

GDU 91 20222

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}	30A
$I_{G(ON)}$	4A
di_{GQ}/dt	30A/ μ s

CONDITIONS - (UNLESS STATED OTHERWISE)

$V_1 = +5V$	$V_2 = +15V$	$V_3 = -15V$
Test circuit GTO	DG408BP	
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	-	-	2.2	A
I_{V2}	+15V PSU current	500Hz	-	-	0.55	A
I_{V3}	-15V PSU current	500Hz, $I_T = 1000A$ GTO $T_J = 125^\circ C$	-	-	3.0	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	-	30	-	-	A
$I_{G(ON)}$	On-state gate current	-	-	4	-	A
di_{FG}/dt	Rate of rise of positive gate current	Measured 10 - 75% I_{FGM}	-	30	-	A/ μ s
di_{GQ}/dt	Rate of rise of negative gate current	$I_T = 1000A$, 90% $I_{G(ON)}$ - 50% I_{GQM}	-	30	-	A/ μ s

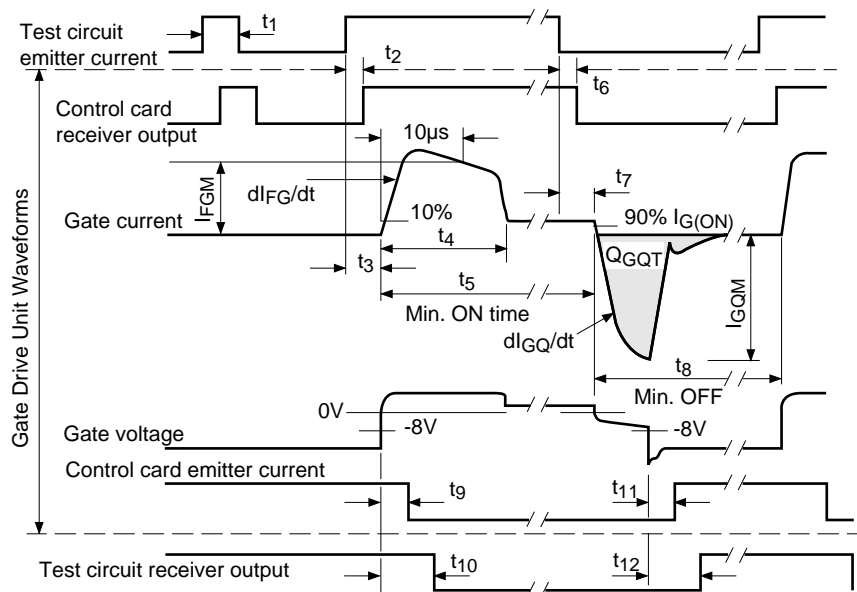
TIMING CHARACTERISTICS

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Units
$t_1^{*\dagger}$	No response pulse width of input signal	Adjustable by R81 + R82	2	-	3	μs
t_2	Delay time emitter current to receiver o/p	-	0.4	-	0.8	μs
$t_3^{*\dagger}$	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

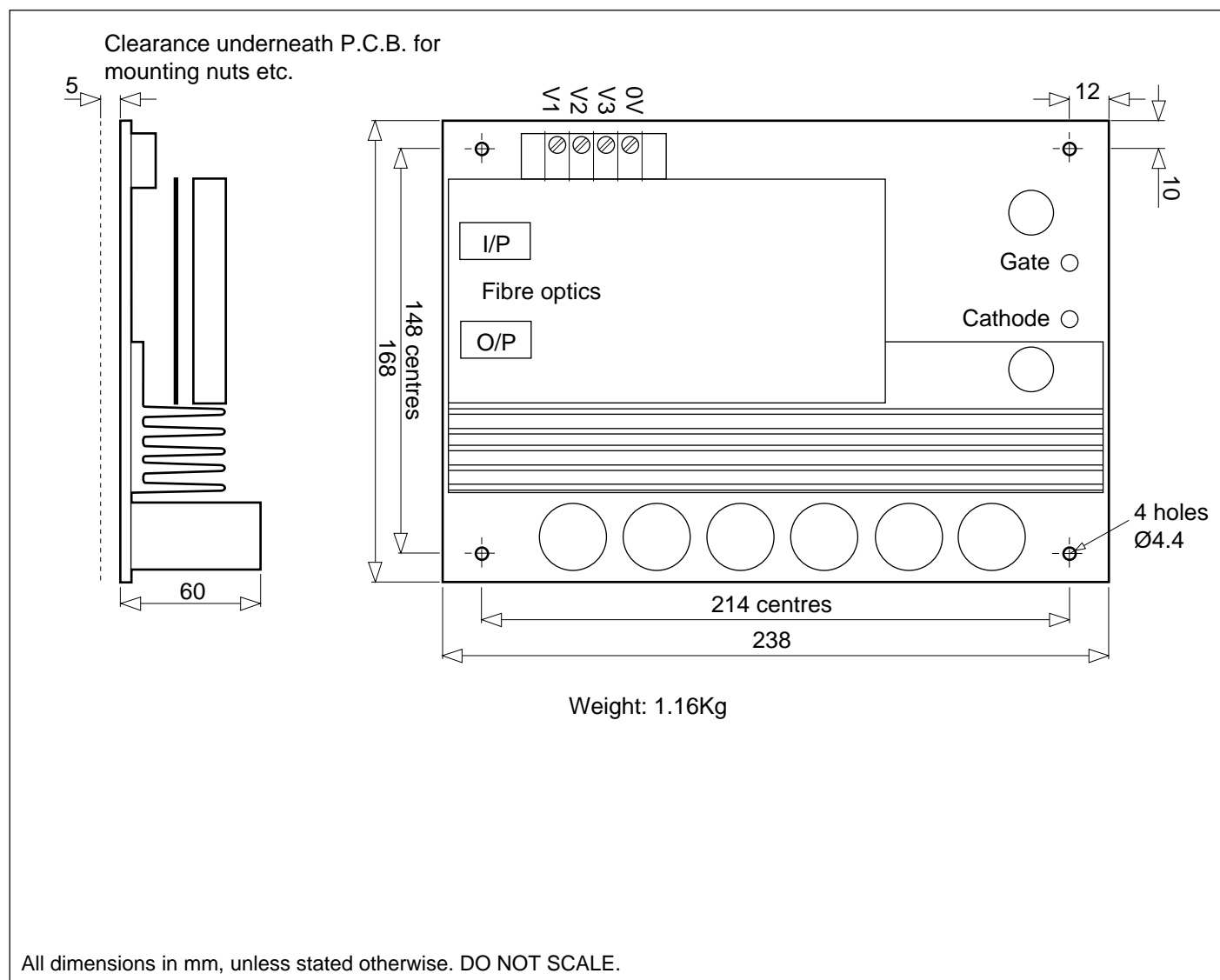
* t_1, t_3, t_5, t_8 are factory settings.

[†] Adjustment of t_1 alters t_3 .

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



OUTLINE





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.

These are supported by Agents and Distributors in major countries world-wide.

© GEC Plessey Semiconductors 1996 Publication No. DS4570-2 Issue No. 2.0 July 1996

TECHNICAL DOCUMENTATION - NOT FOR RESALE. PRINTED IN UNITED KINGDOM.

This publication is issued to provide information only which (unless agreed by the Company in writing) may not be used, applied or reproduced for any purpose nor form part of any order or contract nor to be regarded as a representation relating to the products or services concerned. No warranty or guarantee express or implied is made regarding the capability, performance or suitability of any product or service. The Company reserves the right to alter without prior notice the specification, design or price of any product or service. Information concerning possible methods of use is provided as a guide only and does not constitute any guarantee that such methods of use will be satisfactory in a specific piece of equipment. It is the user's responsibility to fully determine the performance and suitability of any equipment using such information and to ensure that any publication or data used is up to date and has not been superseded. These products are not suitable for use in any medical products whose failure to perform may result in significant injury or death to the user. All products and materials are sold and services provided subject to the Company's conditions of sale, which are available on request.