

Feature

- This module is designed very compactly, Because diode Module and thyristor are put together.
- This module is also isolated type between electorode Terminal and mounting base.

Typical application

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

I_D	50A
V_{RRM}	800/1600V
I_{FSM}	0.73/0.8 KA
I^2t	2660 A ² S

● DIODE

■ Maximum Ratings

($T_J=25^\circ\text{C}$)

Symbol	Item	Ratings		Unit
		HDFA50BA80	HDFA50BA160	
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	50/60Hz, peak value, non-repetitive	730/800	A
T_J	Operating Junction Temperature		-40 to +150	$^\circ\text{C}$
T_{stq}	Storage Temperature		-40 to +125	$^\circ\text{C}$
V_{iso}	Isolation Breakdown Voltage (R.M.S.)	R.M.S, $t=1\text{min}$, $I_{iso}: 1\text{mA}(\text{max})$	2500	V
F_M	Mounting (M5)		2.7	N-m
W_t	Mass		150	g

■ Electrical Characteristics

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

● THYRISTOR

■ Maximum Ratings

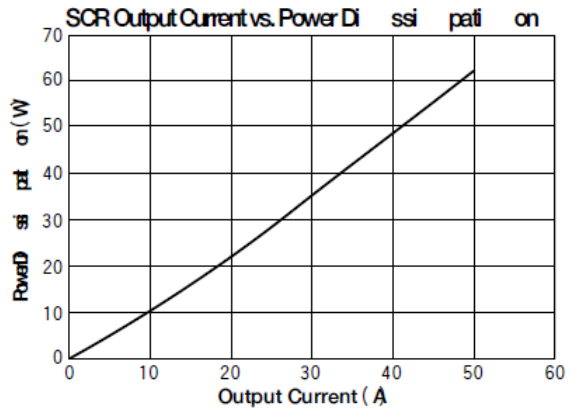
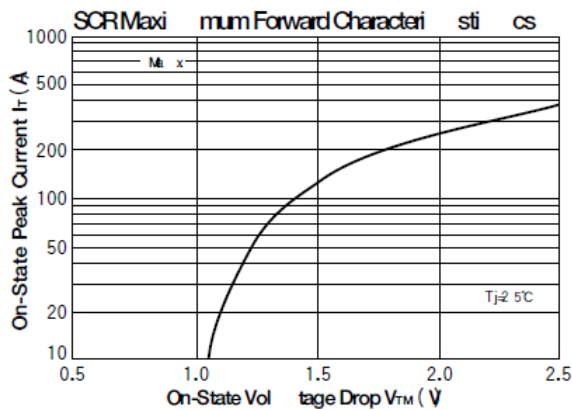
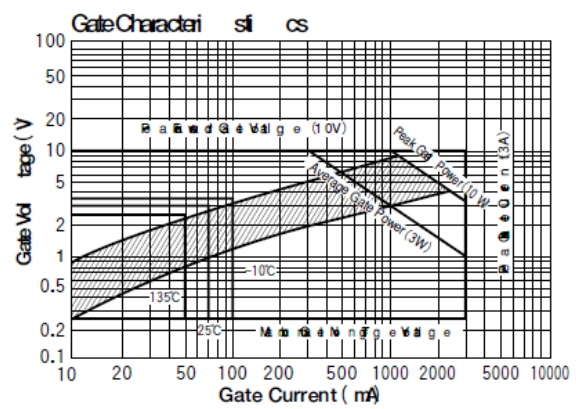
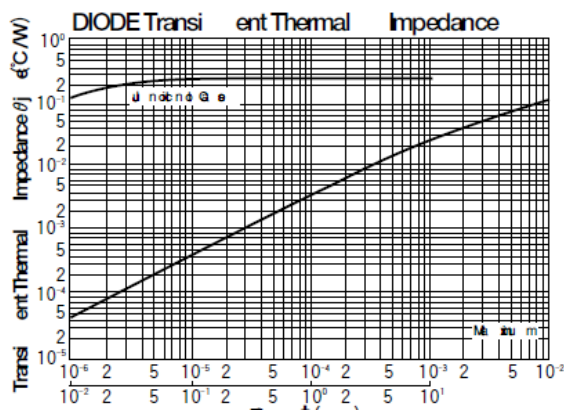
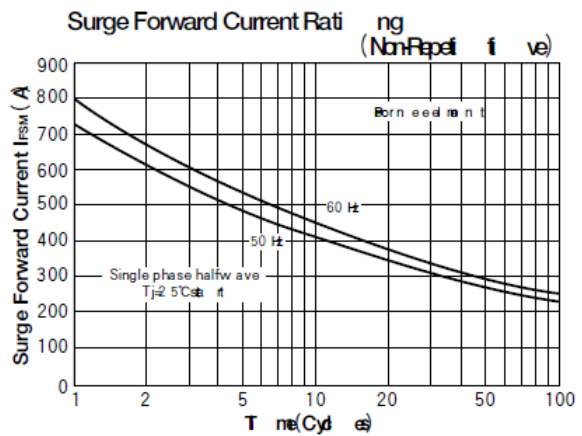
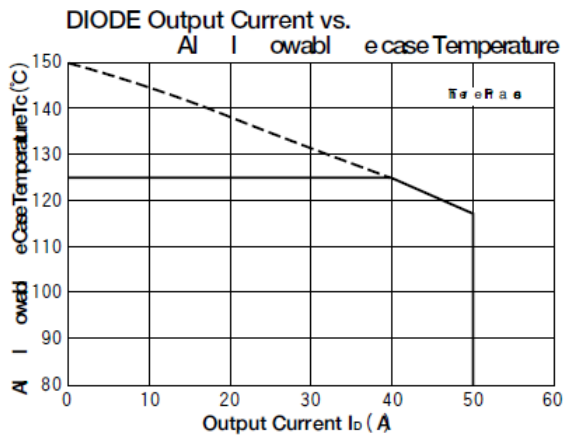
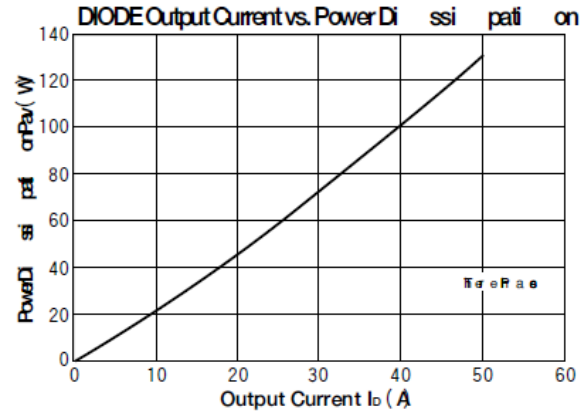
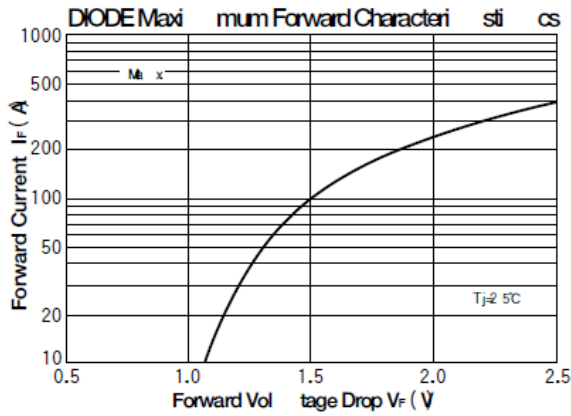
($T_J = 25^\circ\text{C}$)

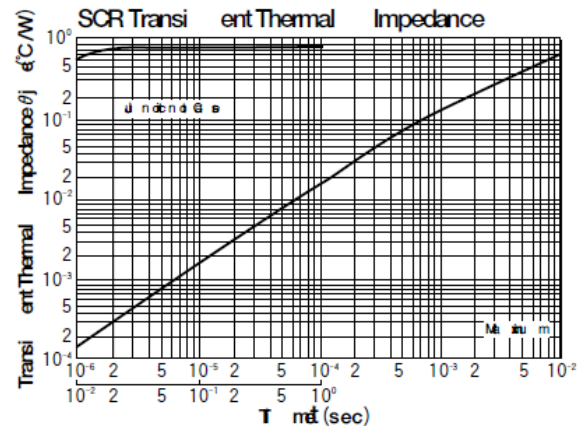
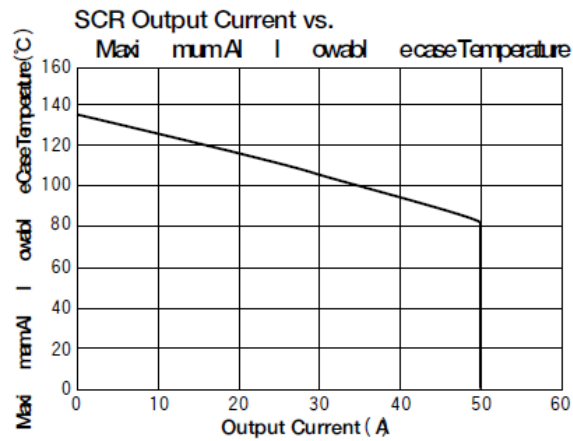
Symbol	Item	Ratings		Unit
		HDFA50BA80	HDFA50BA160	
V_{RRM}	Repetitive Peak Reverse Voltage	800	1600	V
V_{RSM}	Non-Repetitive Peak Reverse Voltage	960	1700	V
V_{DRM}	Repetitive Peak off-State Voltage	800	1600	V

Symbol	Item	Conditions	Ratings	Unit
$I_{T(AV)}$	Average On-State Current	Singl phase half wave.180° conduction, $T_C = 85^\circ\text{C}$	50	A
I_{TSM}	Surge On-State Current	peak value, non-repetitive, 50/60Hz	730/800	A
I^2t	I^2t		2660	A^2S
di/dt	Critical Rate of Rise of On-State Current	$I_G = 100\text{mA}$, $V_D = 1/2 V_{DRM}$	150	A/us
V_{iso}	Isolation Breakdown Voltage (R.M.S.)	R.M.S, $t = 1\text{min}$, $I_{iso} = 1\text{mA}(\text{max})$	2500	V
T_J	Operating Junction Temperature		-40 to +135	$^\circ\text{C}$
T_{stq}	Storage Temperature		-40 to +125	$^\circ\text{C}$
F_M	Mounting (M5)		2.7	N-m
W_t	Mass		150	g

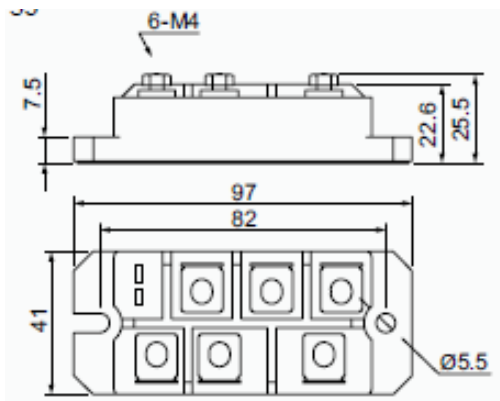
■ Electrical Characteristics

I_{DRM}	Repetitive Peak Off-State Current,max	$T_J = 135^\circ\text{C}$, $V_D = V_{DRM}$	50	mA
I_{RRM}	Repetitive Peak Reverse Current,max.	$T_J = 135^\circ\text{C}$, $V_D = V_{RRM}$	50	mA
V_{TM}	Peak On-State Voltage,max	$T_J = 125^\circ\text{C}$, $I_{TM} = 50\text{A}$	1.25	V
I_{GT}	Gate Trigger Current,max	$V_D = 6V$, $I_A = 1\text{A}$	70	mA
V_{GT}	Gate Trigger Voltage,max.		3	V
dv/dt	Critical Rate of Rise of Off-State Voltage,min.	$T_J = 125^\circ\text{C}$, $V_{DM} = 0.67 V_{DRM}$	500	V/us
$R_{th(j-c)}$	Thermal Impedance, max.	Junction to Case	0.80	$^\circ\text{C/W}$
$R_{th(c-f)}$	Thermal Impedance, max.	Case to Fin	0.10	$^\circ\text{C/W}$





Outline:



Circuit Drawing:

