

THREE PHASE DIODE+THYRISTOR

DFA50BA80/160

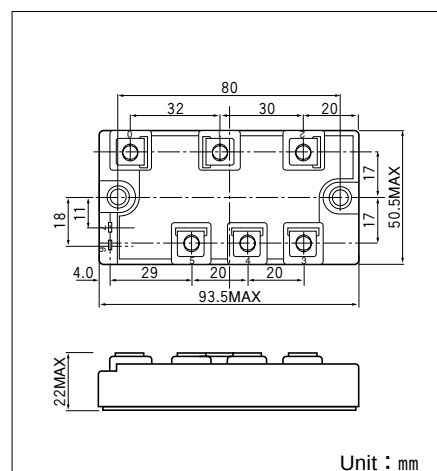
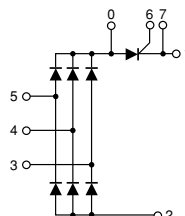
SanRex Power Module, **DFA50BA**, is complex isolated module which is designed for rash current circuit.

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

($T_j=25^{\circ}\text{C}$ unless otherwise specified)

Symbol	Item	Ratings		Unit
		DFA50BA80	DFA50BA160	
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, $T_c=117^{\circ}\text{C}$	50	A
I_{FSM}	Surge forward current		1cycle, 50/60Hz, peak value, non-repetitive	730/800	A
T_j	Operating Junction Temperature			-40 to $+150$	$^{\circ}\text{C}$
T_{stg}	Storage Temperature			-40 to $+125$	$^{\circ}\text{C}$
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)	2.7 (28)	N·m (kgf·cm)
		Terminal (M5)	Recommended Value 1.5-2.5 (15-25)	2.7 (28)	
	Mass		Typical Value	150	g

■ Electrical Characteristics

Symbol	Item		Conditions	Ratings	Unit
I_{RRM}	Repetitive Peak Reverse Current,max.		$T_j=150^{\circ}\text{C}$, $V_R=V_{RRM}$	8	mA
V_{FM}	Forward Voltage Drop,max.		$T_j=25^{\circ}\text{C}$, $I_F=50\text{A}$ Inst. measurement	1.30	V
$R_{th(j-c)}$	Thermal Impedance, max.		Junction to Case (TOTAL)	0.25	$^{\circ}\text{C}/\text{W}$
$R_{th(c-f)}$	Thermal Impedance, max.		Case to Fin	0.10	$^{\circ}\text{C}/\text{W}$

● THYRISTOR

■ Maximum Ratings

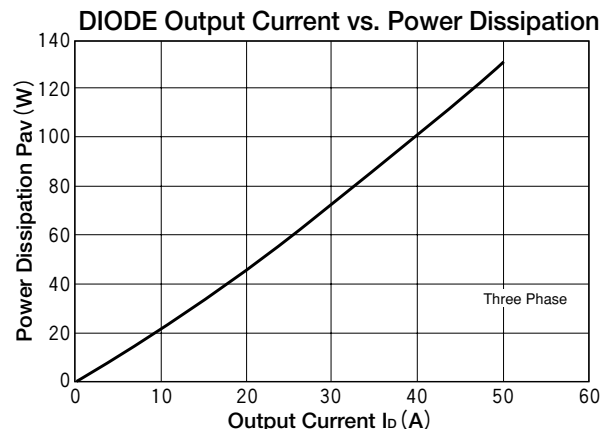
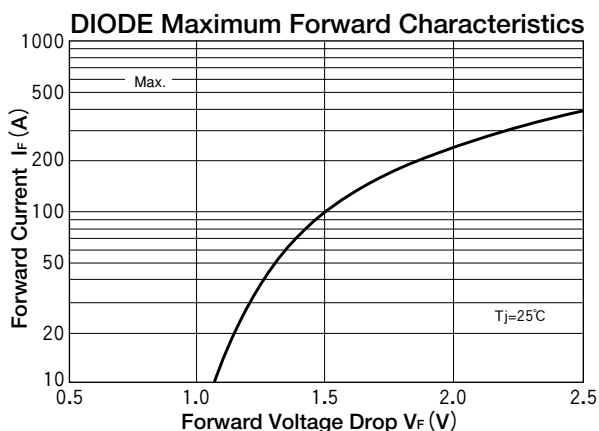
(T_j=25°C unless otherwise specified)

Symbol	Item	Ratings		Unit
		DFA50BA80	DFA50BA160	
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

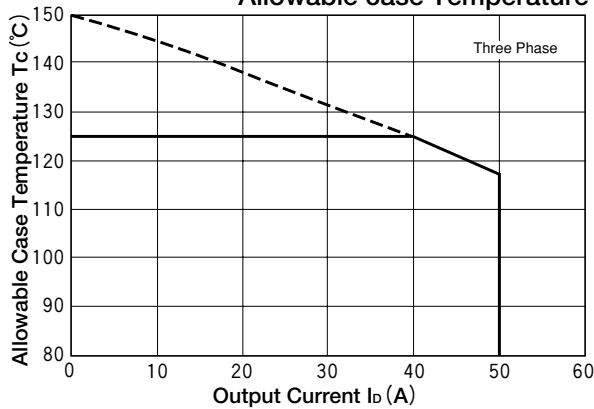
Symbol	Item		Conditions	Ratings	Unit
I _{T(AV)}	Average On-State Current		Singl phase half wave. 180° conduction, T _c =85°C	50	A
I _{TSM}	Surge On-State Current		1 cycle, 50/60Hz, peak value, non-repetitive	730/800	A
I ² t	I ² t			2660	A ² S
di/dt	Critical Rate of Rise of On-State Current		I _G =100mA, 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)	2.7 (28)	N·m (kgf·cm)
		Terminal (M5)	Recommended Value 1.5-2.5 (15-25)	2.7 (28)	
	Mass		Typical Value	150	g

■ Electrical Characteristics

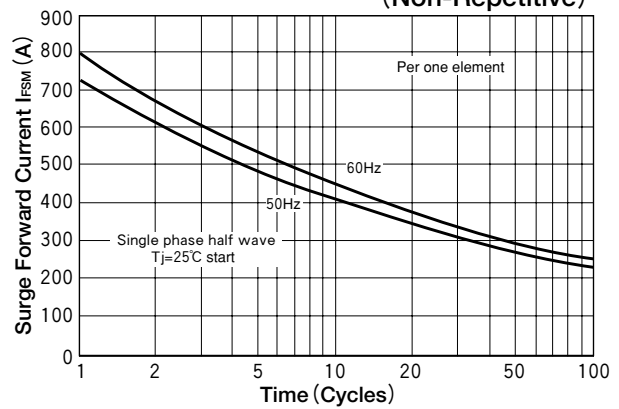
Symbol	Item	Conditions	Ratings	Unit
I _{DRM}	Repetitive Peak Off-State Current,max.	T _j =135°C, V _D =V _{DRM}	50	mA
I _{RRM}	Repetitive Peak Reverse Current,max.	T _j =135°C, V _D =V _{RRM}	50	mA
V _{TM}	Peak On-State Voltage,max.	T _j =25°C, I _{TM} =50A, Inst. measurement	1.25	V
I _{GT}	Gate Trigger Current,max.	V _D =6V, I _T =1A	70	mA
V _{GT}	Gate Trigger Voltage,max.	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	0.80	°C/W
R _{th(c-f)}	Thermal Impedance, max.	Case to Fin	0.10	°C/W



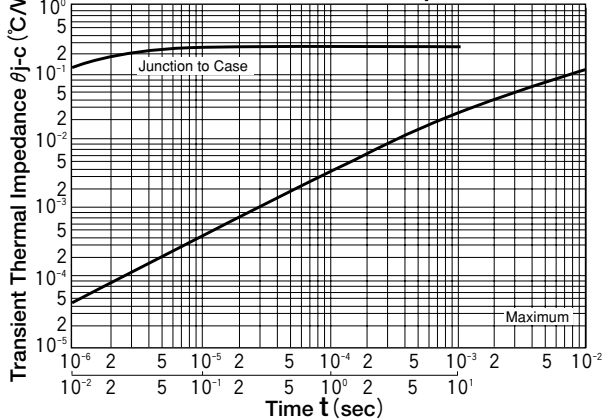
DIODE Output Current vs. Allowable case Temperature



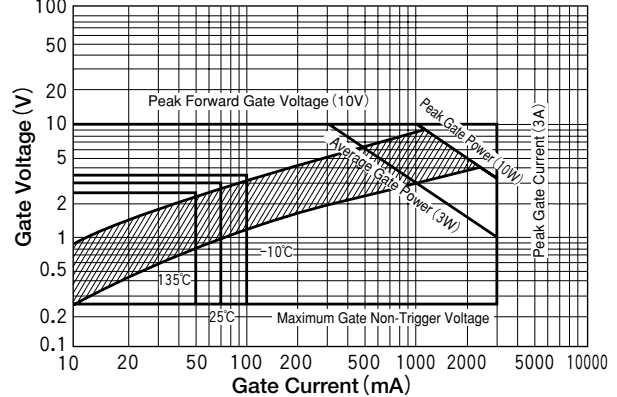
Surge Forward Current Rating (Non-Repetitive)



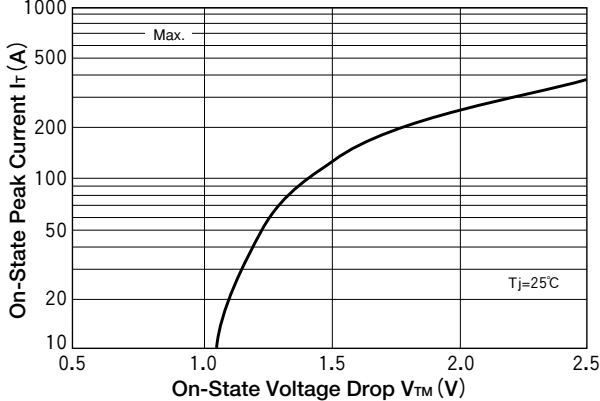
DIODE Transient Thermal Impedance



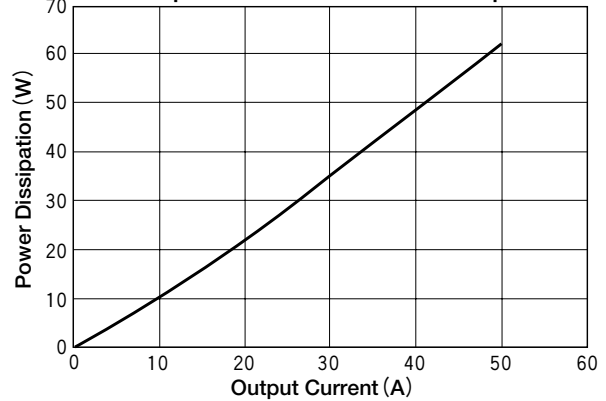
Gate Characteristics



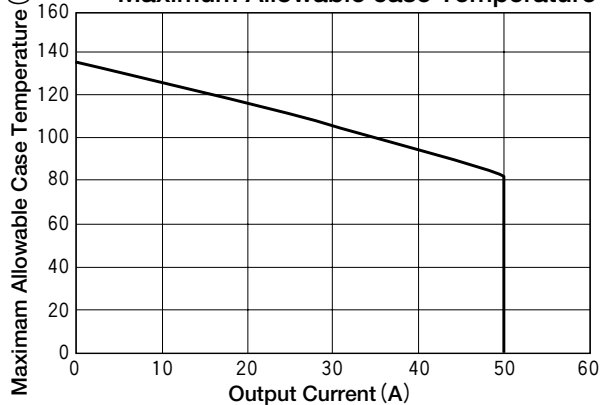
SCR Maximum Forward Characteristics



SCR Output Current vs. Power Dissipation



SCR Output Current vs. Maximum Allowable case Temperature



SCR Transient Thermal Impedance

