

15/20 Watts

JCM Series



- Very High Power Density
- 2:1 Input Range
- Operating Temperature -40°C to $+105^{\circ}\text{C}$
- Single & Dual Outputs
- 1600 VDC Isolation
- UL Approved
- High Efficiency – up to 89%
- 3 Year Warranty

Specification

Input

Input Voltage Range	• 12 V (9-18 VDC) • 24 V (18-36 VDC) • 48 V (36-75 VDC)
Input Current	• See table
Input Filter	• Pi network
Input Reflected Ripple Current	• JCM15: 20 mA pk-pk, JCM20: 30 mA pk-pk through 12 μH inductor and 47 μF capacitor, 5 Hz to 20 MHz
Input Surge	• 12 V models: 36 VDC for 100 ms • 24 V models: 50 VDC for 100 ms • 48 V models: 100 VDC for 100 ms

Output

Output Voltage	• See table
Output Trim	• $\pm 10\%$ max on single output
Minimum Load	• No minimum load required
Initial Set Accuracy	• $\pm 1\%$ max
Start Up Delay	• 20 ms typical
Line Regulation	• JCM15: $\pm 0.2\%$ max, JCM20: $\pm 0.5\%$
Load Regulation	• $\pm 0.5\%$ max single, $\pm 1.0\%$ max dual
Cross Regulation	• $\pm 5\%$ on dual output models (see note 2)
Transient Response	• $< 3\%$ max deviation, recovery to within 1% in 250 μs for a 25% load change
Ripple & Noise	• 100 mV pk-pk, 20 MHz bandwidth, (see note 3)
Overvoltage Protection	• 3.3 V models: 3.9 V typical • 5 V models: 6.2 V typical • 12 V models: 15 V typical • 15 V models: 18 V typical • $\pm 5\text{ V}$ models: $\pm 6.2\text{ V}$ typical • $\pm 12\text{ V}$ models: $\pm 15\text{ V}$ typical • $\pm 15\text{ V}$ models: $\pm 18\text{ V}$ typical
Overload Protection	• 150% of full load typical
Short Circuit Protection	• Trip & restart (hiccup) with auto recovery
Maximum Capacitive Load	• See table
Temperature Coefficient	• $\pm 0.02/^{\circ}\text{C}$ max
Remote On/Off	• On $> 3.0\text{ VDC}$ or open circuit • Off $< 1.2\text{ VDC}$ or short circuit pins 2 & 3

General

Efficiency	• See table
Isolation	• 1600 VDC Input to Output • 1600 VDC Input to Case • 1600 VDC Output to Case
Isolation Capacitance	• JCM15: 1200 pF max, JCM20: 1000 pF max
Switching Frequency	• JCM15: 375 kHz typical, JCM20: 330 kHz typical
Power Density	• JCM15: 38.4 W/in³, JCM20: 51.3 W/in³
MTBF	• $> 560\text{ kHrs}$ to MIL-STD-217F at 25°C, GB

Environmental

Operating Temperature	• -40°C to $+105^{\circ}\text{C}$, derate from 100% load at $+65^{\circ}\text{C}$ to no load at $+105^{\circ}\text{C}$ for JCM15 and 100% load at $+55^{\circ}\text{C}$ to no load at 105°C for JCM20
Case Temperature	• $+105^{\circ}\text{C}$ max
Storage Temperature	• -40°C to $+125^{\circ}\text{C}$
Humidity	• Up to 90%, non-condensing
Cooling	• Natural convection

Safety

UL	• UL60950-1 & UL62368-1
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EMC

Emissions	• EN55022 class A conducted & radiated with external components, see application note
ESD Immunity	• EN61000-4-2, 6 kV contact discharge, 8 kV air discharge, Perf Criteria A
Radiated Immunity	• EN61000-4-3, 10 V/m, Perf Criteria A
EFT/Burst	• EN61000-4-4, level 2, Perf Criteria A*
Surge	• EN61000-4-5, level 2, Perf Criteria A
Conducted Immunity	• EN61000-4-6, 10 Vrms, Perf Criteria A
Magnetic Field	• EN61000-4-8, 1 A/m, Perf Criteria A

*External input capacitor required, 220 $\mu\text{F}/100\text{ V}$.

