

EST120BN40SN

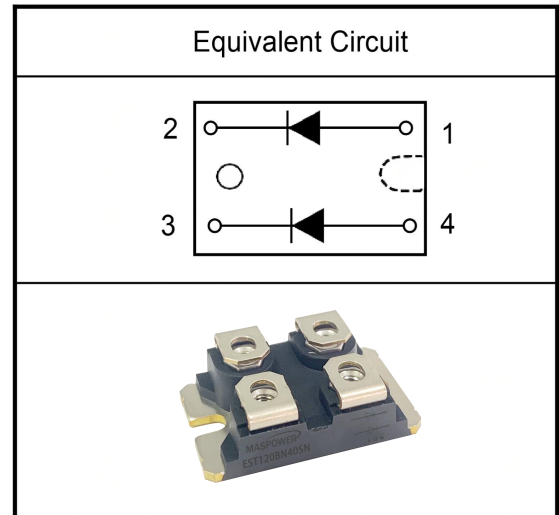
Ultra-Fast Reverse Recovery Diode Module

Feature

- Ultra fast Reverse Recovery Time
- Soft Reverse Recovery Characteristics
- Low Reverse Recovery Loss
- Low Forward Voltage
- High Surge Current Capability
- Low Inductance Package

Applications

- Inversion Welder
- Uninterruptible Power Supply (UPS)
- Plating Power Supply
- Ultrasonic Cleaner and Welder
- Converter & Chopper
- Power Factor Correction (PFC) Circuit



Absolute Maximum Ratings @T_c = 25°C (Per Leg)

Symbol	Parameter	Conditions	Ratings	Unit
V _R	D.C Reverse Voltage		400	V
V _{RRM}	Repetitive Peak Reverse Voltage		400	V
I _{F(AV)}	Average Forward Current	T _c =110°C, Per Diode	120	A
		T _c =120°C, 20KHz, Per Moudle	240	A
I _{F(RMS)}	RMS Forward current	T _c =110°C, Per Diode	150	A
I _{FSM}	Surge(non-repetitive) Forward Current	T _J =45°C, t=10ms, 50Hz, Sine	1200	A
		T _J =45°C, t=8.3ms, 60Hz, Sine	1310	A
I ² _t	I ² t for Fusing coordination	T _J =45°C, t=10ms, 50Hz, Sine	7200	A ² s
		T _J =45°C, t=8.3ms, 60Hz, Sine	7122	A ² s
P _D	Power Dissipation		694	W
T _j	Junction Temperature		-40~150	°C
T _{stg}	Storage Temperature		-40~125	
V _{isol}	Isolation Voltage	@ AC 1minute	3000	V
-	Mounting Torque	M4	0.7-1.1	N.m
-	Terminal Torque	M4	0.7-1.1	
-	Weigh	Typical Including Screw	28.5	g

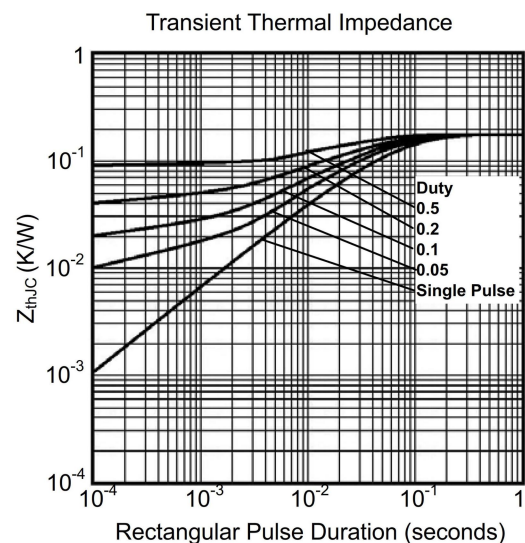
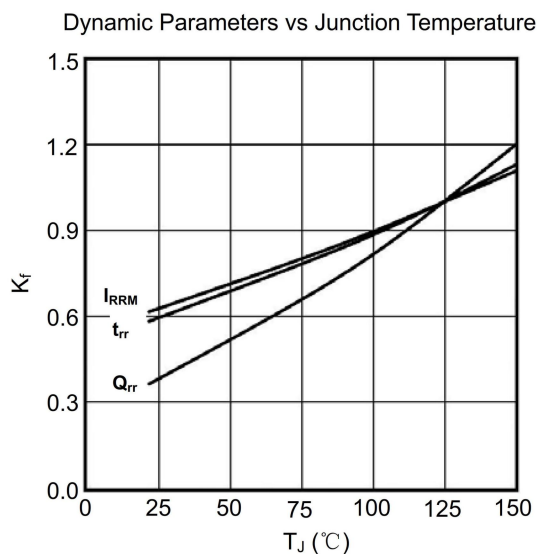
Thermal Characteristics

Symbol	Parameter	Conditions	Value			Unit
			Min	Type	Max	
$R_{th(j-c)}$	Thermal Resistance	Junction to Case	-	0.18	-	$^{\circ}\text{C/W}$

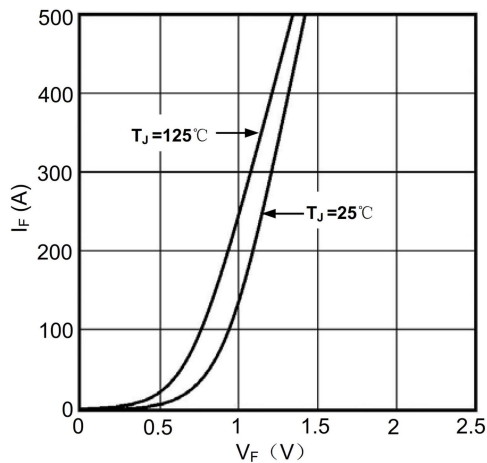
Electrical Characteristics @ $T_c = 25^{\circ}\text{C}$ (unless otherwise specified)

Symbol	Parameter	Conditions	Min	Type	Max	Unit
I_{RM}	Reverse Leakage Current	$V_R=400\text{V}$	-	-	0.5	mA
		$V_R=400\text{V}, T_J=125^{\circ}\text{C}$	-	-	3	mA
V_F	Forward Voltage	$I_F=120\text{A}$	-	1.15	1.3	V
		$I_F=120\text{A}, T_J=125^{\circ}\text{C}$	-	1.2	-	
t_{rr}	Reverse Recovery Time	$I_F=1\text{A}, V_R=30\text{V}, di/dt=-120\text{A}/\mu\text{s}$	-	35	-	ns
T_{RR}	Reverse Recovery Time	$I_F=120\text{A}, V_R=400\text{V},$ $di/dt = -120\text{A}/\mu\text{s} \quad T_C=25^{\circ}\text{C}$	-	60	-	ns
Q_{rr}	Reverse Recovery Charge		-	0.74	-	μC
I_{RRM}	Max. Reverse Recovery Current		-	9	-	A
T_{RR}	Reverse Recovery Time	$I_F=120\text{A}, V_R=400\text{V},$ $di/dt = -120\text{A}/\mu\text{s} \quad T_C=125^{\circ}\text{C}$	-	85	-	ns
Q_{rr}	Reverse Recovery Charge		-	2.3	-	μC
I_{RRM}	Max. Reverse Recovery Current		-	15	-	A

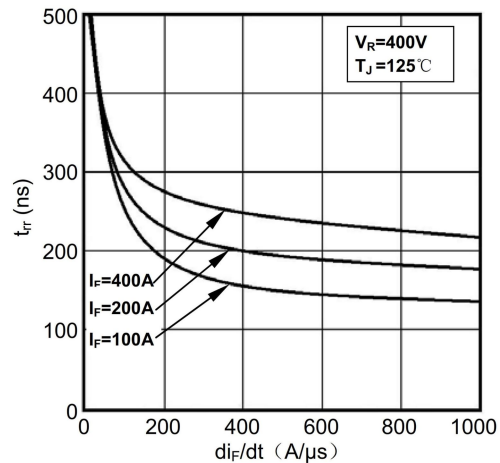
Electrical characteristics(Curves)



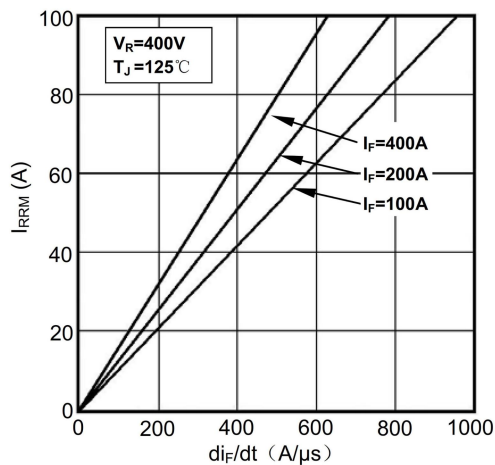
Forward Voltage Drop vs Forward Current



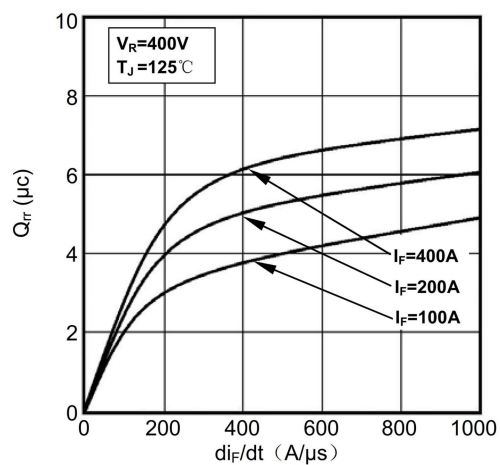
Reverse Recovery Time vs di_F/dt



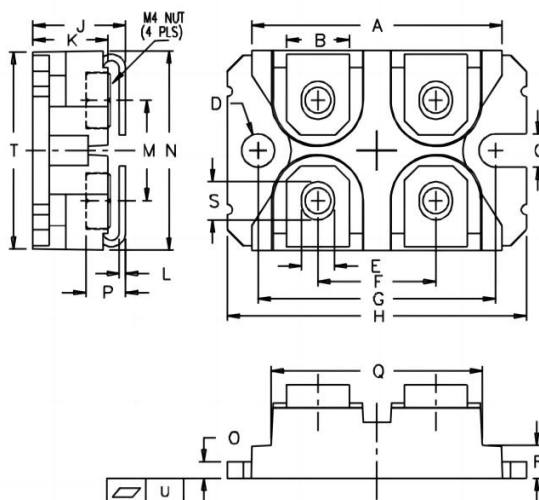
Reverse Recovery Current vs di_F/dt



Reverse Recovery Charge vs di_F/dt



Package Dimension



Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	31.34	31.74	1.234	1.250
B	7.76	8.16	0.305	0.321
C	4.04	4.44	0.159	0.175
D	4.06	4.46	0.160	0.176
E	3.96	14.85	0.156	0.585
F	14.45	14.85	0.569	0.585
G	30.00	30.40	1.181	1.197
H	37.99	38.39	1.496	1.511
J	11.99	12.39	0.472	0.488
K	8.57	8.97	0.337	0.353
L	0.65	1.05	0.025	0.041
M	12.15	12.55	0.478	0.494
N	24.86	25.26	0.979	0.995
O	1.84	2.24	0.072	0.088
P	4.99	5.39	0.196	0.212
Q	26.76	27.16	1.054	1.069
R	3.80	4.20	0.150	0.165
S	4.99	5.39	0.196	0.212
T	24.02	24.42	0.946	0.962
U	-0.05	0.10	-0.002	0.004