

This datasheet should be used in conjunction with the application note AN4571, GDU9X-XXXXX Series, Gate Drive Unit.

### APPLICATIONS

### KEY PARAMETERS

- Used with Gate Turn-Off Thyristors in high current switching applications

$I_{FGM}$	30A
$I_{G(ON)}$	7A
$di_{GQ}/dt$	40A/ $\mu$ s

### CONDITIONS - (UNLESS STATED OTHERWISE)

$V_1 = +5V$	$V_2 = +15V$	$V_3 = -15V$
Test circuit GTO	DG646BH	
GDU connection to GTO	500mm CO - AX cable type RC5327230	
Test circuit emitter and gate drive emitter	Hewlett Packard versatile link HFBR1524	
Test circuit emitter current	30mA	
Test circuit receiver and gate drive receiver	Hewlett Packard versatile link HFBR2524	

### ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Units
$I_{V1}$	+5V PSU current	700Hz, 50% duty cycle	-	-	3.80	A
$I_{V2}$	+15V PSU current	700Hz	-	-	0.73	A
$I_{V3}$	-15V PSU current	700Hz, $I_T = 2000A$ GTO $T_j = 125^\circ C$	-	-	9.20	A
$V_{1(Min)}$	+5V PSU minimum	-	3.8	-	-	V
$V_{2(Min)}$	+15V PSU minimum	-	14.0	-	-	V
$V_{3(Min)}$	-15V PSU minimum	-	14.0	-	-	V
$I_{FGM}$	Peak forward gate current	-	30	-	-	A
$I_{G(ON)}$	On-state gate current	-	-	7	-	A
$di_{FG}/dt$	Rate of rise of positive gate current	Measured 10 - 75% $I_{FGM}$	-	30	-	A/ $\mu$ s
$di_{GQ}/dt$	Rate of rise of negative gate current	$I_T = 2000A$ , 90% $I_{G(ON)}$ - 50% $I_{GQM}$	-	40	-	A/ $\mu$ s

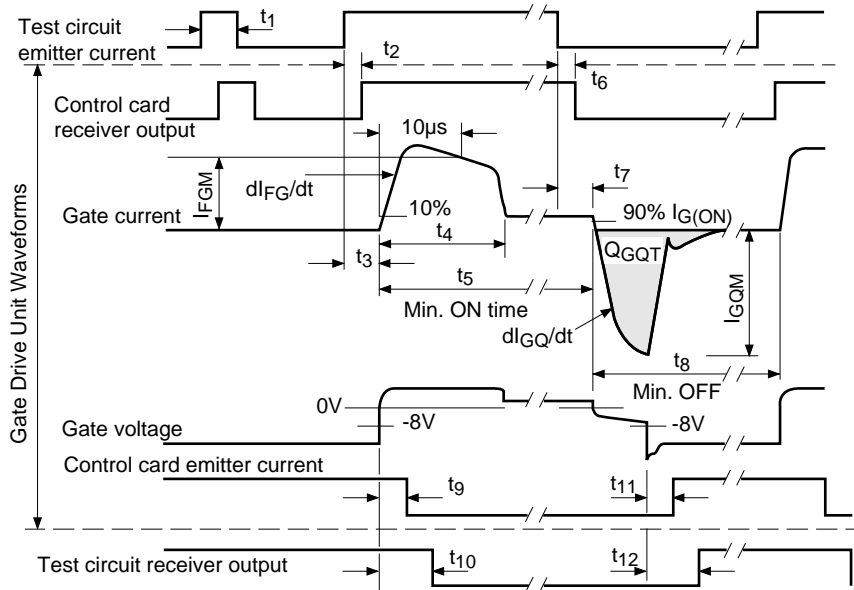
TIMING CHARACTERISTICS

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Units
$t_1^{*\dagger}$	No response pulse width of input signal	Adjustable by R81 + R82	2	-	3	$\mu\text{s}$
$t_2$	Delay time emitter current to receiver o/p	-	0.2	-	0.4	$\mu\text{s}$
$t_3^{*\dagger}$	Turn-on delay emitter current to 10% $I_{FGM}$	-	5.0	-	5.8	$\mu\text{s}$
$t_4$	$I_{FGM}$ pulse width	-	-	25	-	$\mu\text{s}$
$t_5^*$	Minimum on time 10% $I_{FGM}$ to 90% $I_{G(ON)}$	Adjustable by R37	80	-	110	$\mu\text{s}$
$t_6$	Receiver storage time	-	0.8	-	1.2	$\mu\text{s}$
$t_7$	Turn-off delay. Emitter current to 90% $I_{G(ON)}$	-	1.5	-	2.3	$\mu\text{s}$
$t_8^*$	Minimum off time 90% $I_{G(ON)}$ to 10% $I_{FGM}$	Adjustable by R38	80	-	110	$\mu\text{s}$
$t_9$	Delay time Gate volts to o/p emitter current	-	-	0.2	-	$\mu\text{s}$
$t_{10}$	Turn-off delay Gate volts to test receiver o/p	-	-	0.8	-	$\mu\text{s}$
$t_{11}$	Storage time Gate volts to o/p emitter current	Measured at low $I_{GQM}$	-	0.1 <sup>1</sup>	-	$\mu\text{s}$
$t_{12}$	Turn-on delay Gate volts to test receiver o/p	Measured at low $I_{GQM}$	-	0.3 <sup>1</sup>	-	$\mu\text{s}$

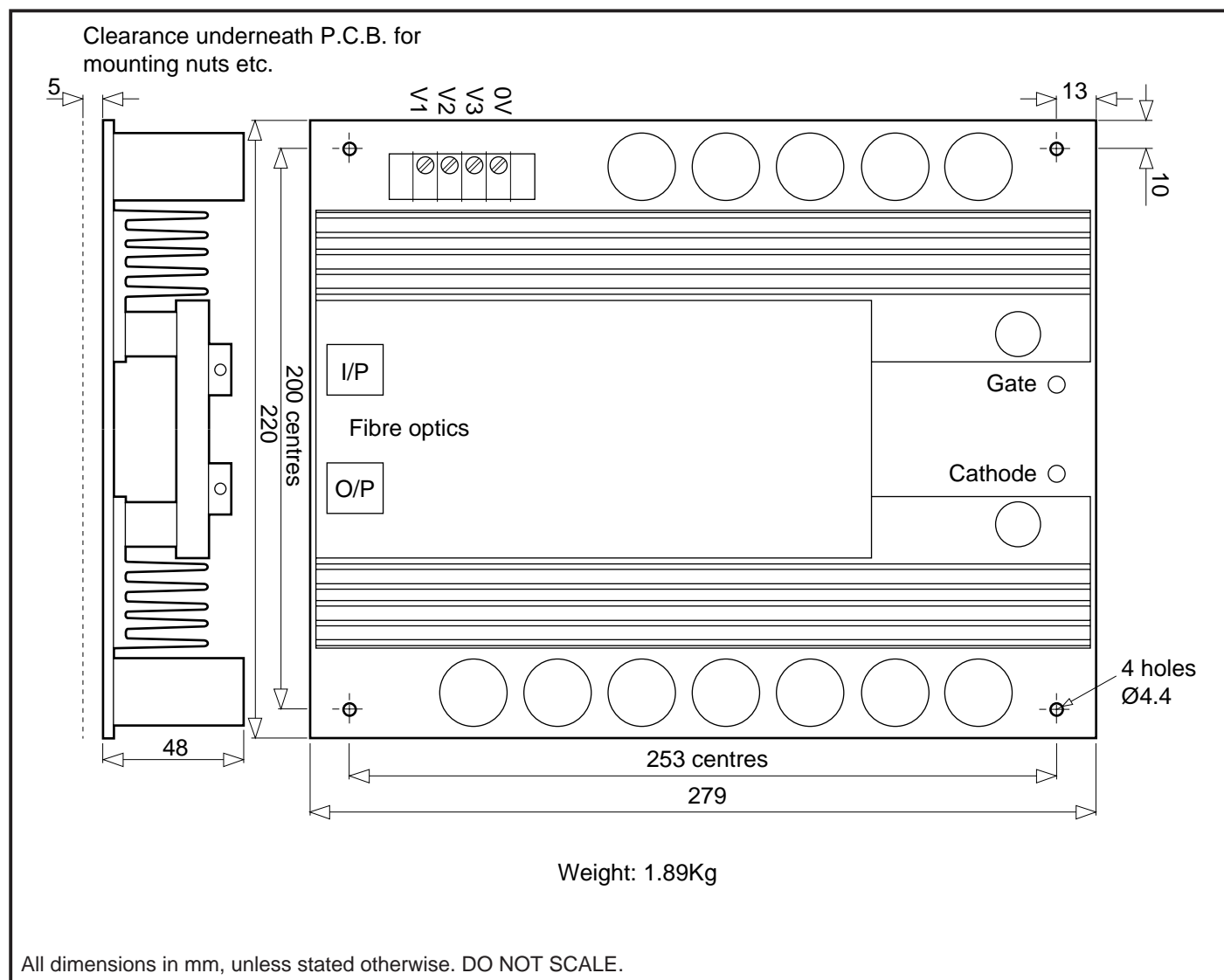
\*  $t_1, t_3, t_5, t_8$  are factory settings.

† Adjustment of  $t_1$  alters  $t_3$ .

1. Varies with  $I_{GQM}$  due to gate lead impedance.



**OUTLINE**



## POWER ASSEMBLY CAPABILITY

The Power Assembly group was set up to provide a support service for those customers requiring more than the basic semiconductor, and has developed a flexible range of heatsink / clamping systems in line with advances in device types and the voltage and current capability of our semiconductors.

We offer an extensive range of air and liquid cooled assemblies covering the full range of circuit designs in general use today. The Assembly group continues to offer high quality engineering support dedicated to designing new units to satisfy the growing needs of our customers.

Using the up to date CAD methods our team of design and applications engineers aim to provide the Power Assembly Complete solution (PACs).

## DEVICE CLAMPS

Disc devices require the correct clamping force to ensure their safe operation. The PACs range offers a varied selection of pre-loaded clamps to suit all of our manufactured devices. This include cube clamps for single side cooling of 'T' 22mm

Clamps are available for single or double side cooling, with high insulation versions for high voltage assemblies.

Please refer to our application note on device clamping, AN4839

## HEATSINKS

Power Assembly has it's own proprietary range of extruded aluminium heatsinks. They have been designed to optimise the performance or our semiconductors. Data with respect to air natural, forced air and liquid cooling (with flow rates) is available on request.

For further information on device clamps, heatsinks and assemblies, please contact your nearest Sales Representative or the factory.



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**Preliminary Information:** The product is in design and development. The datasheet represents the product as it is understood but details may change.

**Advance Information:** The product design is complete and final characterisation for volume production is well in hand.

**No Annotation:** The product parameters are fixed and the product is available to datasheet specification.

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