

EST120BN60SN

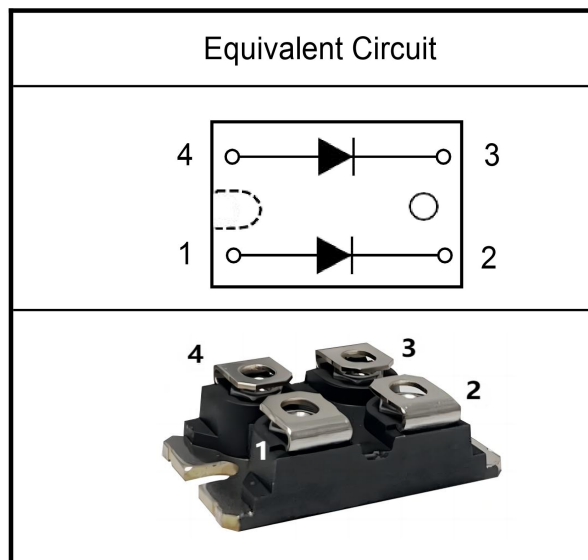
Ultra-Fast Reverse Recovery Diode Module

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		600	V
V _{RRM}	Repetitive Peak Reverse Voltage		600	V
I _{F(AV)}	Average Forward Current	T _c =110°C, Per Diode	120	A
		T _c =120°C, 20KHz, Per Module	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
F _M	Mounting Torque	M4	0.7-1.1	N.m
	Terminal Torque	M4	0.7-1.1	
G	Weigh	Typical Including Screw	28.5	g

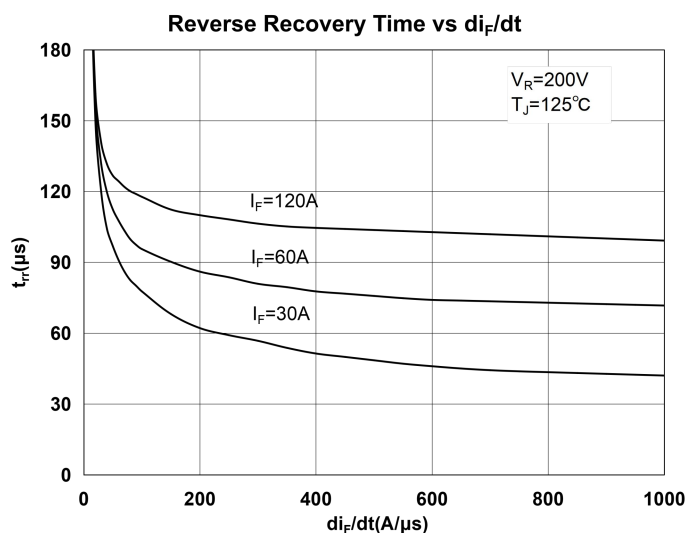
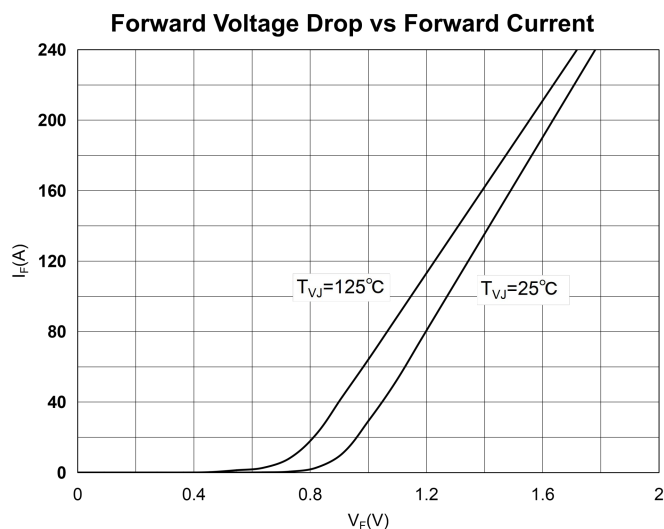
Thermal Characteristics

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

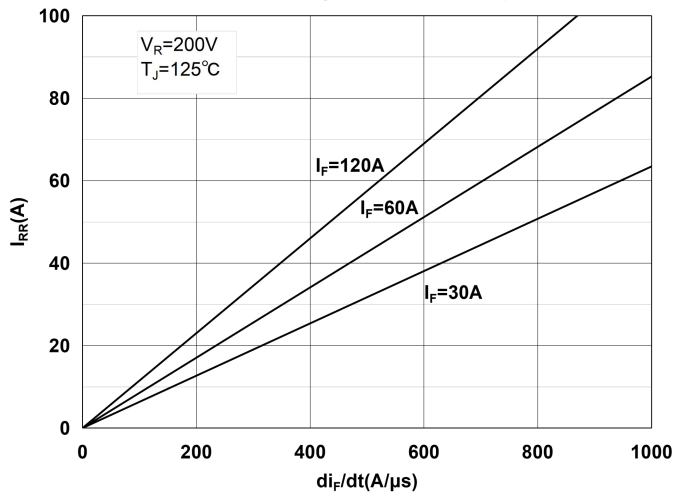
Electrical Characteristics @ $T_c = 25^{\circ}\text{C}$ (unless otherwise specified)

Symbol	Parameter	Conditions	Min	Type	Max	Unit
I_{RM}	Reverse Leakage Current	$V_R=600\text{V}$	-	-	0.5	mA
		$V_R=600\text{V}, T_J=125^{\circ}\text{C}$	-	-	3	mA
V_F	Forward Voltage	$I_F=100\text{A}$	-	1.28	1.65	V
		$I_F=120\text{A}, T_J=125^{\circ}\text{C}$	-	1.5	-	
t_{rr}	Reverse Recovery Time	$I_F=1\text{A}, V_R=30\text{V}, di_F/dt=-200\text{A}/\mu\text{s}$	-	40	-	ns
T_{RR}	Reverse Recovery Time	$I_F=120\text{A}, V_R=600\text{V},$ $di/dt = -200\text{A}/\mu\text{s} \quad T_C=25^{\circ}\text{C}$	-	70	-	ns
I_{RRM}	Max. Reverse Recovery Current		-	15	-	A
Q_{rr}	Reverse Recovery charge		-	640	-	nC
T_{RR}	Reverse Recovery Time	$I_F=120\text{A}, V_R=600\text{V},$ $di/dt = -200\text{A}/\mu\text{s} \quad T_C=125^{\circ}\text{C}$		110		ns
I_{RRM}	Max. Reverse Recovery Current			23		A
Q_{rr}	Reverse Recovery charge			1600		nC

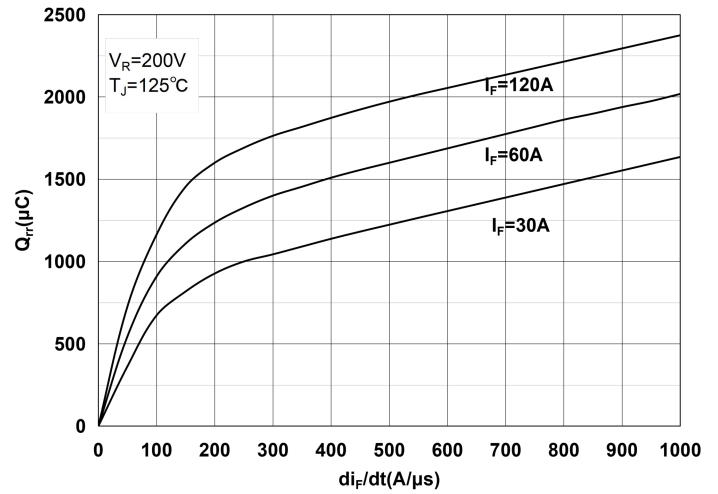
Electrical characteristics(Curves)



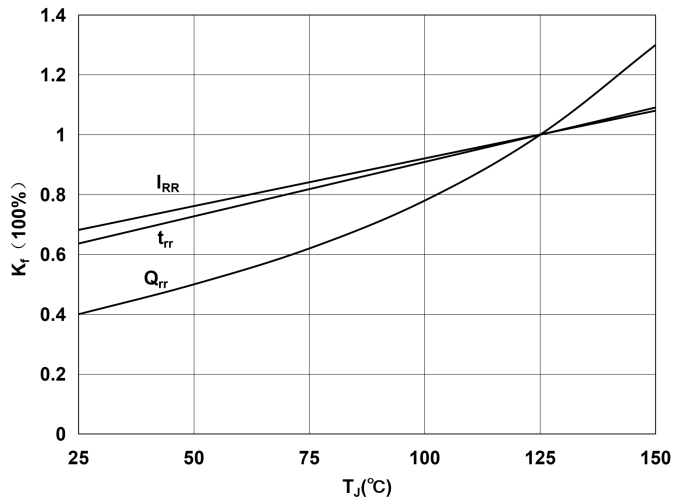
Reverse Recovery Current vs di_F/dt



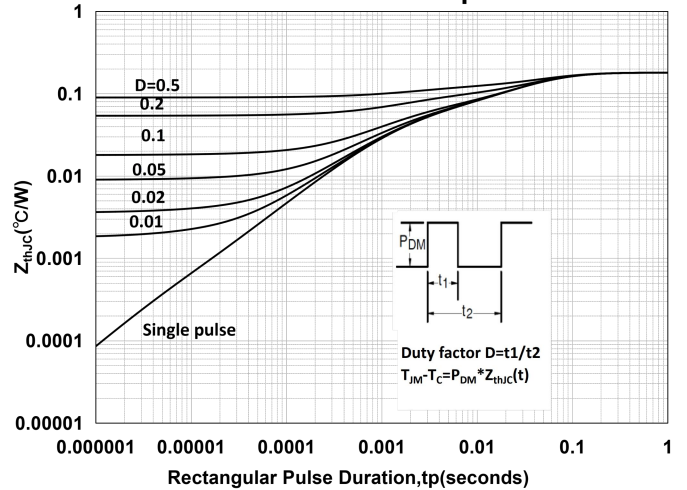
Reverse Recovery Charge vs di_F/dt



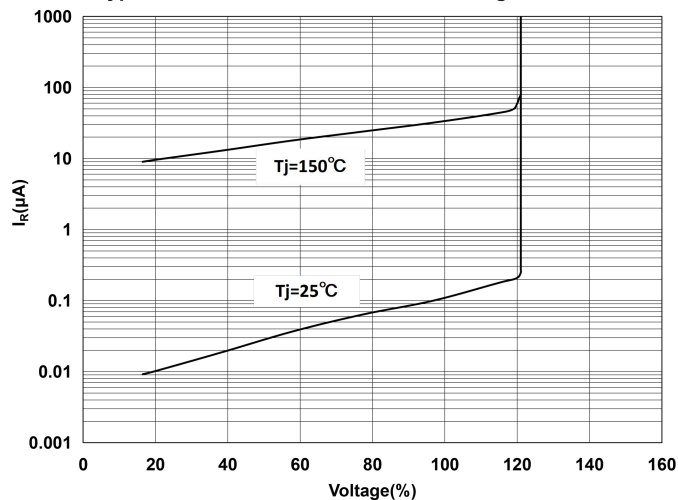
Dynamic Parameters vs Junction Temperature



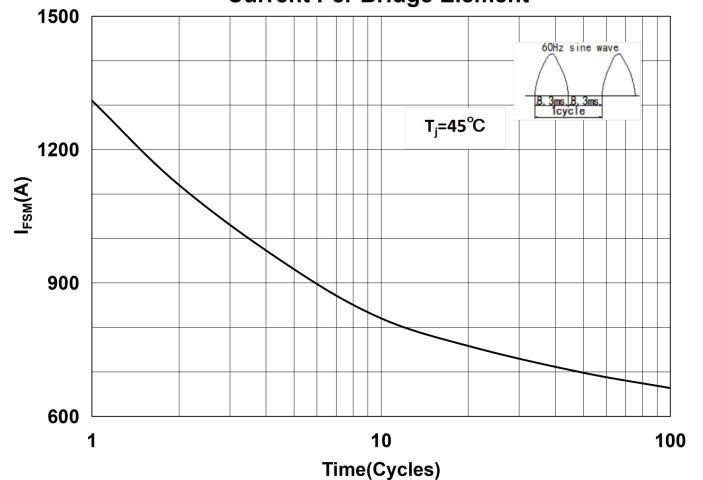
Transient Thermal Impedance



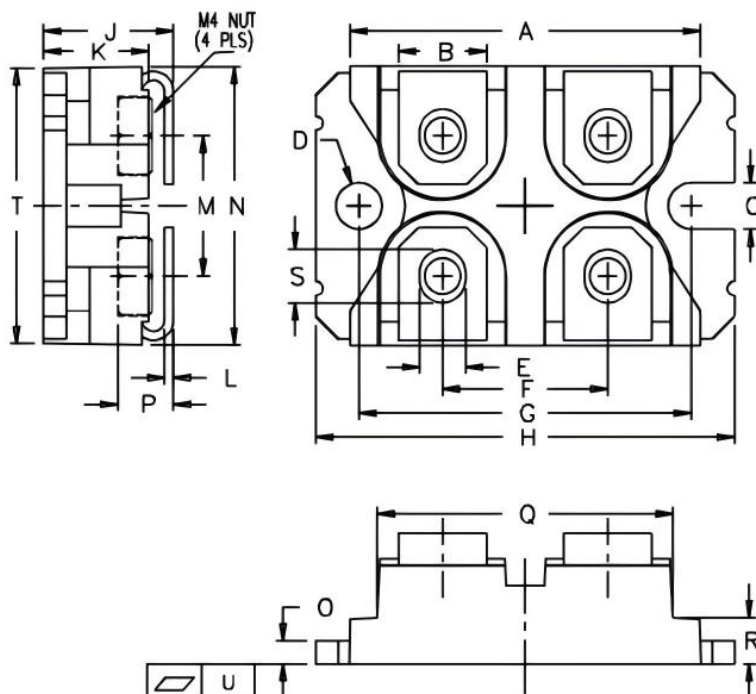
Typical Reverse Characteristics Per Bridge Element



Maximum Non-repetitive Peak Forward Surge Current Per Bridge Element



Package Dimension(Package:SOT-227)



Dim.	Milimeter		Inches	
	Min.	Max.	Min.	Max.
A	31.70	32.10	1.248	1.264
B	7.80	8.20	0.307	0.323
C	4.00	4.40	0.157	0.173
D	4.00	4.40	0.157	0.173
E	4.00	4.40	0.157	0.173
F	14.08	14.48	0.554	0.570
G	30.00	30.40	1.181	1.197
H	37.80	38.20	1.488	1.504
J	11.67	12.07	0.459	0.475
K	9.33	9.73	0.367	0.383
L	0.63	1.03	0.025	0.041
M	12.43	12.83	0.489	0.505
N	24.90	25.30	0.980	0.996
O	1.85	2.25	0.073	0.089
P	4.60	5.00	0.181	0.197
Q	26.60	27.00	1.047	1.063
R	4.04	4.44	0.159	0.175
S	4.49	4.89	0.177	0.193
T	24.78	25.18	0.976	0.991
U	-0.05	0.10	-0.002	0.004