MITSUBISHI GATE TURN-OFF THYRISTORS

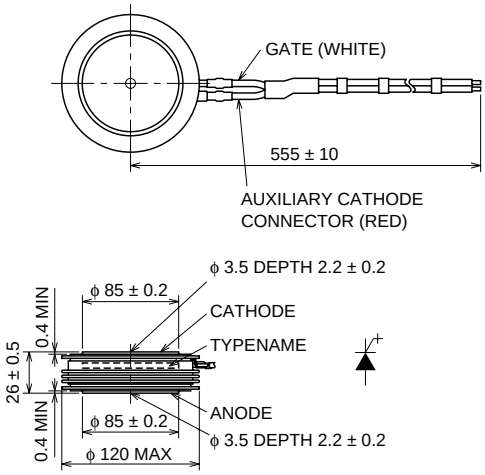
FG4000GX-90DA

HIGH POWER INVERTER USE
PRESS PACK TYPE

FG4000GX-90DA

- I_{TQRM} Repetitive controllable on-state current 4000A
- $I_{T(AV)}$ Average on-state current 1200A
- V_{DRM} Repetitive peak off state voltage 4500V
- Anode short type

OUTLINE DRAWING Dimensions in mm



APPLICATION

Inverters, D.C. choppers, Induction heaters, D.C. to D.C. converters.

MAXIMUM RATINGS

Symbol	Parameter	Voltage class	Unit
		90DA	
V_{RRM}	Repetitive peak reverse voltage	17	V
V_{RSM}	Non-repetitive peak reverse voltage	17	V
$V_{R(DC)}$	DC reverse voltage	17	V
V_{DRM}	Repetitive peak off-state voltage*	4500	V
V_{DSM}	Non-repetitive peak off-state voltage*	4500	V
$V_{D(DC)}$	DC off-state voltage*	3600	V
V_{LTDS}	Long term DC stability voltage*	3000	V

* : V_{GK} = –2V

Symbol	Parameter	Conditions	Ratings	Unit
I_{TQRM}	Repetitive controllable on-state current	V_{DM} = 4500V, T_j = 125°C, C_S = 4.0μF, L_S = 0.2μH	4000	A
$I_{T(RMS)}$	RMS on-state current		1800	A
$I_{T(AV)}$	Average on-state current	f = 60Hz, sine wave θ = 180°, T_f = 70°C	1200	A
I_{TSM}	Surge (non-repetitive) on-state current	One half cycle at 60Hz	25	kA
I^2t	Current-squared, time integration	One cycle at 60Hz	2.6×10^6	A^2s
di_T/dt	Critical rate of rise of on-state current	V_D = 3400V, I_{GM} = 25A, T_j = 125°C	500	A/μs
V_{FGM}	Peak forward gate voltage		10	V
V_{RGM}	Peak reverse gate voltage		17	V
I_{FGM}	Peak forward gate current		130	A
I_{RGM}	Peak gate reverse current		900	A
P_{FGM}	Peak forward gate power dissipation		520	W
P_{RGM}	Peak reverse gate power dissipation		33	kW
$P_{FG(AV)}$	Average forward gate power dissipation		130	W
$P_{RG(AV)}$	Average reverse gate power dissipation		300	W
T_j	Junction temperature		–40 ~ +125	°C
T_{stg}	Storage temperature		–40 ~ +150	°C
—	Mounting force required	Recommended value 42	35 ~ 48	kN
—	Weight	Standard value	1220	g

FG4000GX-90DA

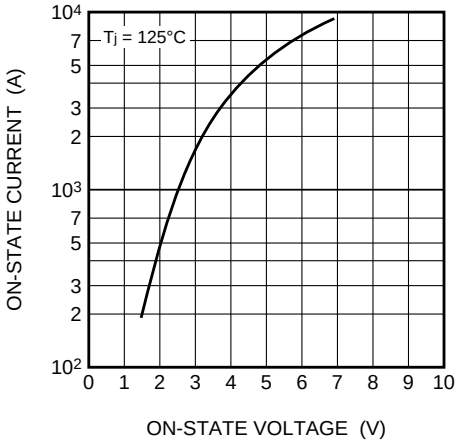
HIGH POWER INVERTER USE
PRESS PACK TYPE

ELECTRICAL CHARACTERISTICS

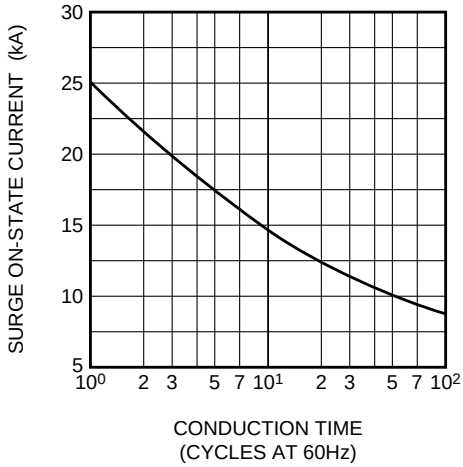
Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ	Max	
V_{TM}	On-state voltage	T_j = 125°C, I_{TM} = 4000A, Instantaneous measurment	—	—	4.3	V
I_{RRM}	Repetitive peak reverse current	T_j = 125°C, V_{RRM} Applied	—	—	10	mA
I_{DRM}	Repetitive peak off-state current	T_j = 125°C, V_{DRM} Applied, V_{GK} = –2V	—	—	150	mA
I_{RG}	Reverse gate current	T_j = 125°C, V_{RG} = 17V	—	—	10	mA
dv/dt	Critical rate of rise of off-state voltage	T_j = 125°C, V_D = 2250V, V_{GK} = –2V	1000	—	—	V/µs
t_{gt}	Turn-on time	T_j = 125°C, I_{TM} = 4000A, I_{GM} = 25A, V_D = 3400V	—	—	8	µs
t_{gq}	Turn-off time	T_j = 125°C, I_{TM} = 4000A, V_{DM} = 4500V, di_{GQ}/dt = –50A/µs V_{RG} = 17V, C_S = 4.0µF, L_S = 0.2µH	—	—	35	µs
I_{GQM}	Peak gate turn-off current		—	900	—	A
V_{GT}	Gate trigger voltage	DC METHOD : V_D = 24V, R_L = 0.1Ω, T_j = 25°C	—	—	1.5	V
I_{GT}	Gate trigger current		—	—	2500	mA
$R_{th(j-f)}$	Thermal resistance	Junction to fin	—	—	0.011	°C/W

PERFORMANCE CURVES

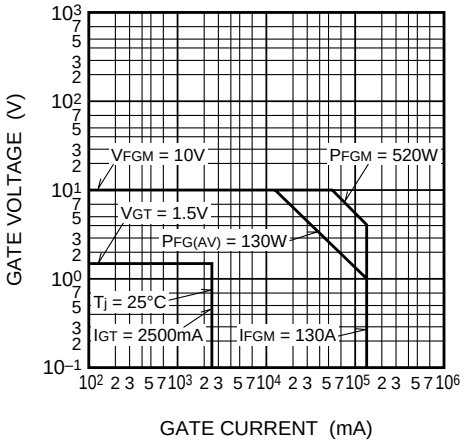
MAXIMUM ON-STATE CHARACTERISTIC



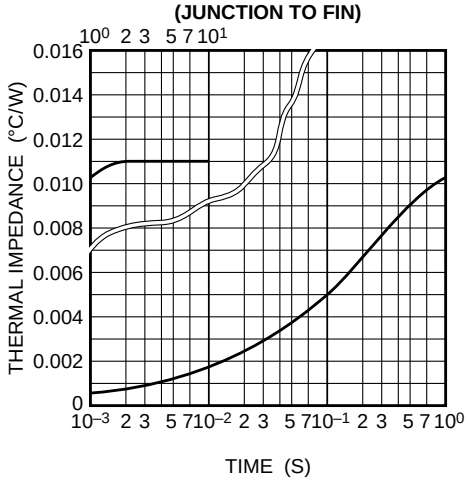
RATED SURGE ON-STATE CURRENT



GATE CHARACTERISTICS

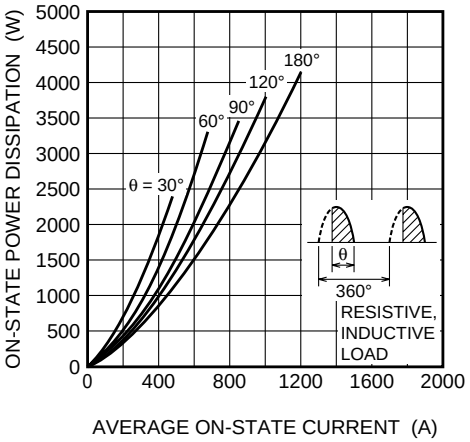


MAXIMUM THERMAL IMPEDANCE CHARACTERISTIC (JUNCTION TO FIN)

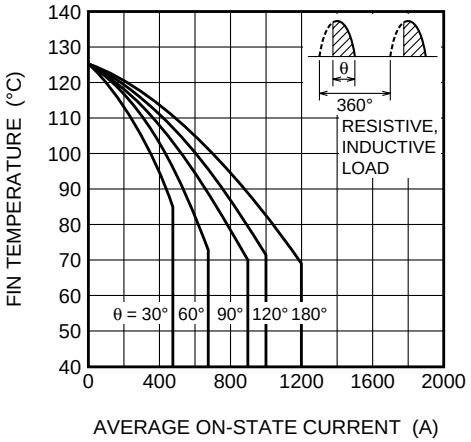


MITSUBISHI ELECTRIC

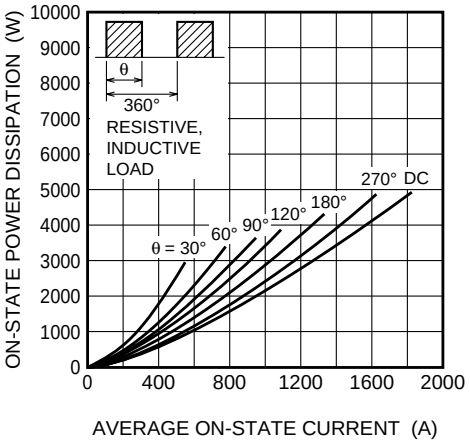
MAXIMUM ON-STATE POWER DISSIPATION CHARACTERISTICS (SINGLE-PHASE HALF WAVE)



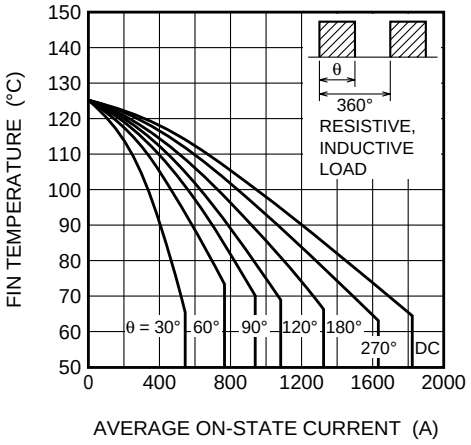
ALLOWABLE FIN TEMPERATURE VS. AVERAGE ON-STATE CURRENT (SINGLE-PHASE HALF WAVE)



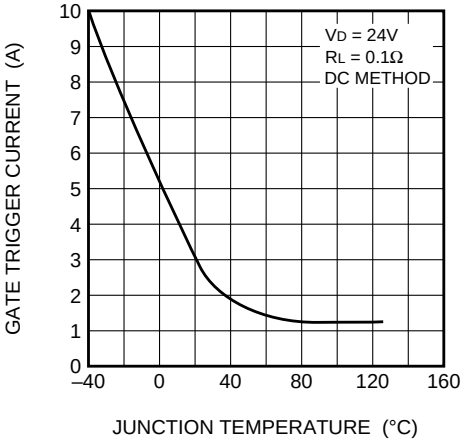
MAXIMUM ON-STATE POWER DISSIPATION CHARACTERISTICS (RECTANGULAR WAVE)



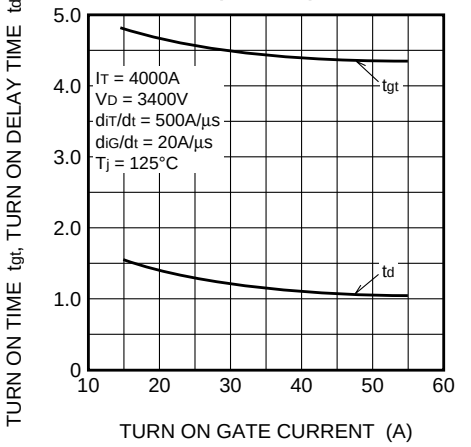
ALLOWABLE FIN TEMPERATURE VS. AVERAGE ON-STATE CURRENT (RECTANGULAR WAVE)



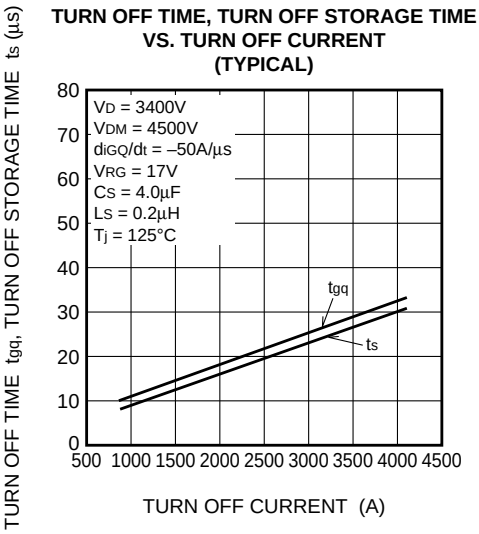
GATE TRIGGER CURRENT VS. JUNCTION TEMPERATURE (MAXIMUM)



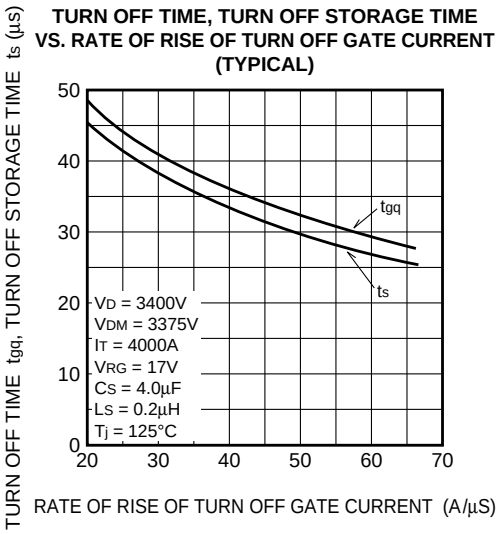
TURN ON TIME, TURN ON DELAY TIME VS. TURN ON GATE CURRENT (TYPICAL)



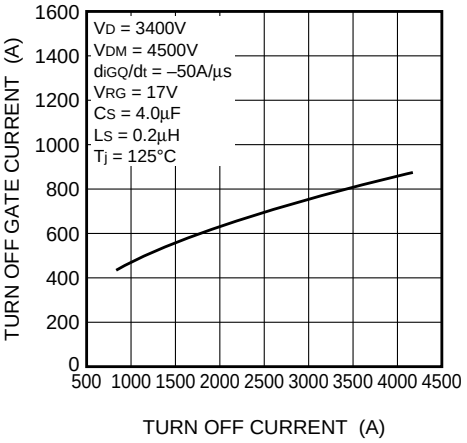
TURN OFF TIME, TURN OFF STORAGE TIME VS. TURN OFF CURRENT (TYPICAL)



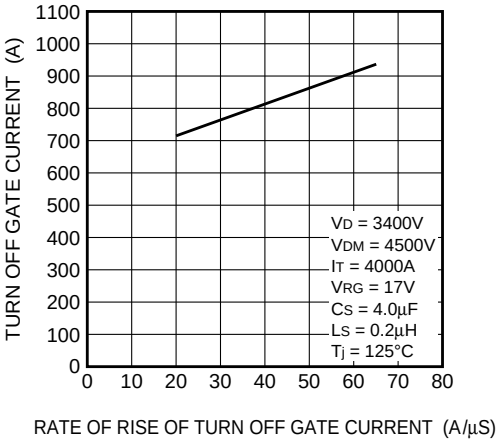
TURN OFF TIME, TURN OFF STORAGE TIME VS. RATE OF RISE OF TURN OFF GATE CURRENT (TYPICAL)



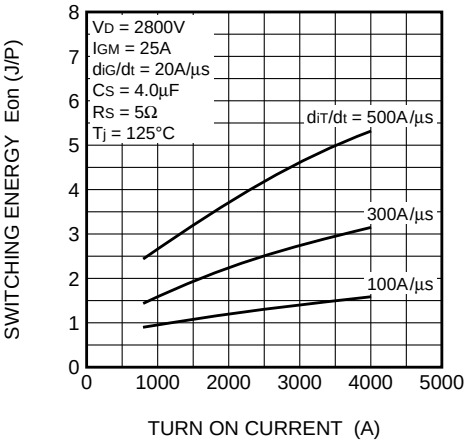
TURN OFF GATE CURRENT VS. TURN OFF CURRENT (TYPICAL)



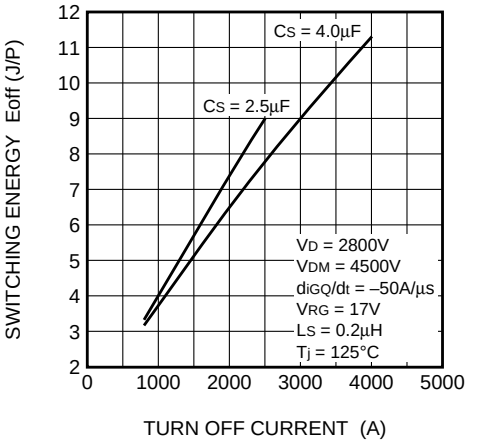
TURN OFF GATE CURRENT VS. RATE OF RISE OF GATE CURRENT (TYPICAL)



TURN ON SWITCHING ENERGY (MAXIMUM)



TURN OFF SWITCHING ENERGY (MAXIMUM)



ООО «ЛайфЭлектроникс» “LifeElectronics” LLC

ИНН 7805602321 КПП 780501001 Р/С 40702810122510004610 ФАКБ "АБСОЛЮТ БАНК" (ЗАО) в г.Санкт-Петербурге К/С 30101810900000000703 БИК 044030703

Компания «Life Electronics» занимается поставками электронных компонентов импортного и отечественного производства от производителей и со складов крупных дистрибьюторов Европы, Америки и Азии.

С конца 2013 года компания активно расширяет линейку поставок компонентов по направлению коаксиальный кабель, кварцевые генераторы и конденсаторы (керамические, пленочные, электролитические), за счёт заключения дистрибьюторских договоров

Мы предлагаем:

- *Конкурентоспособные цены и скидки постоянным клиентам.*
- *Специальные условия для постоянных клиентов.*
- *Подбор аналогов.*
- *Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.*

- *Приемлемые сроки поставки, возможна ускоренная поставка.*
- *Доставку товара в любую точку России и стран СНГ.*
- *Комплексную поставку.*
- *Работу по проектам и поставку образцов.*
- *Формирование склада под заказчика.*

- *Сертификаты соответствия на поставляемую продукцию (по желанию клиента).*
- *Тестирование поставляемой продукции.*
- *Поставку компонентов, требующих военную и космическую приемку.*
- *Входной контроль качества.*
- *Наличие сертификата ISO.*

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Конструкторский отдел помогает осуществить:

- *Регистрацию проекта у производителя компонентов.*
- *Техническую поддержку проекта.*
- *Защиту от снятия компонента с производства.*
- *Оценку стоимости проекта по компонентам.*
- *Изготовление тестовой платы монтаж и пусконаладочные работы.*

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