

THREE PHASE DIODE+THYRISTOR

DFA150AA80/160

UL:E76102 (M)

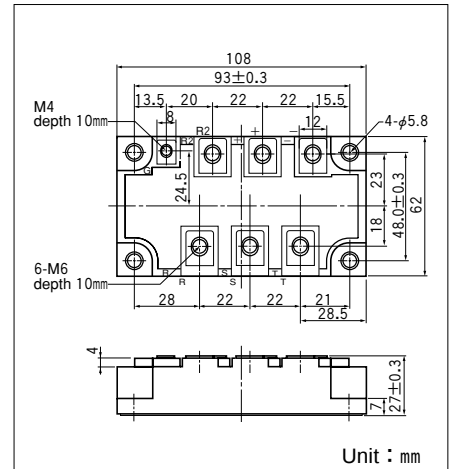
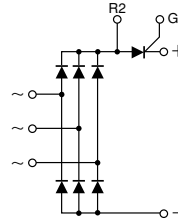
SanRex Power Module, DFA150AA, is complex isolated module which is designed for rash current circuit.

It contains six diodes connected in a three phase bridge configuration, and a thyristor connected to a direct current line.

- This Module is designed very compactly. Because diode module and thyristor put together.
- This Module is also isolated type between electorode terminal and mounting base. So you can put this Module and other one together in a same fin.

(Application)

- Inverter for AC or DC motor control, Current stabilized power supply, Switching power supply.



● DIODE

■ Maximum Ratings

(T_j=25°C unless otherwise specified)

Symbol	Item	Ratings		Unit
		DFA150AA80	DFA150AA160	
V _{RRM}	Repetitive Peak Reverse Voltage	800	1600	V
V _{RSM}	Non-Repetitive Peak Reverse Voltage	960	1700	V

Symbol	Item	Conditions	Ratings	Unit
I _D	Output Current (D.C.)	Three phase full wave, T _c =93°C	150	A
I _{FSM}	Surge forward current	1 cycle, 50/60Hz, peak value, non-repetitive	1460/1600	A
T _j	Operating Junction Temperature		-40 to +150	°C
T _{stg}	Storage Temperature		-40 to +125	°C
V _{iso}	Isolation Breakdown Voltage (R.M.S.)	A.C. 1minute	2500	V
	Mounting Torque	Mounting (M5)	Recommended Value 1.5-2.5 (15-25)	N·m (kgf·cm)
		Terminal (M6)	Recommended Value 2.5-3.9 (25-40)	
		Terminal (M4)	Recommended Value 1.0-1.4 (10-14)	
	Mass	Typical Value	460	g

■ Electrical Characteristics

Symbol	Item	Conditions	Ratings	Unit
I _{RRM}	Repetitive Peak Reverse Current,max.	T _j =150°C, V _R =V _{RRM}	15	mA
V _{FM}	Forward Voltage Drop,max.	I _F =150A, Inst. measurement	1.35	V
R _{th(j-c)}	Thermal Impedance, max.	Junction to Case (TOTAL)	0.14	°C/W
R _{th(c-f)}	Thermal Impedance, max.	Case to fin	0.07	°C/W

● THYRISTOR

■ Maximum Ratings

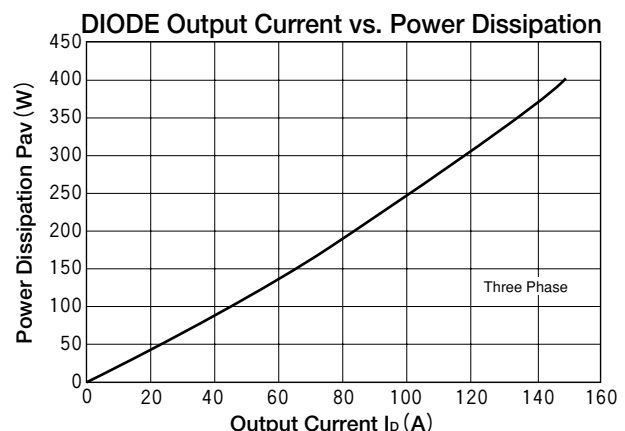
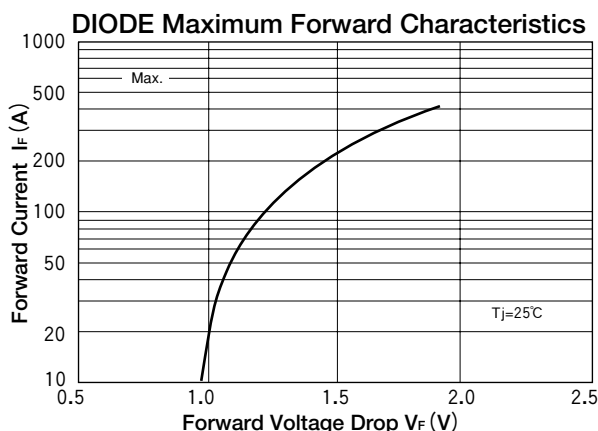
(T_j=25°C unless otherwise specified)

Symbol	Item	Ratings		Unit
		DFA150AA80	DFA150AA160	
V _{RRM}	Repetitive Peak Reverse Voltage	800	1600	V
V _{RSM}	Non-Repetitive Peak Reverse Voltage	960	1700	V
V _{DRM}	Repetitive Peak off-State Voltage	800	1600	V

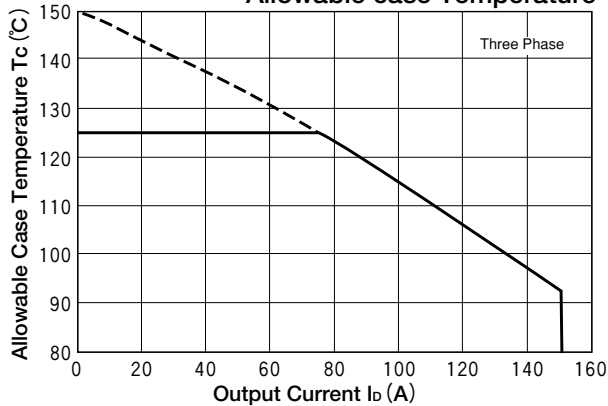
Symbol	Item	Conditions	Ratings	Unit
I _{T(AV)}	Average On-State Current	Singl phase half wave. 180° conduction, T _c =93°C	150	A
I _{TSM}	Surge On-State Current	1 cycle, 50/60Hz, peak value, non-repetitive	1460/1600	A
I ² t	I ² t (for fusing)		10670	A ² S
di/dt	Critical Rate of Rise of On-State Current	I _G =100mA, V _D =1/2V _{DRM} , di _G /dt=0.1A/μs	150	A/μs
V _{ISO}	Isolation Breakdown Voltage (R.M.S.)	A.C. 1minute	2500	V
T _j	Operating Junction Temperature		-40 to +135	°C
T _{stg}	Storage Temperature		-40 to +125	°C
	Mounting Torque	Mounting (M5)	Recommended Value 1.5-2.5 (15-25)	N·m (kgf·cm)
		Terminal (M6)	Recommended Value 2.5-3.9 (25-40)	
		Terminal (M4)	Recommended Value 1.0-1.4 (10-14)	
	Mass	Typical Value	460	g

■ Electrical Characteristics

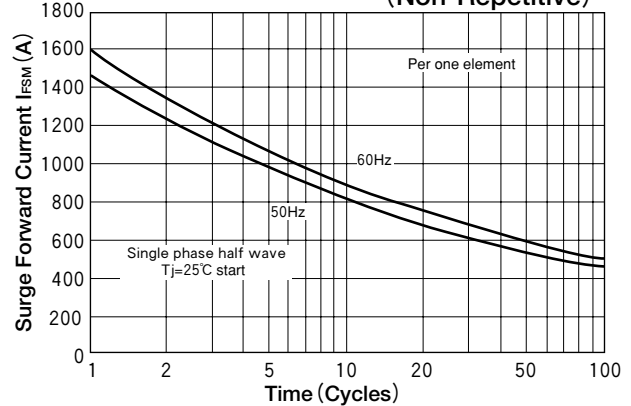
Symbol	Item	Conditions	Ratings	Unit
I _{DRM}	Repetitive Peak Off-State Current,max.	T _j =135°C, V _D =V _{DRM}	100	mA
I _{RRM}	Repetitive Peak Reverse Current,max.	T _j =135°C, V _D =V _{RRM}	100	mA
V _{TM}	Peak On-State Voltage,max.	T _j =25°C, I _{TM} =150A, , Inst. measurement	1.35	V
I _{GT}	Gate Trigger Current,max.	T _j =25°C, V _D =6V, I _T =1A	70	mA
V _{GT}	Gate Trigger Voltage,max.	T _j =25°C, V _D =6V, I _T =1A	3	V
dv/dt	Critical Rate of Rise of Off-State Voltage,min.	T _j =125°C, V _D =2/3V _{DRM}	500	V/μs
R _{th(j-c)}	Thermal Impedance, max.	Junction to Case	0.21	°C/W
R _{th(c-f)}	Thermal Impedance, max.	Case to fin	0.07	°C/W



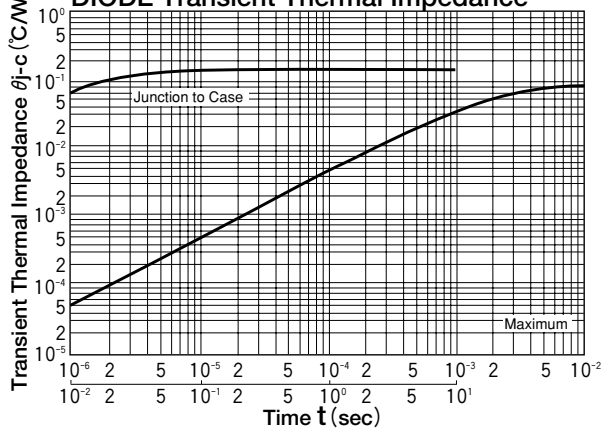
DIODE Output Current vs. Allowable case Temperature



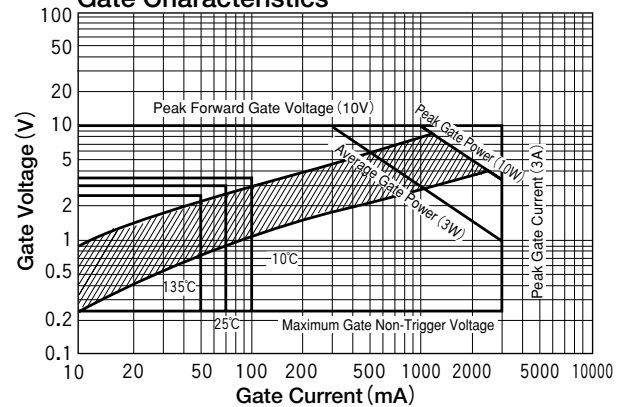
Surge Forward Current Rating (Non-Repetitive)



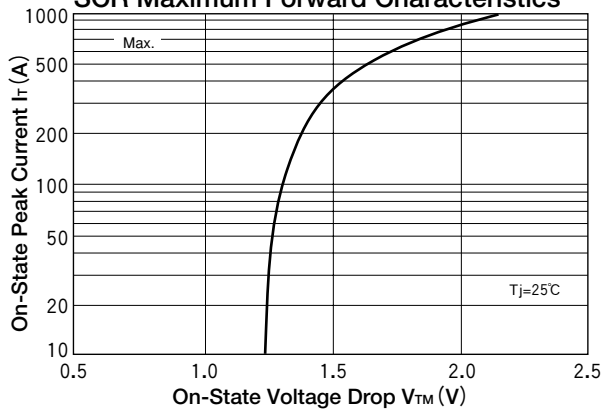
DIODE Transient Thermal Impedance



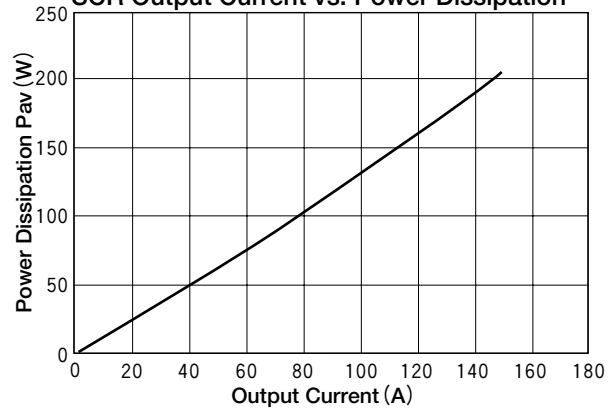
Gate Characteristics



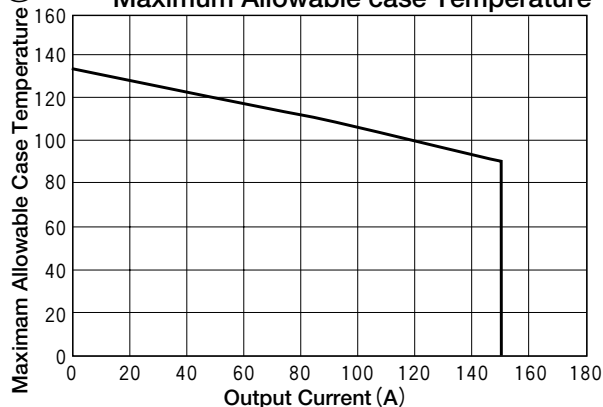
SCR Maximum Forward Characteristics



SCR Output Current vs. Power Dissipation



SCR Output Current vs. Maximum Allowable case Temperature



SCR Transient Thermal Impedance

