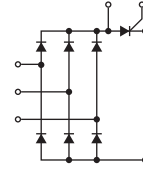



3-Phase Diode Bridge+Thyristor

DFA250AA80/160
(250A 800V/1600V)



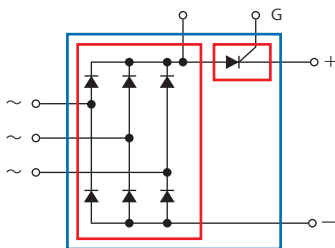
Applications

- ▶ Inverter for Industrial Use
- ▶ Servo Controller
- ▶ High-frequency Induction Heating Device
- ▶ Elevator
- ▶ Dynamic Brake

UL Compliant 
UL File No.E76102

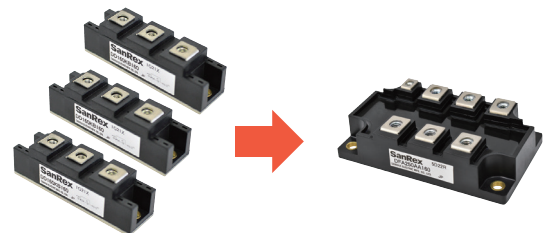
Features

- The DFA Series incorporates a 3-phase rectifier diode bridge and a thyristor connected to the DC line for inrush protection. External relays are thus not necessary and allow a compact design.



- Unlike relays, thyristors do not have contacts, which dramatically improves the reliability of the inrush protection circuit.

- Unique heat dissipation technology offers 250A high current capacity for a package the size of 150A/200A models.



- The terminals and mounting base are isolated. Therefore it can be mounted on the same heatsink with other power modules.

Maximum Ratings

T_j=25°C unless otherwise specified

Item	Symbol	Unit	DFA250AA80	DFA250AA160
* Repetitive Peak Reverse (Off) Voltage	V _{RRM} , V _{DRM}	V	800	1600
* Non-Repetitive Peak Reverse Voltage	V _{RSM}	V	960	1700

Item	Symbol	Unit	Rating	Conditions
Isolation Voltage	V _{iso}	V	2500	AC RMS 1 minute
Interface Thermal Resistance	R _{th(c-f)}	°C/W	0.03	Max. Case to heatsink (Per Module) Thermal conductivity of silicone grease=9×10 ⁻³ [W/cm·°C]
Mass	—	g	460	Typical value
* Average output (ON) current	I _{D(AV)} , I _{T(AV)}	A	250	Three-phase full-wave, Diode : T _c =96°C, Thyristor : T _c =93°C
* Surge forward (on) current	I _{FSM} , I _{TSM}	A	1850/2000	50Hz 10 ms /60Hz 8.3 ms Sin., Peak value, Non-repetitive
* I ² t (for fusing)	I ² t	A ² s	17000	50Hz 10 ms /60Hz 8.3 ms Sin.
Critical Rate of Rise of On-State Current	di/dt	A/μs	200	I _G =100mA, V _D =1/2V _{DRM} , dI _G /dt=0.1A/μs
Operating Junction Temperature (Diode/Thyristor)	T _j	°C	-40 ~ 150/-40 ~ 135	Thyristor: T _j > Pressure resistance is not guaranteed at 125°C.

Items marked with * in the above apply to the diode and thyristor parts.

Electrical Characteristics

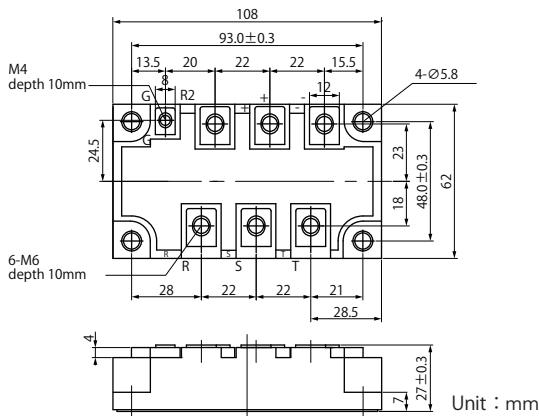
Diode part

T_j=25°C unless otherwise specified

Item	Symbol	Unit	Rating			Conditions
			Min.	Typ.	Max.	
Repetitive Peak Reverse Current	I _R	mA			20	T _j =T _{jmax} , V _R =V _{RRM} , Per Leg
Forward Voltage	V _F	V		1.1	1.4	I _F =250A, Per Leg
Thermal Resistance	R _{th(j-c)}	°C/W			0.077	Junction to Case (Per Module)

Thyristor part

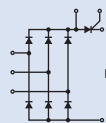
Repetitive Peak Reverse Current	I _R	mA			100	T _j =125°C, V _R =V _{RRM}
Off-state Current	I _D	mA			100	T _j =125°C, V _D =V _{DRM}
On Voltage	V _T	V		1.15	1.25	I _T =250A
Gate Trigger Current	I _{GT}	mA			100	I _T =1A, V _D =6V
Gate Trigger Voltage	V _{GT}	V			3	I _T =1A, V _D =6V
Critical Rate of Rise of Off-state Voltage	dv/dt	V/μs	500			T _j =125°C, V _D =2/3V _{DRM}
Thermal Resistance	R _{th(j-c)}	°C/W			0.132	Junction to Case



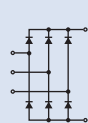
Other Products

3-Phase Diode Bridge+Thyristor

h = 22 mm package	DFA-BA series 50/75/100/150A	
h = 24 mm package	DFA-CB series 150/200A	
h = 27 mm package	DFA-AA series 150/200A	



DFA



DF

3-Phase Diode Bridge

SIP	DF-NA series 20/30A	
DIP	DF-NB series 60/75/100A	
h = 17 mm package	DF-AC series 75/100A	
	DF-AE series 150/200A	
h = 22 mm package	DF-AA/BA/AB series 75/100/150/200A	
	DF-LA/LB series 60/75/100A	

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* Appearance and specifications of products are subject to change without notice for improvement reasons.

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