

GDU 90 20421

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
$I_{G(ON)}$	7A
di_{GQ}/dt	40A/ μ 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/ μ s
di_{GQ}/dt	Rate of rise of negative gate current	$I_T = 2000A$, 90% $I_{G(ON)}$ - 50% I_{GQM}	-	40	-	A/ μ s

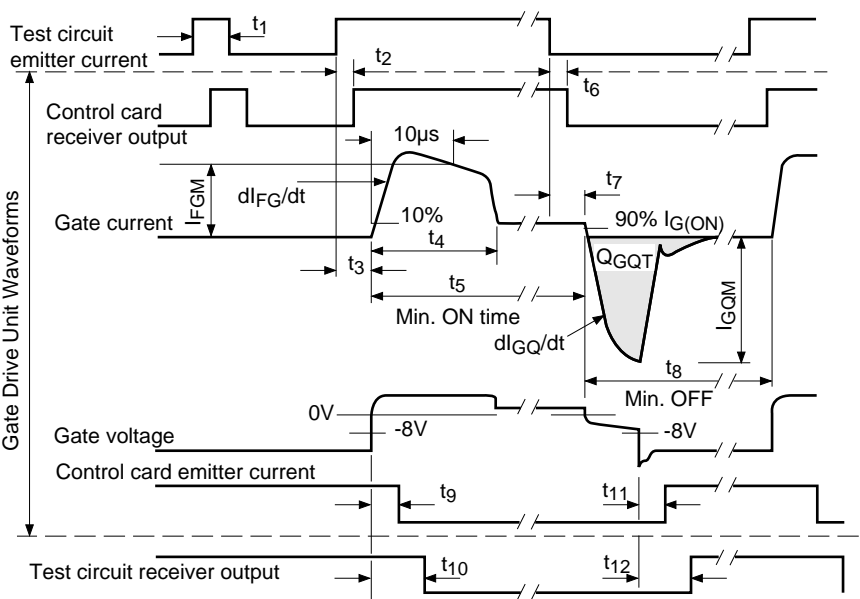
TIMING CHARACTERISTICS

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	-	0.2	-	0.4	μs
$t_3^{*\dagger}$	Turn-on delay emitter current to 10% I_{FGM}	-	5.0	-	5.8	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	-	0.8	-	1.2	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	-	-	0.2	-	μs
t_{10}	Turn-off delay Gate volts to test receiver o/p	-	-	0.8	-	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}	-	0.3 ¹	-	μs

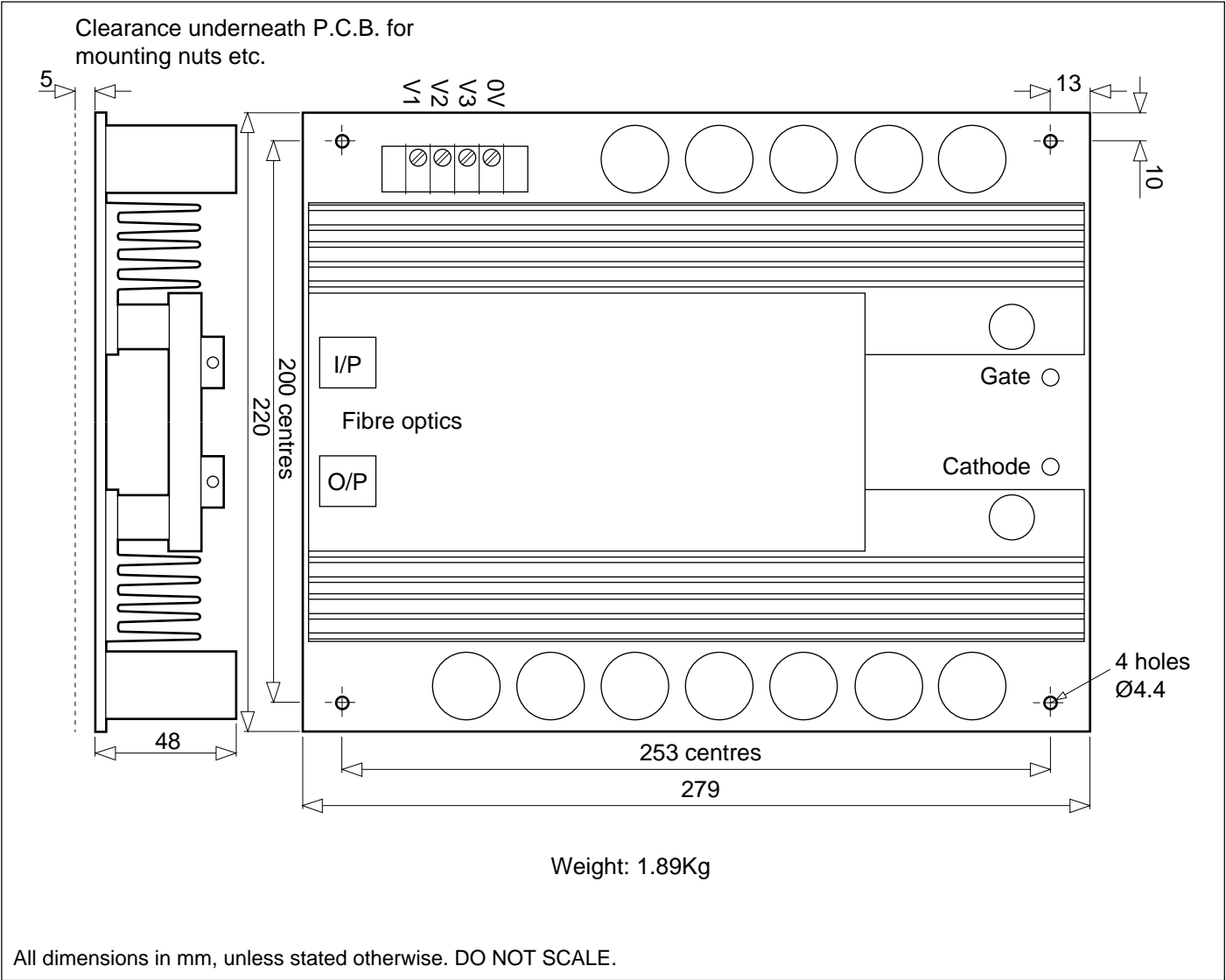
* t_1, t_3, t_5, t_8 are factory settings.

† Adjustment of t_1 alters t_3 .

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



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