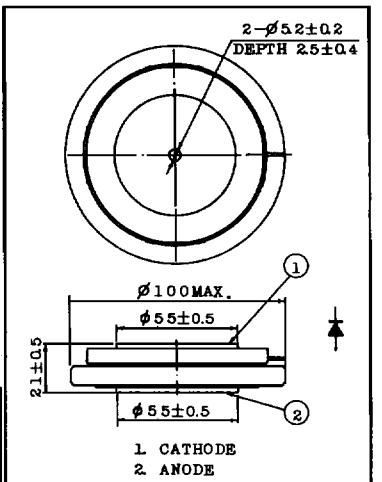
800EXH21

HIGH SPEED RECTIFIER APPLICATIONS.

- Repetitive Peak Reverse Voltage : V_{RRM}=2500V
- Average Forward Current : $I_{F(AV)}$=800A
- Reverse Recovery Time : t_{rr}=5.0μs(Max.) (Tj=25°C)

Unit in mm



JEDEC	-
EIAJ	-
TOSHIBA	3-100C1A

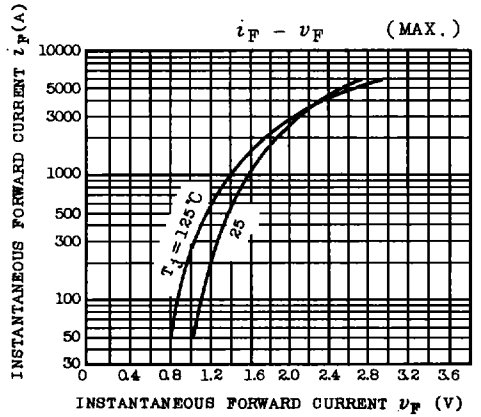
Weight : 630g

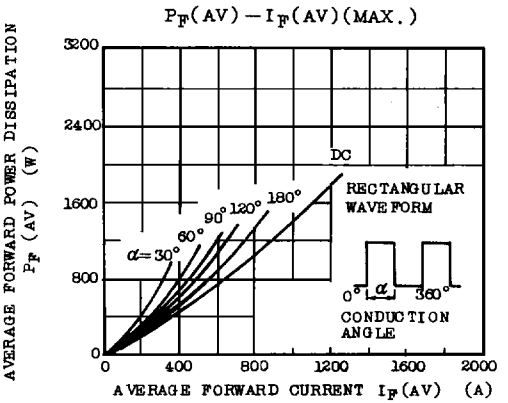
MAXIMUM RATINGS

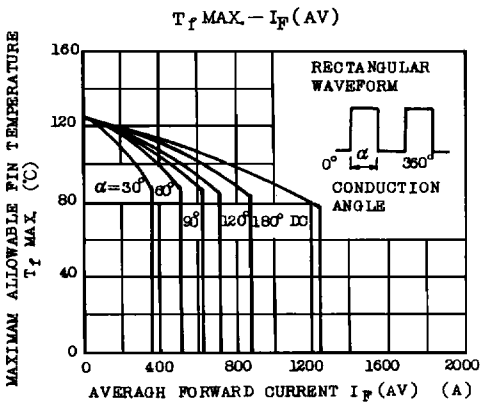
CHARACTERISTIC	SYMBOL	RATING	UNIT
Repetitive Peak Reverse Voltage	V_{RRM}	2500	V
Non-Repetitive Peak Reverse Voltage (Non-Repetitive ≤5ms, Tj=0 ~125°C)	V_{RSM}	2600	V
Average Forward Current	$I_{F(AV)}$	800	A
Peak One Cycle Surge Forward Current (Non-Repetitive)	I_{FSM}	16000(50Hz) / 17600(60Hz)	A
Junction Temperature	Tj	-40 ~125	°C
Storage Temperature Range	Tstg	-40 ~125	°C
Mounting Force	-	29.4±3.0	kN

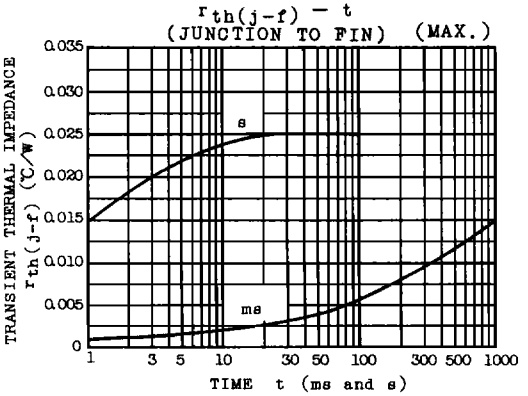
ELECTRICAL CHARACTERISTICS

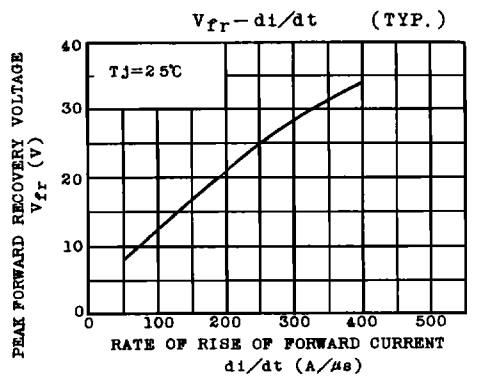
CHARACTERISTIC	SYMBOL	TEST CONDITION		MIN.	MAX.	UNIT
Repetitive Peak Reverse Current	I_{RRM}	V_{RRM}=2500V, Tj=125°C		-	150	mA
Peak Forward Voltage	V_{FM}	I_{FM}=2500A, Tj=25°C		-	2.0	V
Reverse Recovery Time	t_{rr}	I_F=800A, di_F/dt=100A/μs	Tj=25°C	-	5.0	μs
			Tj=125°C	-	7.0	
Thermal Resistance	$R_{th(j-f)}$	Junction to Fin		-	0.025	°C/W

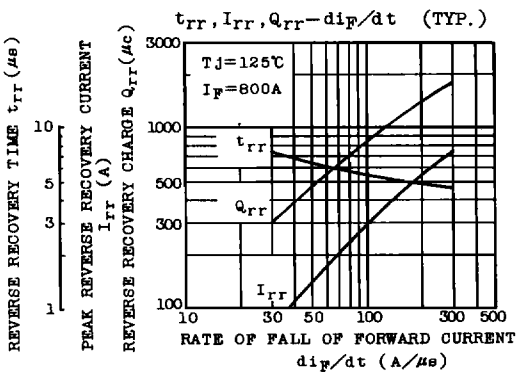

$i_F - v_F$ (MAX.)
INSTANTANEOUS FORWARD CURRENT i_F(A)
10000
5000
3000
1000
500
300
100
50
30
T_j = 125℃
25
0 0.4 0.8 1.2 1.6 2.0 2.4 2.8 3.2 3.6
INSTANTANEOUS FORWARD CURRENT v_F (V)


$P_F(AV) - I_F(AV)$ (MAX.)
AVERAGE FORWARD POWER DISSIPATION
P_F (AV) (W)
3200
2400
1600
800
0
DC
180°
120°
90°
60°
α=30°
RECTANGULAR WAVE FORM
0° α 360°
CONDUCTION ANGLE
0 400 800 1200 1600 2000
AVERAGE FORWARD CURRENT I_F(AV) (A)


T_f MAX. $- I_F$(AV)
MAXIMAM ALLOWABLE FIN TEMPERATURE
T_f MAX. (℃)
160
120
80
40
0
RECTANGULAR WAVEFORM
0° α 360°
CONDUCTION ANGLE
α=30° 60° 90° 120° 180° DC
0 400 800 1200 1600 2000
AVERAGH FORWARD CURRENT I_F(AV) (A)


$r_{th(j-f)} - t$
(JUNCTION TO FIN) (MAX.)
TRANSIENT THERMAL IMPEDANCE
$r_{th(j-f)}$ (℃/W)
0.035
0.030
0.025
0.020
0.015
0.010
0.005
0
s
ms
1 3 5 10 30 50 100 300 500 1000
TIME t (ms and s)


$V_{fr} - di/dt$ (TYP.)
PEAK FORWARD RECOVERY VOLTAGE
V_{fr} (V)
40
30
20
10
0
Tj=25℃
0 100 200 300 400 500
RATE OF RISE OF FORWARD CURRENT
di/dt (A/μs)


$t_{rr}, I_{rr}, Q_{rr} - di_F/dt$ (TYP.)
REVERSE RECOVERY TIME t_{rr} (μs)
PEAK REVERSE RECOVERY CURRENT I_{rr} (A)
REVERSE RECOVERY CHARGE Q_{rr} (μc)
Tj=125℃
I_F=800A
t_{rr}
Q_{rr}
I_{rr}
10
5
3
1
3000
1000
500
300
100
10 30 50 100 300 500
RATE OF FALL OF FORWARD CURRENT
di_F/dt (A/μs)