

# GDU 90 20302

## GATE DRIVE UNIT

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

### APPLICATIONS

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

### KEY PARAMETERS

$I_{FGM}$	40A
$I_{G(ON)}$	8A
$di_{GQ}/dt$	40A/ $\mu$ s

### CONDITIONS - (UNLESS STATED OTHERWISE)

$V_1 = +5V$	$V_2 = +15V$	$V_3 = -15V$
Test circuit GTO	DG758BX	
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	500Hz, 50% duty cycle	-	-	4.40	A
$I_{V2}$	+15V PSU current	500Hz	-	-	0.48	A
$I_{V3}$	-15V PSU current	500Hz, $I_T = 3000A$ GTO $T_j = 125^\circ C$	-	-	10.0	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	-	40	-	-	A
$I_{G(ON)}$	On-state gate current	-	-	8	-	A
$di_{FG}/dt$	Rate of rise of positive gate current	Measured 10 - 75% $I_{FGM}$	-	40	-	A/ $\mu$ s
$di_{GQ}/dt$	Rate of rise of negative gate current	$I_T = 3000A$ , 90% $I_{G(ON)}$ - 50% $I_{GQM}$	-	40	-	A/ $\mu$ s

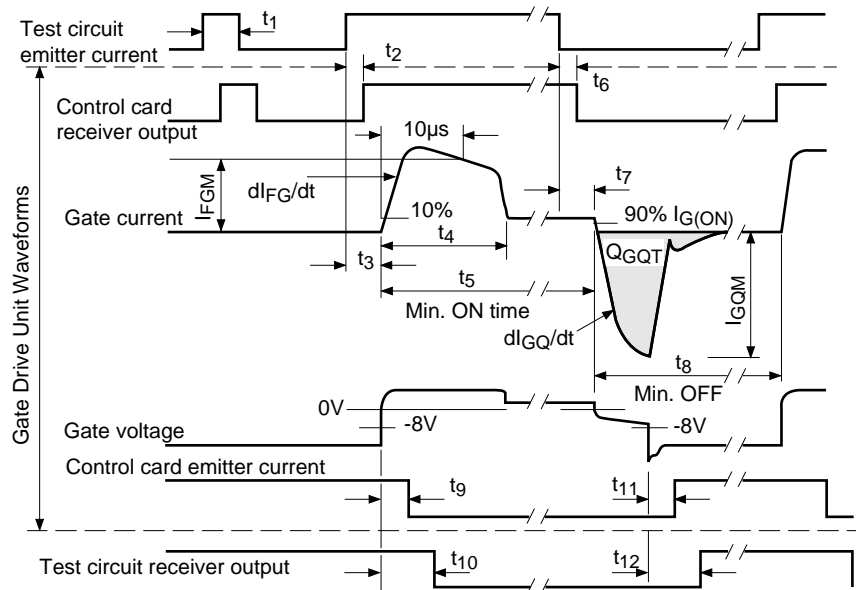
## TIMING CHARACTERISTICS

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	-	0.4	-	0.8	$\mu\text{s}$
$t_3^{*\dagger}$	Turn-on delay emitter current to 10% $I_{\text{FGM}}$	-	5.2	-	6.2	$\mu\text{s}$
$t_4$	$I_{\text{FGM}}$ pulse width	-	-	16	-	$\mu\text{s}$
$t_5^*$	Minimum on time 10% $I_{\text{FGM}}$ to 90% $I_{\text{G(ON)}}$	Adjustable by R37	80	-	110	$\mu\text{s}$
$t_6$	Receiver storage time	-	0.5	-	0.9	$\mu\text{s}$
$t_7$	Turn-off delay. Emitter current to 90% $I_{\text{G(ON)}}$	-	1.5	-	2.3	$\mu\text{s}$
$t_8^*$	Minimum off time 90% $I_{\text{G(ON)}}$ to 10% $I_{\text{FGM}}$	Adjustable by R38	80	-	110	$\mu\text{s}$
$t_9$	Delay time Gate volts to o/p emitter current	-	-	0.1	-	$\mu\text{s}$
$t_{10}$	Turn-off delay Gate volts to test receiver o/p	-	-	0.7	-	$\mu\text{s}$
$t_{11}$	Storage time Gate volts to o/p emitter current	Measured at low $I_{\text{GQM}}$	-	0.1 <sup>1</sup>	-	$\mu\text{s}$
$t_{12}$	Turn-on delay Gate volts to test receiver o/p	Measured at low $I_{\text{GQM}}$	-	0.8 <sup>1</sup>	-	$\mu\text{s}$

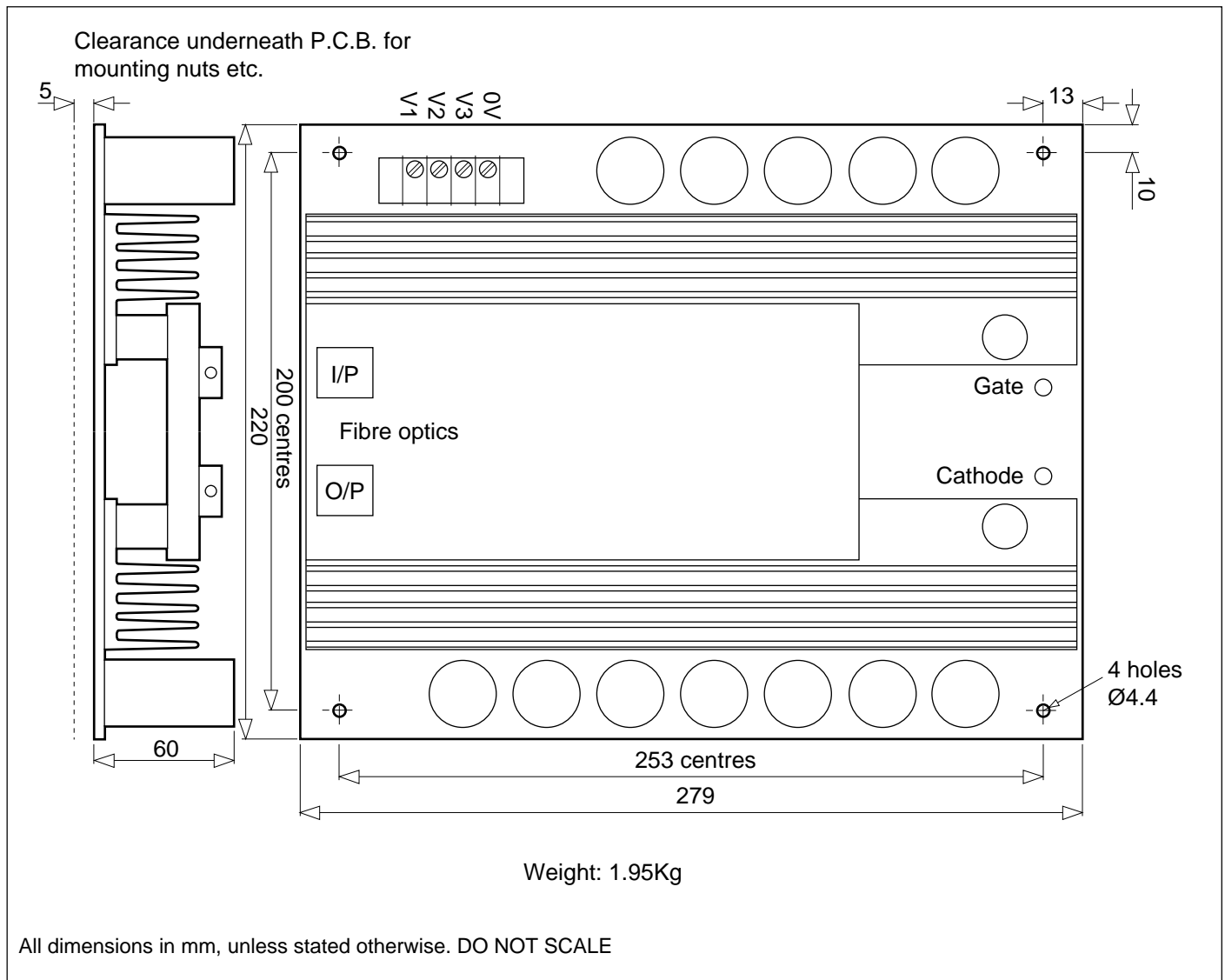
\*  $t_1, t_3, t_5, t_8$  are factory settings.

<sup>†</sup> Adjustment of  $t_1$  alters  $t_3$ .

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



# OUTLINE





#### HEADQUARTERS OPERATIONS

##### **GEC PLESSEY SEMICONDUCTORS**

Cheney Manor, Swindon,  
Wiltshire, SN2 2QW, United Kingdom.  
Tel: + 44 (0)1793 518000  
Fax: + 44 (0)1793 518411

##### **GEC PLESSEY SEMICONDUCTORS**

P.O. Box 660017  
1500 Green Hills Road,  
Scotts Valley, California 95067-0017,  
United States of America.  
Tel: + 1 (408) 438 2900  
Fax: + 1 (408) 438 5576

#### POWER PRODUCT CUSTOMER SERVICE CENTRES

- **FRANCE.** 2 rue Henri-Bergson, 92665 Asnieres Cedex.  
Tel: + 33 1 40 80 54 00. Fax: + 33 1 40 80 55 87.
- **GERMANY.** Ungererstrasse 129, 80505 München.  
Tel: + 49 (0)89 36 09 060. Fax: + 49 (0)89 36 09 06 55.
- **NORTH AMERICA.** At Dedham Place, Suite 125, 3 Allied Drive, Dedham. MA 02026.  
Tel: + 1 617 251 0126. Fax: + 1 617 251 0106.
- **UNITED KINGDOM.** Doddington Road, Lincoln. LN6 3LF.  
Tel: + 44 (0)1522 500500. Fax: + 44 (0)1522 500550.

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