4R3TI60Y-080

DIODE & THYRISTOR MODULE

800V / 60A

DIODE & THYRISTOR MODULE

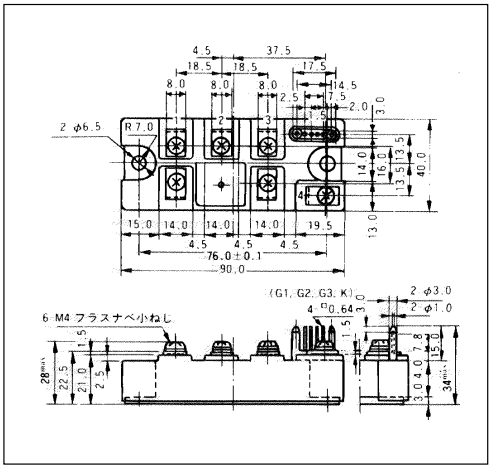
■ Features

· Glass Passivation Chip
· Easy Connection
· Insulated Type
· Large di/dt
· Large dv/dt

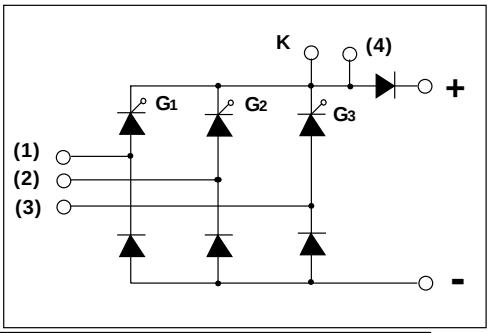
■ Applications

· Inverters
· Battery Chargers
· DC Motors
· General Purpose DC Power Supplies

■ Outline Drawings, mm



■ Inner Curcuit Schematic



■ Maximum ratings and characteristics

● **Absolute maximum ratings**

	Item		Symbol	Conditions	Rating	Unit
	Repetitive peak reverse voltage		V_{RRM}		800	V
	Repetitive peak off voltage		V_{DRM}		800	V
	Non-repetitive peak reverse voltage		V_{RSM}		900	V
	Average output current		I_O	50/60Hz Sine wave, Tc=87°C	60	A
	Surge current		I_{FSM}	From rated load, Sine wave 8.3ms	1000	A
	I^2t		I^2t	From rated load,8.3ms	4150	A^2s
	Operating junction temperature		T_j		-40 to +125	°C
	Storage temperature		T_{stg}		-40 to +125	°C
	Isolation voltage		V_{is}	AC 1min.	2000	V
	Screw torque	Moumting		M5	3.0 *1	N·m
		Terminals		M4	1.7 *2	N·m
Thyristor			di/dt	Tj=125°C, f=50Hz, V_D=1/2V_{DRM} I_{TM}=120A, I_{GM}=0.3A, di_G/dt=0.3A/µs	100	A/µs
Thyristor	Forward peak gate current		I_{FGM}	100µs max	2	A
Thyristor	Peak gate power		P_{GM}	100µs max	5	W
Thyristor	Average gate power		$P_{G(AV)}$		0.5	W
Thyristor	Peak reverse gate voltage		V_{RGM}		5	V

*1: Recommendable value : 2.0 to 3.0 N·m(M5)
*2: Recommendable value : 1.3 to 1.7 N·m(M4)

●**Electrical characteristics (Ta=25°C Unless otherwise specified)**

	Item	Symbol	Conditions		Min.	Typ.	Max.	Unit
Thyristor	Forward voltage drop	V_{FM}	Tj=25°C, I_{FM}=60A				1.30	V
	Reverse current	I_{RRM}	Tj=125°C, V_R=V_{RRM}				6	mA
	Off current	I_{DRM}	Tj=125°C, V_R=V_{DRM}				6	mA
	Gate triger current	I_{GT}	Tj=25°C, V_D=6V I_T=1A				80	mA
	Gate triger voltage	V_{GT}					2.5	V
	Gate non-triger voltage	V_{GD}	Tj=125°C, V_D=1/2V_{DRM}		0.2			V
		I_H					200	mA
		dv/dt	Tj=125°C, V_D=2/3V_{DRM}		500			V/µs
	Turn-on time	t_{gt}	Tj=25°C, V_D=1/2V_{DRM} I_{TM}=120A I_{GM}=0.3A diG/dt=0.3A/µs			3		µs
	Turn-off time	T_q	Tj=125°C, I_{TM}=60A -di/dt=5A/µs VR=>50v V_D=1/2V_{DRM}			150		µs
Diode	Forward voltage drop	V_{FM}	Tj=25°C, I_{FM}=60A	Rectifier diode			1.20	V
				Output diode			1.10	V
	Reverse current	I_{RRM}	Tj=125°C, V_R=V_{RRM}	Rectifier diode			5	mA
				Output diode			10	mA

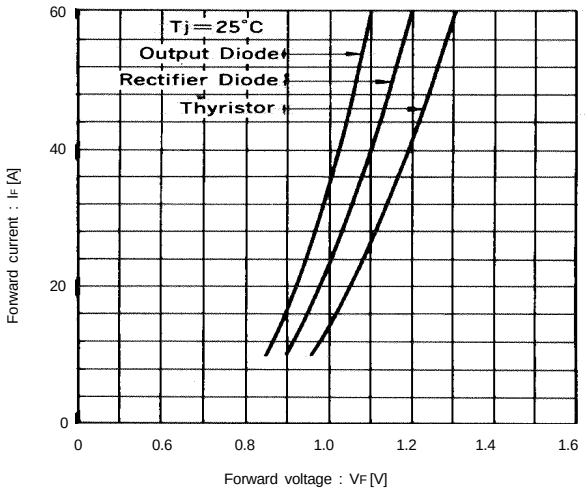
● **Thermal Characteristics**

Item	Symbol	Conditions		Min.	Typ.	Max.	Unit
Thermal resistance	$R_{th(j-c)}$	Junction to case 1 Chip	Thyristor			1.5	°C/W
			Rectifier diode			1.6	
			Output diode			0.6	
	$R_{th(c-f)}$	the base to cooling fin *				0.06	°C/W

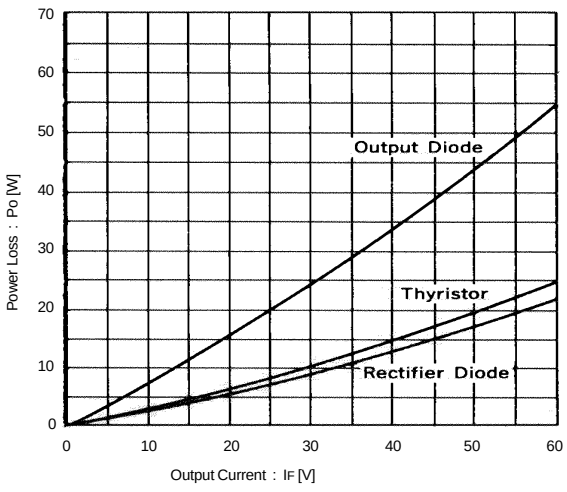
* : With Thermal Compound

■ Characteristics

Maximum On-State Voltage/Forward Voltage Characteristics (Per 1 chip)

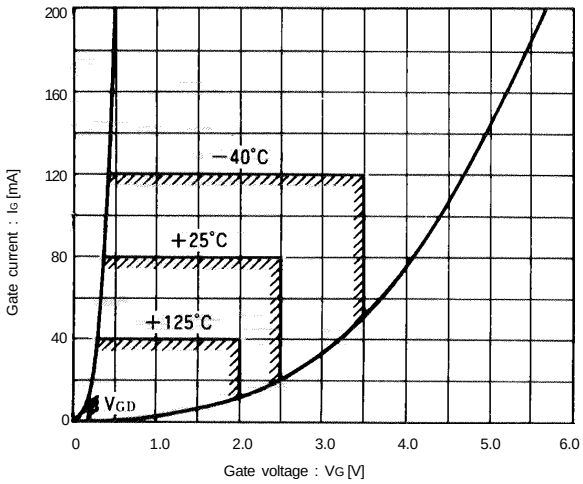


Output Current vs. Power Loss (Per 1 chip)

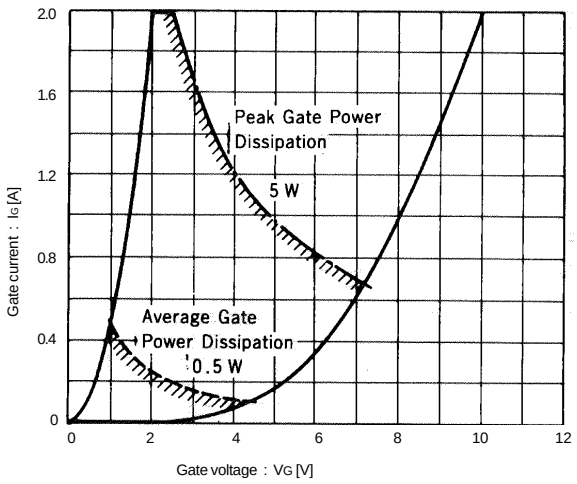


■ Characteristics

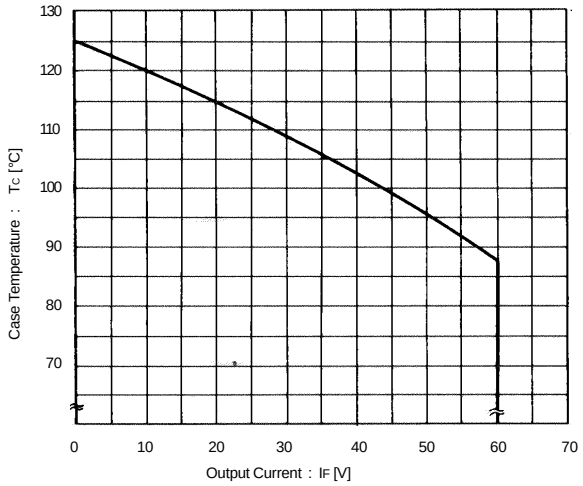
Gate Characteristics



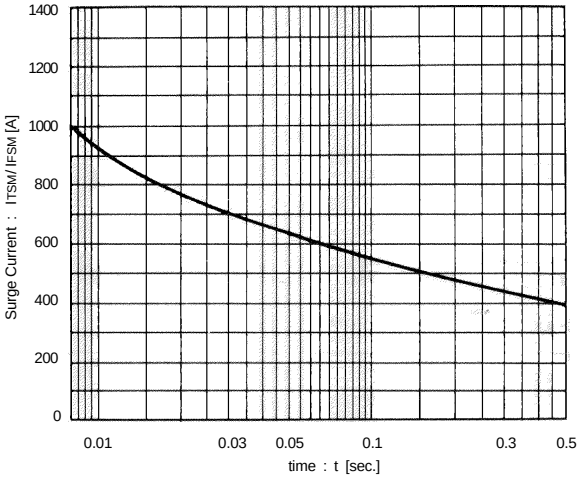
Gate Characteristics



Output Current vs. Case Temperature



Surge Current



Transient Thermal Impedance (Per 1 chip, Junction to Case)