

# GDU 91 20221

## 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  
 $dl_{GQ}/dt$  30A/ $\mu$ s

### CONDITIONS - (UNLESS STATED OTHERWISE)

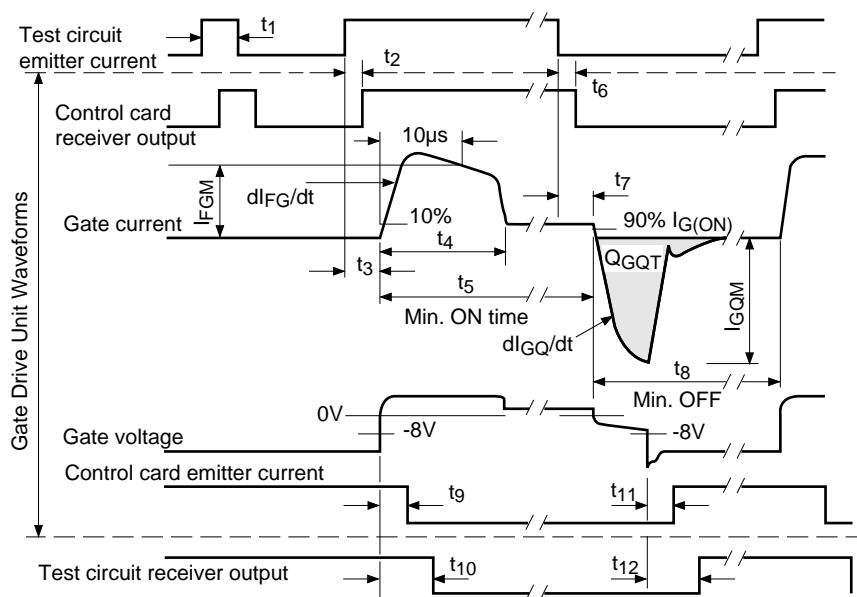
$V_1 = +5V$	$V_2 = +15V$	$V_3 = -15V$
Test circuit GTO	DG408BP	
GDU connection to GTO	500mm CO - AX cable type RC5327230	
Test circuit emitter and gate drive emitter	Hewlett Packard versatile link HFBR1524	
Test circuit emitter current	30mA	
Test circuit receiver and gate drive receiver	Hewlett Packard versatile link HFBR2524	

### ELECTRICAL CHARACTERISTICS

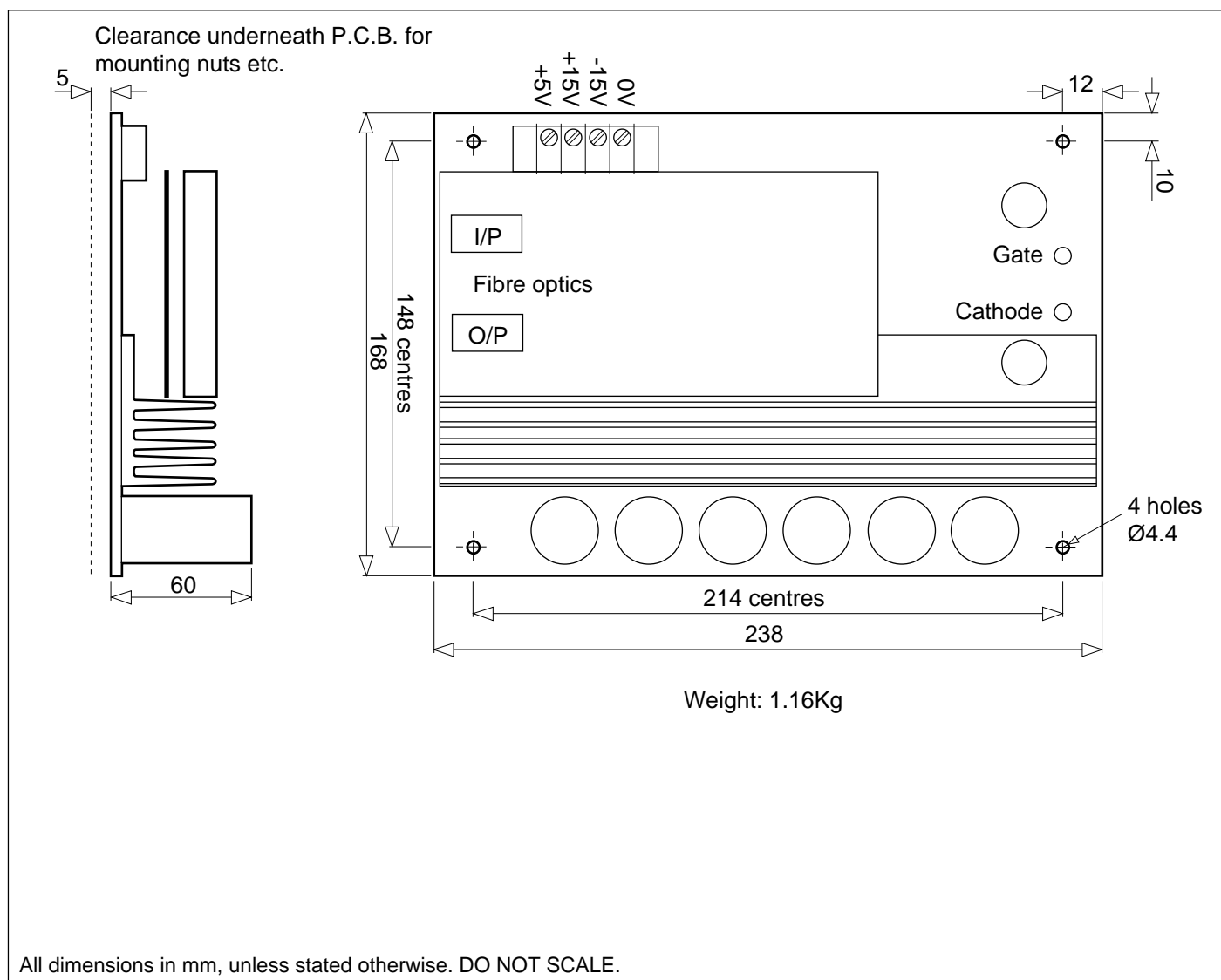
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Units
$I_{V1}$	+5V PSU current	500Hz, 50% duty cycle	-	-	2.2	A
$I_{V2}$	+15V PSU current	500Hz	-	-	0.55	A
$I_{V3}$	-15V PSU current	500Hz, $I_T = 1000A$ GTO $T_J = 125^\circ C$	-	-	3.0	A
$V_{1(Min)}$	+5V PSU minimum	-	3.8	-	-	V
$V_{2(Min)}$	+15V PSU minimum	-	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
$dl_{FG}/dt$	Rate of rise of positive gate current	Measured 10 - 75% $I_{FGM}$	-	30	-	A/ $\mu$ s
$dl_{GQ}/dt$	Rate of rise of negative gate current	$I_T = 1000A$ , 90% $I_{G(ON)}$ - 50% $I_{GQM}$	-	30	-	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.<sup>†</sup> Adjustment of  $t_1$  alters  $t_3$ .1. Varies with  $I_{GQM}$  due to gate lead impedance.

## OUTLINE





#### HEADQUARTERS OPERATIONS

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