

GDU 90 20722

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
 $I_{G(ON)}$ 10A
 dl_{GQ}/dt 50A/ μ s

CONDITIONS - (UNLESS STATED OTHERWISE)

$V_1 = +5V$	$V_2 = +15V$	$V_3 = -15V$
Test circuit GTO	DG858BW	
GDU connection to GTO	500mm CO - AX cable type RC5327230 (2 cables in parallel)	
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	-	-	5.5	A
I_{V2}	+15V PSU current	500Hz	-	-	0.70	A
I_{V3}	-15V PSU current	500Hz, $I_T = 3000A$ GTO $T_j = 125^\circ C$	-	-	12	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	-	-	10	-	A
dl_{FG}/dt	Rate of rise of positive gate current	Measured 10 - 75% I_{FGM}	-	40	-	A/ μ s
dl_{GQ}/dt	Rate of rise of negative gate current	$I_T = 3000A$, 90% $I_{G(ON)}$ - 50% I_{GQM}	-	50	-	A/ μ s

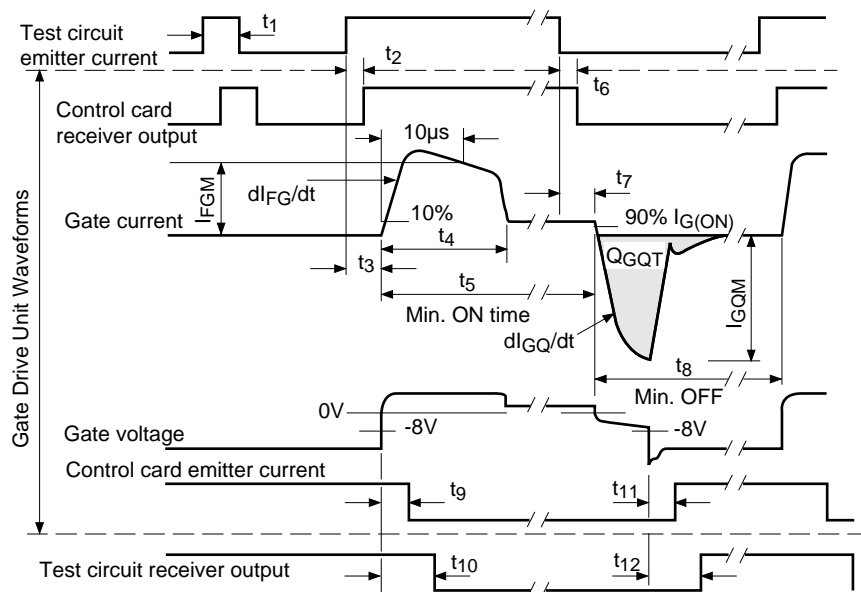
TIMING CHARACTERISTICS

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% $I_{\text{G(ON)}}$	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% $I_{\text{G(ON)}}$	-	1.5	-	2.3	μs
t_8^*	Minimum off time 90% $I_{\text{G(ON)}}$ 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.





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