms			1.80	
Maximum $I^2\sqrt{t}$ for fusing	$I^2\sqrt{t}$	t = 0.1 to 10 ms, no voltage reapplied			28.1	$kA^2\sqrt{s}$
Threshold voltage	V_{TO}	For power-loss calculations only $T_J = T_{J(max.)}$			0.80	V
Forward slope resistance	r_T				8.0	mΩ
Maximum forward voltage drop	V_{FM}	I_{FM} = 60A, T_J = 25°C, t_p = 400 µs square wave			1.25	V

BLOCKING				
PARAMETER	**SYMBOL**	**TEST CONDITIONS**	**VALUES**	**UNITS**
Maximum peak reverse leakage current	I_{RRM}	T_J = 25°C	5.0	µA
		T_J = 150°C	5.0	mA
Maximum RMS insulation Voltage	V_{INS}	50/60 Hz, $I_{INS} \leq$ 1 mA	2500 (1 min) 3000 (1 s)	V

THERMAL AND MECHANICAL SPECIFICATIONS				
PARAMETER	**SYMBOL**	**TEST CONDITIONS**	**VALUES**	**UNIT**
Junction and storage temperature range	T_J,T_{stg}		-40 to 150	°C
Maximum internal thermal resistance, junction to case per leg	R_{thJC}	DC operation	0.65	°C/W
Typical thermal resistance, case to heatsink per module	R_{thCS}	Mounting surface flat, smooth and greased	0.1	
Mounting force, ±10% to heatsink, M4		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.	1.1	Nm
busbar, M4			1.1	
Approximate weight			30	g
			1.06	oz.
Case style		JEDEC	SOT-227	

Fig.1 Current ratings characteristics

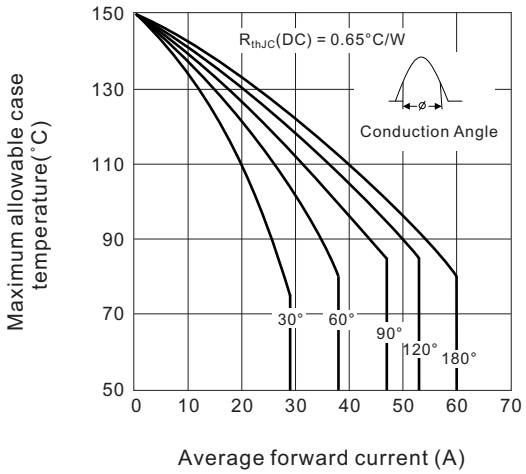


Fig.2 Current ratings characteristics

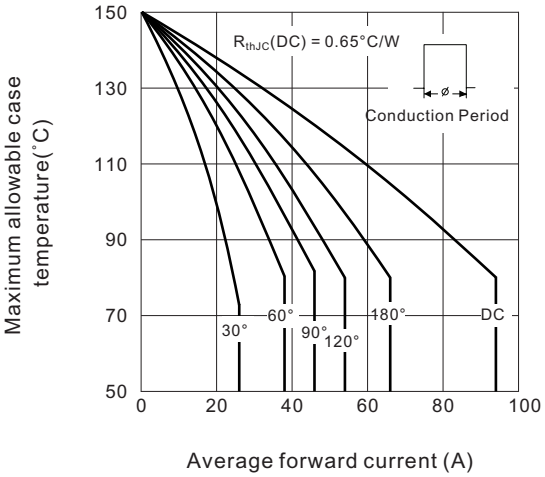


Fig.3 On-state power loss characteristics

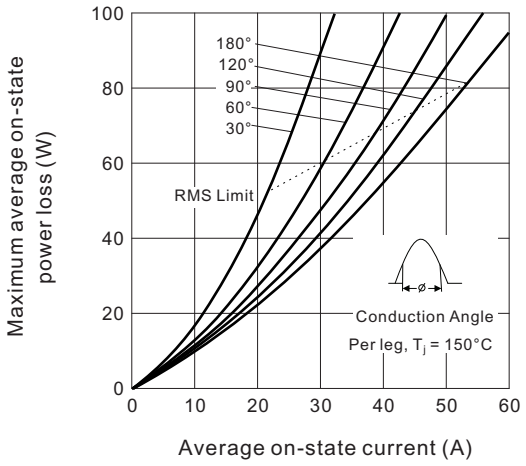


Fig.4 On-state power loss characteristics

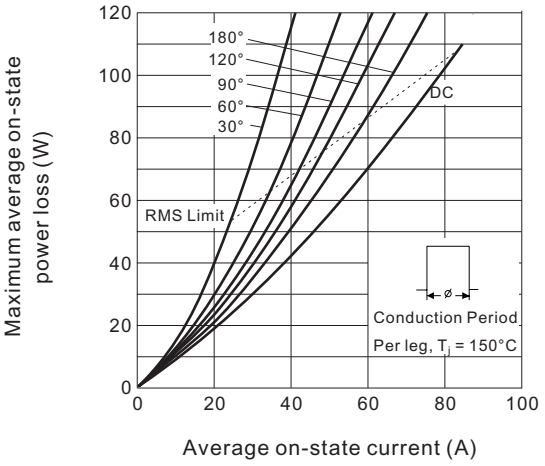


Fig.5 Maximum non-repetitive surge current

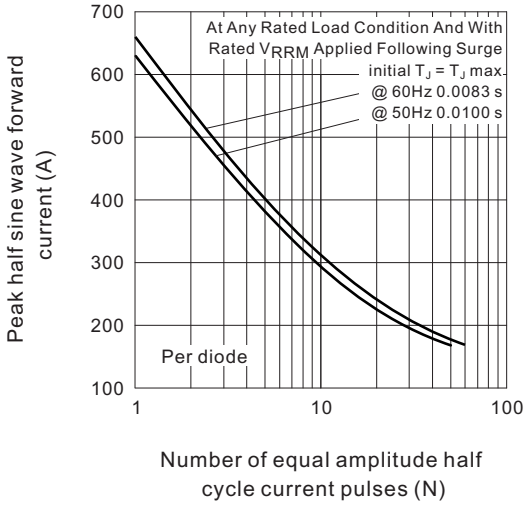


Fig.6 Maximum non-repetitive surge current

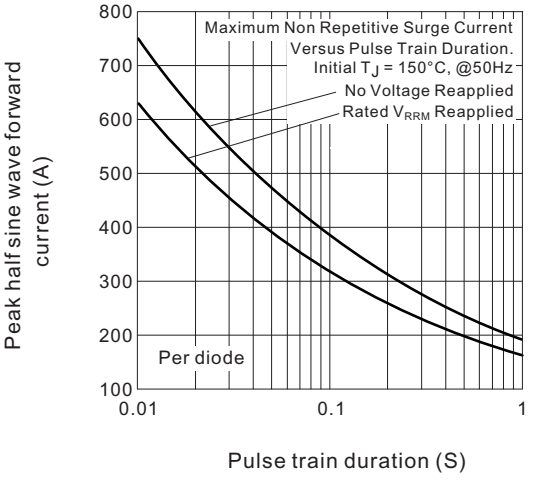


Fig.7 Forward voltage characteristics

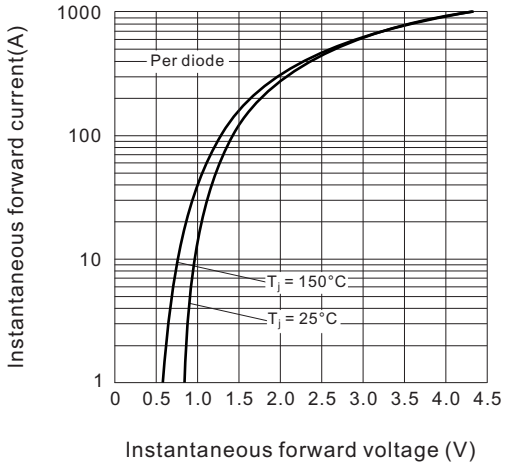
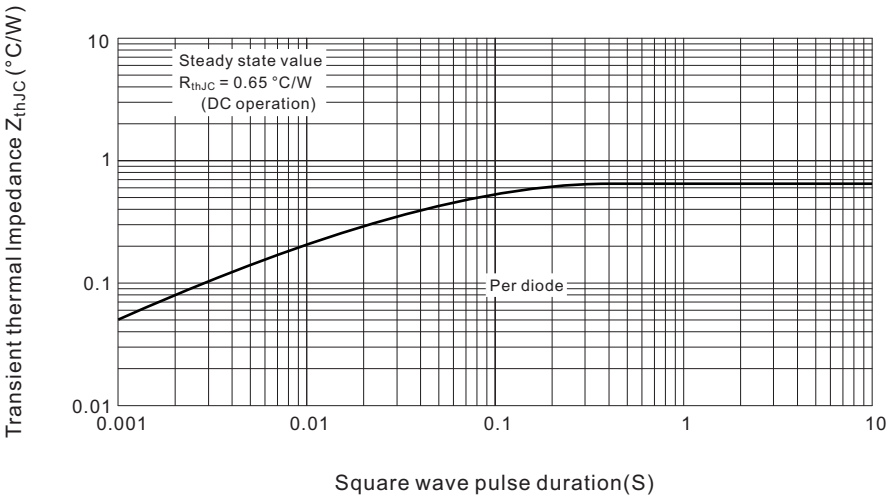
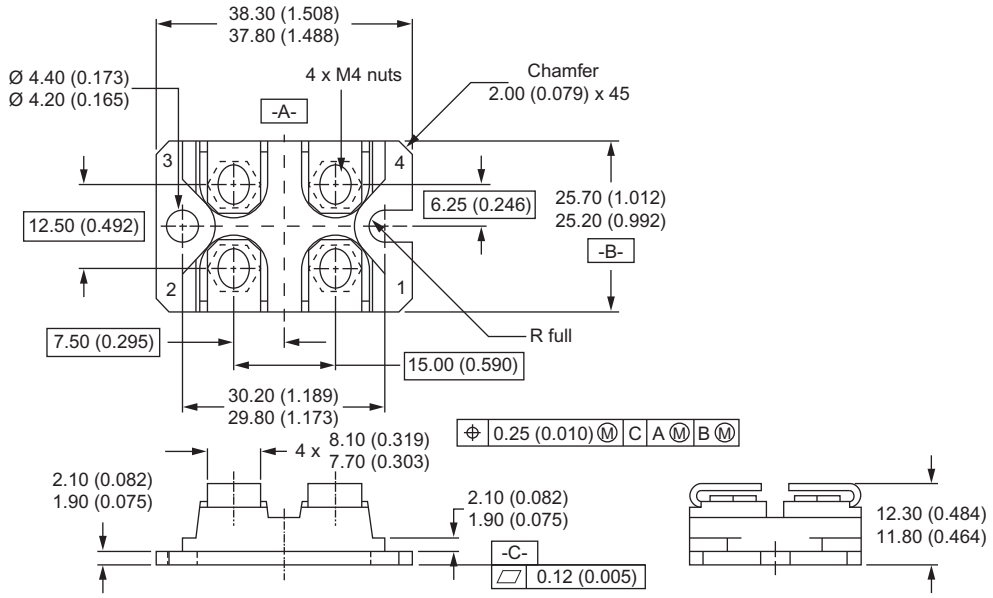


Fig.8 Thermal Impedance Z_{thJC} characteristics



SOT-227



All dimensions in millimeters (inches)

Notes
- Dimensioning and toleranc ing per ANSI Y14.5M-1982
- Controlling dimension: millimeter

ORDERING INFORMATION TABLE

Device code

N	ST	120	D	12	–	A
1	2	3	4	5		6

1 - Nell High Power Products
2 - Package indicator (SOT-227)
3 - Current rating (120 = 120A, 60A x 2)
4 - D = Standard Diode family
5 - Voltage rating (12 = 1200 V)
6 - Circuit type, A for Anti-Parallel type
Blank for parallel type.