Southern States

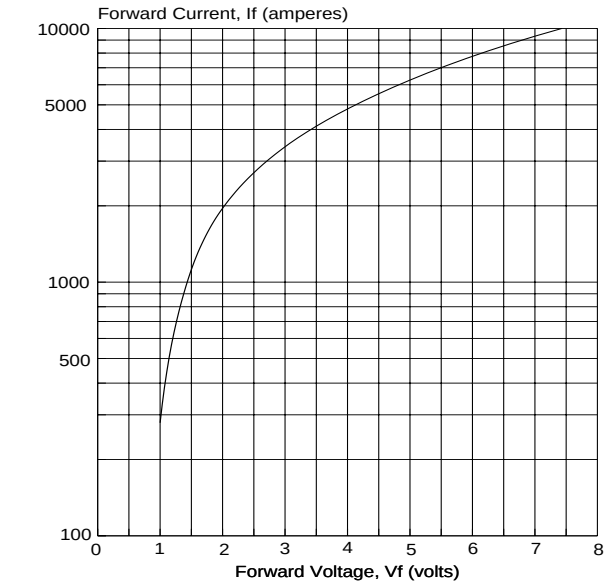
Powers the Future

A643
40mm RECTIFIER DIODE
4400V / 1000A

The A643 rectifier diode features a nominal 40mm silicon junction diameter design, manufactured by the proven multi-diffusion process. High reverse voltage blocking capability is optimized with moderate recovery current and low forward voltage.

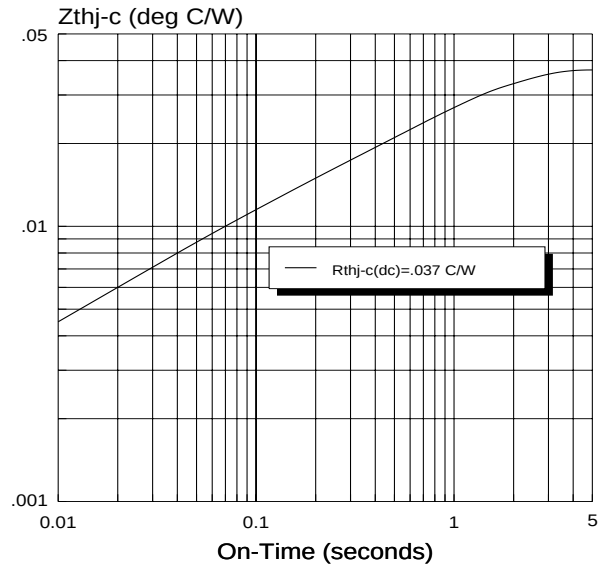
A643 is designed specifically for transportation, industrial and utility 50/60 Hz rectifiers having very high current surge and I^2t requirements.

FORWARD CHARACTERISTIC
Process Maximum @ Tj=160degC



91F:a643vtm

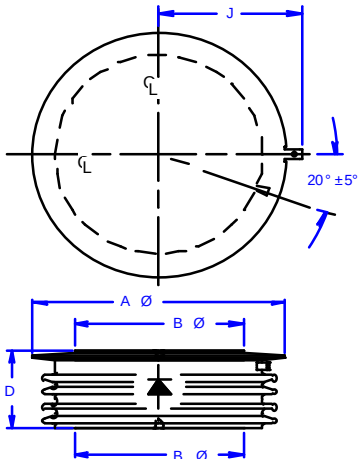
THERMAL IMPEDANCE vs. ON-TIME



SELECTION TABLE

Model No.	Repetitive Peak Reverse Voltage V_{RRM} @ T_J = -40 to 170°C	V_{RRM} @ T_J = 25°C
A643DD	4400 V	3800 V
A643DC	4300	3700
A643DB	4200	3600
A643DA	4100	3500
A643DP	4000	3400
A643CT	3900	3300
A643CN	3800	3200
A643CS	3700	3100
A643CM	3600	3000
A643CE	3500	2900

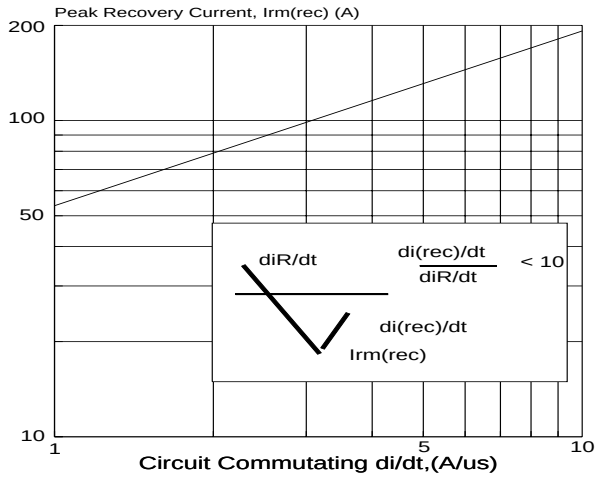
MECHANICAL OUTLINE



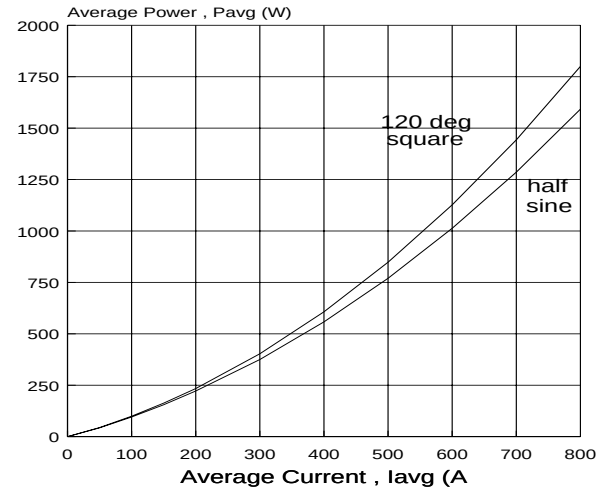
A Dia = 2.30 in (58.0 mm)
B Dia = 1.35 in (34.3 mm)
D = 1.04 in (26.4 mm)

CLAMPING FORCE REQUIRED
2500 - 4200 lbs. / 11.1 - 18.7 kN

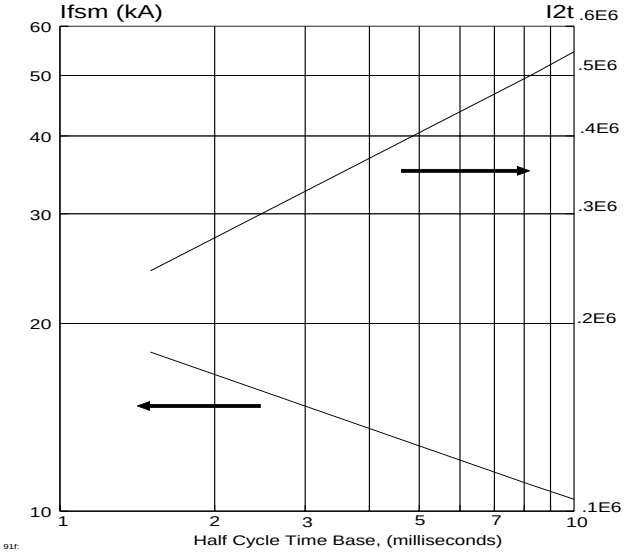
MAXIMUM PEAK RECOVERY CURRENT
Tj = 160 degC



POWER DISSIPATION
Full Cycle Average



Non-Repeitive Ifsm & I2t



91f

LIMITING CHARACTERISTICS AND RATINGS

Parameter	Symbol	Conditions	Limits	Units
Average current	Iavg	half-sine T_C=85°C	1000	A
Repetitive peak reverse voltage	V_{RRM}	T_J = -40 to +170°C	to 4400	V
Peak reverse current	I_{RRM}	T_J=170°C 25°C	50 10	ma
Forward voltage	V_{FM}	T_J =160°C I_F = 1000A	1.40	V
Non-rep peak surge current	I_{FSM}	tp = 8.3ms 10ms	11 10	kA
Peak recovery recovery current	I_{RM}	T_J=160°C di/dt=10A/us	195	A

AVERAGE POWER DISSIPATION

T_J = 160°C(watts)

I_{AVG} (A)	half sine	120° sq. wave
50	43	44
100	96	99
150	155	163
200	222	234
300	375	403
400	558	607
500	770	848
600	1013	1127
700	1286	1443
800	1592	1800
900	1929	2195
1000	2300	2630