# GDU 90 20422

## GATE DRIVE UNIT

This data sheet should be used in conjuction with the publication entitled GDU9X-XXXXX Series, Gate Drive Unit.

### APPLICATIONS

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

### KEY PARAMETERS

| | |
|---|---|
| $I_{FGM}$ | **30A** |
| $I_{G(ON)}$ | **7A** |
| $dI_{GQ}/dt$ | **40A/µs** |

### 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 | Honeywell sweetspot HFE 4020 - 013 | |
| Test circuit emitter current | 30mA | |
| Test circuit receiver and gate drive receiver | Honeywell sweetspot HFD 3029 - 002 | |

### 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<br>GTO $T_j$ = 125˚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/µs |
| $dI_{GQ}/dt$ | Rate of rise of negative gate current | $I_T$ = 2000A, 90% $I_{G(ON)}$ - 50% $I_{GQM}$ | - | 40 | - | A/µs |

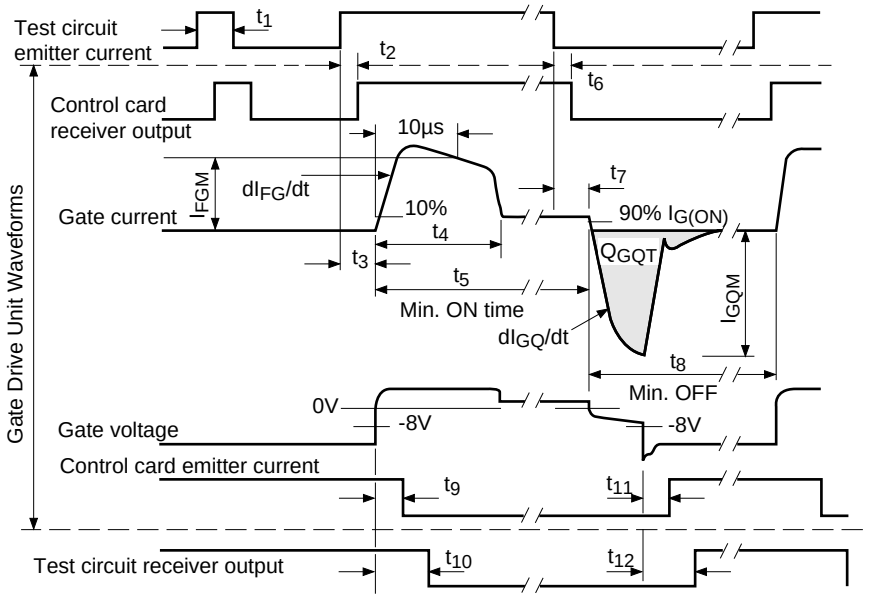
## TIMING CHARACTERISTICS

| Symbol | Parameter | Conditions | Min. | Typ. | Max. | Units |
|---|---|---|---|---|---|---|
| $t_1$*† | No response pulse width of input signal | Adjustable by R81 + R82 | 2 | - | 3 | µs |
| $t_2$ | Delay time emitter current to receiver o/p | - | 0.4 | - | 0.8 | µs |
| $t_3$*† | Turn-on delay emitter current to 10% $I_{FGM}$ | - | 5.2 | - | 6.2 | µs |
| $t_4$ | $I_{FGM}$ pulse width | - | - | 25 | - | µs |
| $t_5$* | Minimum on time 10% $I_{FGM}$ to 90% $I_{G(ON)}$ | Adjustable by R37 | 80 | - | 110 | µs |
| $t_6$ | Receiver storage time | - | 0.5 | - | 0.9 | µs |
| $t_7$ | Turn-off delay. Emitter current to 90% $I_{G(ON)}$ | - | 1.5 | - | 2.3 | µs |
| $t_8$* | Minimum off time 90% $I_{G(ON)}$ to 10% $I_{FGM}$ | Adjustable by R38 | 80 | - | 110 | µs |
| $t_9$ | Delay time Gate volts to o/p emitter current | - | - | 0.1 | - | µs |
| $t_{10}$ | Turn-off delay Gate volts to test receiver o/p | - | - | 0.7 | - | µs |
| $t_{11}$ | Storage time Gate volts to o/p emitter current | Measured at low $I_{GQM}$ | - | 0.1[1] | - | µs |
| $t_{12}$ | Turn-on delay Gate volts to test receiver o/p | Measured at low $I_{GQM}$ | - | 0.8[1] | - | µs |

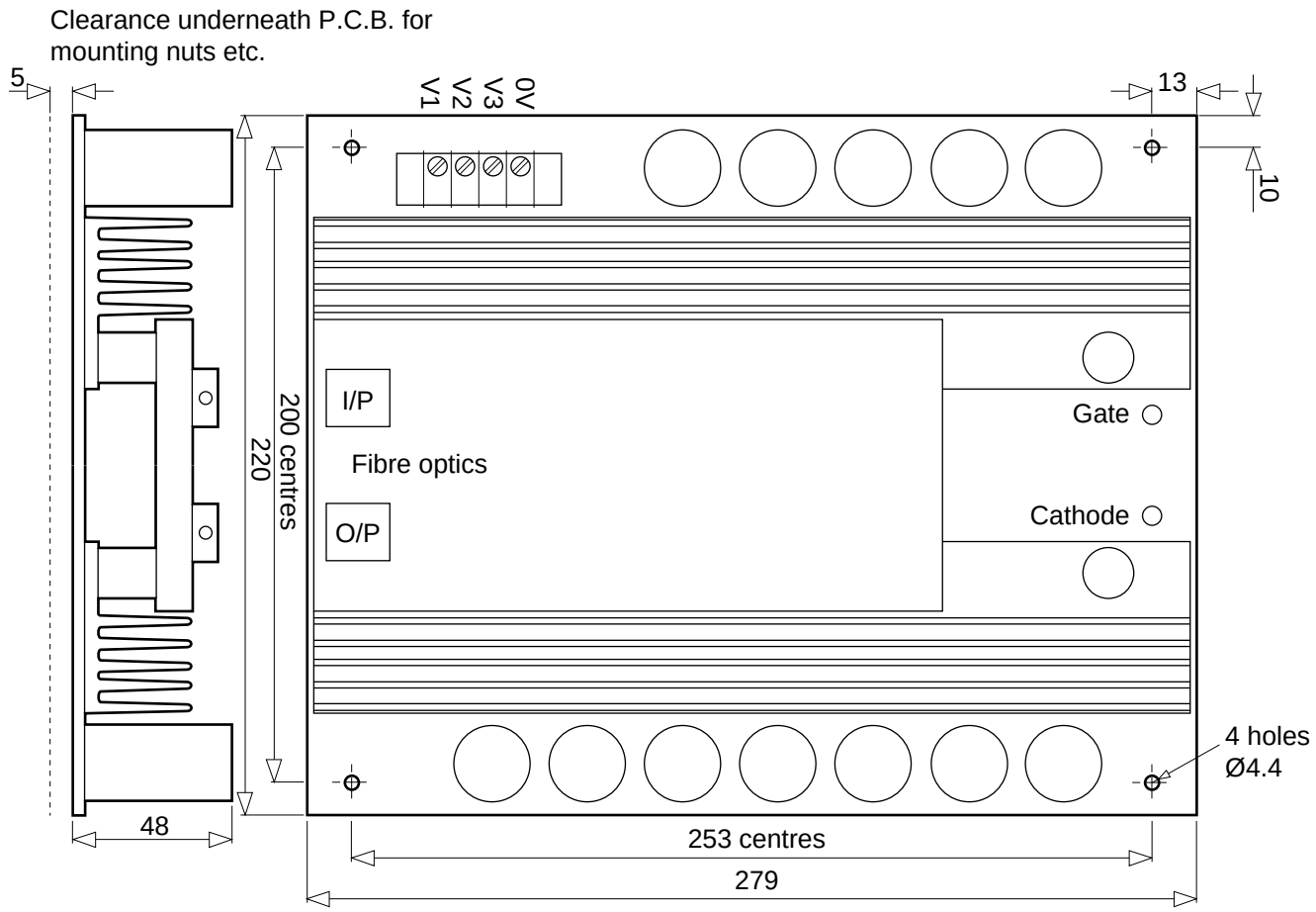
* $t_1$,$t_3$,$t_5$,$t_8$ are factory settings.

† Adjustment of $t_1$ alters $t_3$.

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



## OUTLINE




Weight: 1.89Kg

All dimensions in mm, unless stated otherwise. DO NOT SCALE.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