Sintec Optronics

RF Drivers QCxxx-yyDC-zz-aaV

(former part number R390xx-yyDMzzz-SC) drivers

The QCxx-yyDC-zzz module is a compact low power RF driver, designed to drive an AO modulator or Q-switch. The unit has two digital modulation inputs: Fixed and Variable. These controls allow the customer to issue a pulse command of a "Fixed" pulse width, the duration determined by the Driver's pulse width control, settable by the customer, or issue a "Variable" pulse command, the duration determined by the input signal's pulse width. The output power is controlled by the analog input, where the mode of operation is defined by ZZZ = A05 normal analog mode, or R05 analog switched to full RF mode or a triggered RF Ramp Down mode where ZZZ = FPS first pulse suppression mode or PPK pre-pulse kill mode. The choices of Frequency (XX), Output Power (YY), and Power Control (ZZZ) option are "Factory Set" when ordered. This driver has a Zero Crossing function where the output pulse can be synchronized to the zero crossing point of the RF Energy. When enabled the pulse to pulse stability is improved.

The product delivered will be manufactured to be compliant with EU Directive 2002/95/EC for Reduction of Hazardous Substance. The product will be manufactured to other standards upon customer request.

Key Features:

- 24, 27.12, 40.68, 68, 80 or 110 MHz RF Frequency (XX)
- 0.01% Quartz Stabilized
- Up to 24 watts RF power output (YY)
- Two TTL Digital Modulation Inputs: fixed and variable pulse width.
- Up to 500 kHz pulse rate.
- Analogue Modulation or Triggered RF Ramp Down Mode (ZZZ)
- Synchronization to RF by 'Zero cross'
- Fault Protection on Low Power, High Power, and High VSWR
- Operates on 12, 15 or 24 VDC (Factory set)

Applications:

- RF Driver for an Acousto-Optic Q-Switch Device used to spoil the "Q" of a CW laser so as to output an intense pulse of light.
- Used in industrial, medical, or military applications.

Parameter	Specification
Output Frequency:	**XX** = 24, 27, 41, 68, 80 or 110 ,where RF Frequency = 24.00, 27.12, 40.68, 68, 80 or 110MHz ± 0.01%
Spurious Levels:	-50 dBc Maximum
Harmonic Distortion	-20 dB Maximum
Modulation Input	
Mod In Fixed (pin 3)	TTL Levels Triggered on TTL Rising Edge. Pulse Width Applied >50 ns.

Mod In Variable (pin 5)	TTL Levels TTL HIGH = RF Off
Extinction Ratio:	40 dB Minimum
RF Rise Time 10% to 90%	100 ns Maximum
RF Fall Time: 90% to 10%	50 ns Maximum
Modulation Repetition Rates:	1 Hz to 500 kHz for Fixed Modulation DC to 500 kHz for Variable Modulation
Fixed Modulation Output Pulse Width Adjustment Range:	1 to 20 µs, Customer Adjustable
Available Pulse Suppression Modes:	**ZZZ** = Mode
Modulation Operating Mode is "Factory Set" Internally.	FPS = First Pulse Suppression PPK = Pre Pulse Kill R05 = RF Switched to Analog Control A05 = Analog Control
FPS Trigger (pin 2) for Pulse Suppression for Units Configured with FPS, PPK:	TTL Levels, Triggered on TTL Rising Edge
Analog in (pin 6) for Power Control for Units Configured with A05, R05	0 to 5 volts Analog
Enable - Stand by Mode (pin 11)	< 3 watt dissipation in stand by mode. TTL High or no connection = Normal operation TTL Low = Stand by Mode Momentary TTL Low = Driver Reset - after fault is removed.
Zero Crossing Enable (pin 7) normally:	TTL high or no connection- disabled, TTL low- enabled
If model # is (-ZC):	TTL high or no connection- enabled, TTL low- disabled
Sync out (pin 1)	Outputs 3.3 volt signal
RF Power Output:	**YY** watts where YY = 2 to 24 watts
Output Impedance:	50 Ω
Supply Voltage:	+12, +15 VDC or +24 VDC (factory set)
Supply Current:	< 3 amps.
OPERATING TEMPERATURE:	+10 to +55 ^{0}C Case Temperature
Contact Cooled	The Driver must be attached to a heatsink capable of dissipating 25 watts
MAXIMUM RATINGS:	
Supply Voltage:	+15, +18 or +30 volts
Power Output:	No DC Feedback Allowed
Storage Temperature:	-20 to + 85 ^{0}C

RF POWER (watts)

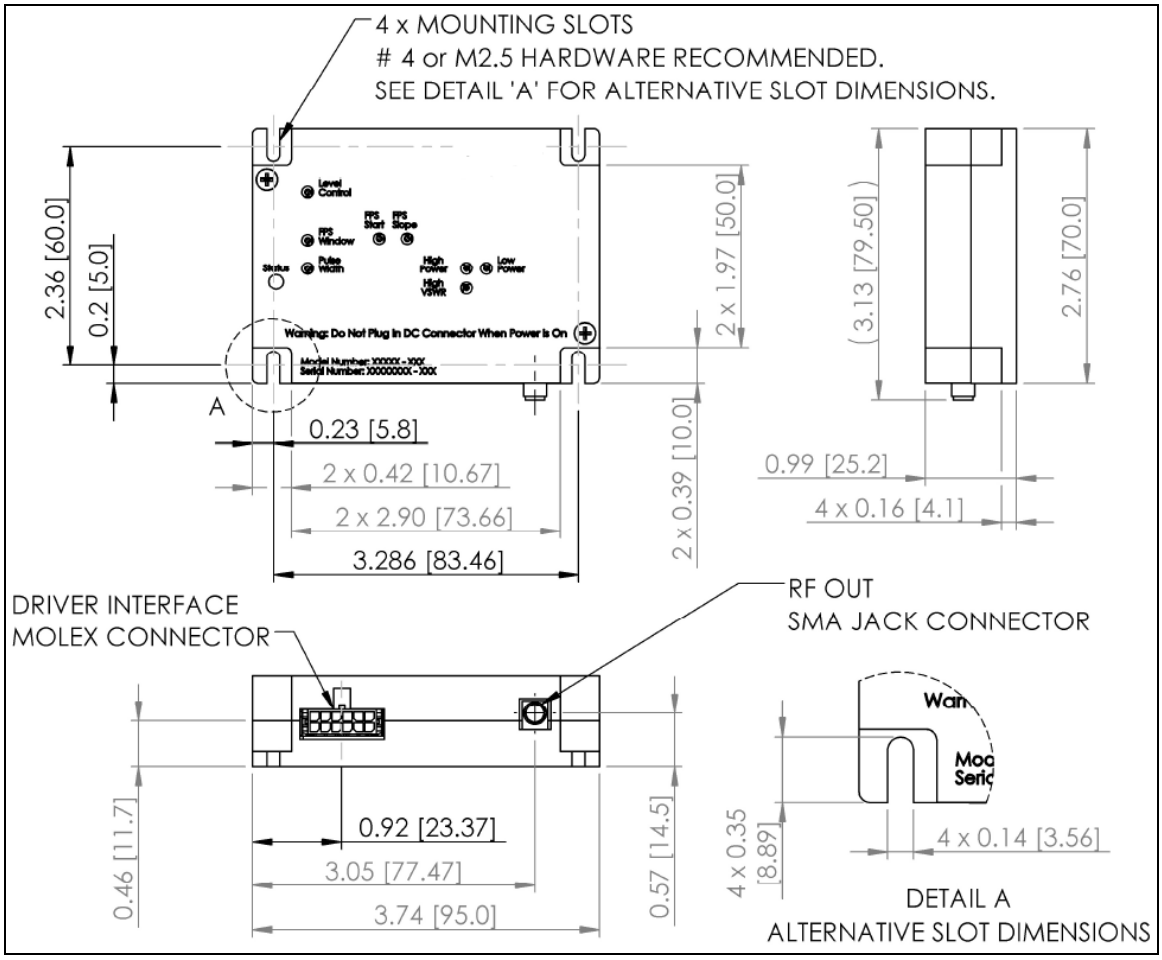
Supply Voltage (V)	27.12 MHz	41 MHz	80 MHz	
12	5	10	10	
15	10	<15	<15	Harmonics <20dBc
15	15	24	20	Harmonics <15dBc
24	20	24	24	

Ordering Codes:

Example: QC041-20DM-A05-15V: A 41 MHz RF Driver with two TTL Digital Modulation inputs (fixed and variable pulse width) and an analog input (A05) which enables control of the RF output power. Designed to Drive an AO Q-Switch requiring 20 watts RF Power or less. Delivered as a RoHS compliant, contact cooled OEM Module, input voltage 15V.

	①				②		③	④		⑤				⑥				⑦				⑧		
Q	C	X	X	X	-	Y	Y	D	D	C	-	Z	Z	Z	-	A	A	V	-			-			

①	**Characteristic**	Frequency					
	Code	024 = 24.00 MHz	027 = 27.12 MHz	041 = 40.68 MHz	068 = 68.00 MHz	080 = 80.00 MHz	110 = 110.00 MHz
②	**Characteristic**	RF output power					
	Code	2 to 24 W Range (refer to table on page 4 for maximum power for chosen frequency)					
③	**Characteristic**	Digital modulation					
	Code	D = Standard			DN = Inverted digital		
④	**Characteristic**	Cooling					
	Code	C = Contact cooled (legacy denotation all QC drivers are contact cooled)					
⑤	**Characteristic**	First Pulse Suppression Mode					
	Code	A05 = Analog power control	R05 = Analog power control (Switched)	FPS = First pulse suppression	PPK = Pre pulse kill	M05 = Analog control configured for AOM	
⑥	**Characteristic**	Supply voltage (V)					
	Code	12 V		15 V		24 V	
⑦	**Characteristic**	Additional options (optional)					
	Code	ZC = Active zero cross (enabled by default)					
⑧	**Characteristic**	Custom unit identification (optional)					
	Code	Usually customer specific denotation					


4 x MOUNTING SLOTS
4 or M2.5 HARDWARE RECOMMENDED.
SEE DETAIL 'A' FOR ALTERNATIVE SLOT DIMENSIONS.
2.36 [60.0]
0.2 [5.0]
2 x 1.97 [50.0]
2 x 0.39 [10.0]
A
0.23 [5.8]
2 x 0.42 [10.67]
2 x 2.90 [73.66]
3.286 [83.46]
(3.13 [79.50])
2.76 [70.0]
0.99 [25.2]
4 x 0.16 [4.1]
DRIVER INTERFACE
MOLEX CONNECTOR
RF OUT
SMA JACK CONNECTOR
0.46 [11.7]
0.92 [23.37]
3.05 [77.47]
3.74 [95.0]
0.57 [14.5]
4 x 0.35
[8.89]
4 x 0.14 [3.56]
DETAIL A
ALTERNATIVE SLOT DIMENSIONS