

50 Watts

- Regulated Single Output
- 2:1 Input Range
- 2" x 1" Package
- 1600 VDC Isolation
- Operating Temperature -40 °C to +95 °C
- ITE Safety Approvals
- Remote On/Off
- High Power Density
- Optional Heatsink
- Six-sided Metal Case
- 3 Year Warranty



Dimensions:

JCK50:

2.00 x 1.00 x 0.45" (50.8 x 25.4 x 11.5 mm)

Models & Ratings

Input voltage	Output voltage	Output current	Input current ^(1,2)		Overvoltage Protection	Maximum capacitive load ⁽³⁾	Efficiency	Model number ⁽⁴⁾
			No load	Full load				
9-18 V	3V3	10.00 A	110 mA	3.06 A	3.9 V	26000 µF	90%	JCK5012S3V3
	5 V	10.00 A	200 mA	4.68 A	6.2 V	17000 µF	89%	JCK5012S05
	12 V	4.17 A	60 mA	4.68 A	15.0 V	3300 µF	89%	JCK5012S12
	15 V	3.33 A	60 mA	4.68 A	18.0 V	2200 µF	89%	JCK5012S15
18-36 V	3V3	10.00 A	70 mA	1.51 A	3.9 V	26000 µF	91%	JCK5024S3V3
	5 V	10.00 A	90 mA	2.29 A	6.2 V	17000 µF	91%	JCK5024S05
	12 V	4.17 A	40 mA	2.29 A	15.0 V	3300 µF	91%	JCK5024S12
	15 V	3.33 A	40 mA	2.29 A	18.0 V	2200 µF	91%	JCK5024S15
36-75 V	3V3	10.00 A	50 mA	0.76 A	3.9 V	26000 µF	91%	JCK5048S3V3
	5 V	10.00 A	60 mA	1.13 A	6.2 V	17000 µF	92%	JCK5048S05
	12 V	4.17 A	40 mA	1.14 A	15.0 V	3300 µF	91%	JCK5048S12
	15 V	3.33 A	40 mA	1.17 A	18.0 V	2200 µF	92%	JCK5048S15

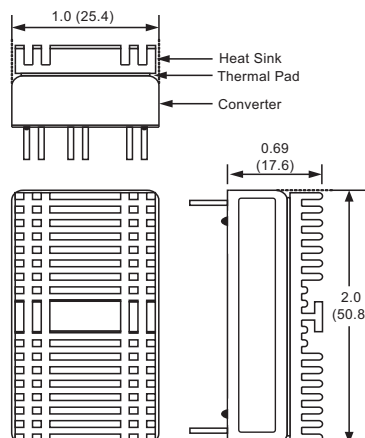
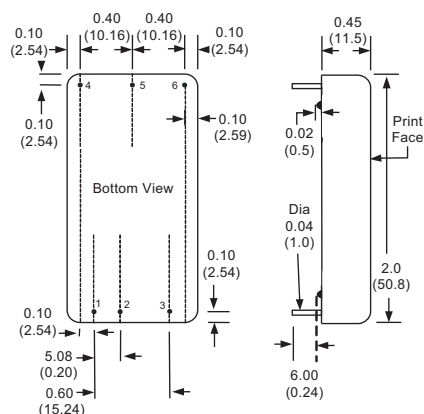
Notes

1. Input currents measured at nominal input voltage.
2. Input current is typically 5.0 mA at nominal input voltage when output is turned off using remote on/off.

3. Maximum capacitive load is per output.
4. Add suffix "-HK" for optional heatsink.

Mechanical Details

Optional Heatsink (-HK)



Pin Connections

Pin	Single
1	+Vin
2	-Vin
3	Remote On/Off
4	+Vout
5	-Vout
6	Trim

Notes

1. All dimensions are in inches (mm)
2. Weight: 0.1 lbs (45.0g) approx.
3. Tolerance: X.XX±0.01 (X.X±0.25)
X.XXX±0.005 (X.XX±0.13)
4. Pin Tolerance: ±0.002 (±0.05)

Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Input Voltage Range	9		18	VDC	12 V nominal
	18		36		24 V nominal
	36		75		48 V nominal
Input Filter	Internal Pi type				
Input Surge			25	VDC for 100 ms	12 V models
			50		24 V models
			100		48 V models
Remote On/Off	ON: Logic high (3.0-12 V) or open circuit OFF: Logic low (<1.2 V) or short pin 2 to pin 3				

Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Output Voltage	3.3		15	VDC	See Models and Ratings table
Initial Set Accuracy			±1.0	%	At full load
Output Trim			±10	%	See Application Notes
Minimum Load				A	No minimum load required
Line Regulation			±0.5	%	From minimum to maximum input at full load
Load Regulation			±0.5	%	From 0 to full load
Transient Response			±3.0	% deviation	Recovery within 1% in less than 250 µs for a 25% load change.
Ripple & Noise			100	mV pk-pk	20 MHz bandwidth. Measured using 1µF MLCC
Overload Protection	120		140	%	
Short Circuit Protection					Continuous Trip & Restart (Hiccup mode), with auto recovery
Maximum Capacitive Load					See Models and Ratings table
Temperature Coefficient			0.02	%/°C	

General

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Efficiency		91		%	See Models and Ratings table
Isolation: Input to Output	1600			VDC	60 s
Isolation: Input & Output to Case	1600			VDC	60 s
Isolation Resistance	10 ⁹			Ω	At 500 VDC
Isolation Capacitance			2000	pF	
Switching Frequency		250/270		kHz	12 V input models / other models
Power Density			62.5	W/in ³	
Mean Time Between Failure		220		kHrs	MIL-HDBK-217F, +25 °C GB
Weight		0.1 (45.0)		lb (g)	

Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Operating Temperature	-40		+95	°C	See Derating Curve.
Storage Temperature	-40		+125	°C	
Case Temperature			+110	°C	
Thermal Protection		115		°C	Measured at centre of case
Humidity			95	%RH	Non-condensing
Cooling					Natural convection
Thermal Impedance to Air	9.5/8.5			°C/W	No heatsink / with heatsink

EMC: Emissions

Phenomenon	Standard	Test Level	Notes & Conditions
Conducted	EN55022	Class A	

EMC: Immunity

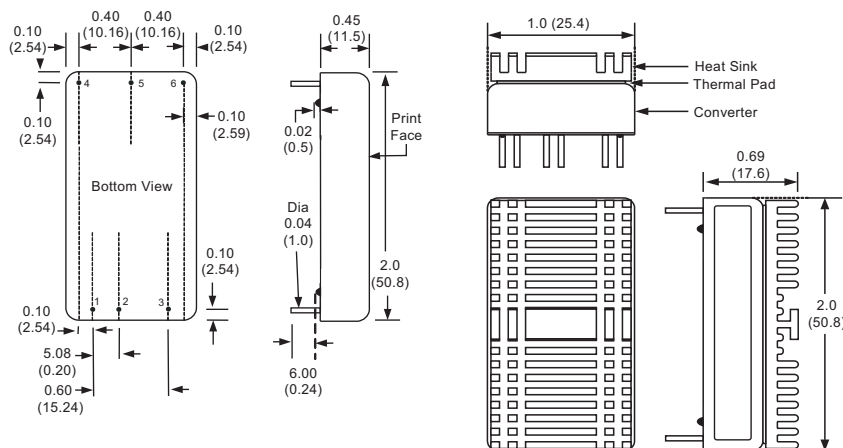
Phenomenon	Standard	Test Level	Criteria	Notes & Conditions
ESD	EN61000-4-2	±8 kV air discharge, ±6 kV contact	A	
Radiated	EN61000-4-3	10 V/m	A	
EFT/Burst	EN61000-4-4	±2 kV	A	With external capacitor, suggested part is CHEMI-CON KY 220 µF/100V
Surge	EN61000-4-5	±1 kV	A	With external capacitor, suggested part is CHEMI-CON KY 220 µF/100V
Conducted	EN61000-4-6	10 V rms	A	

Safety Approvals

Safety Agency	Safety Standard	Notes & Conditions
UL	UL60950-1, UL62368-1	Information Technology

Mechanical Details

Optional Heatsink (-HK)



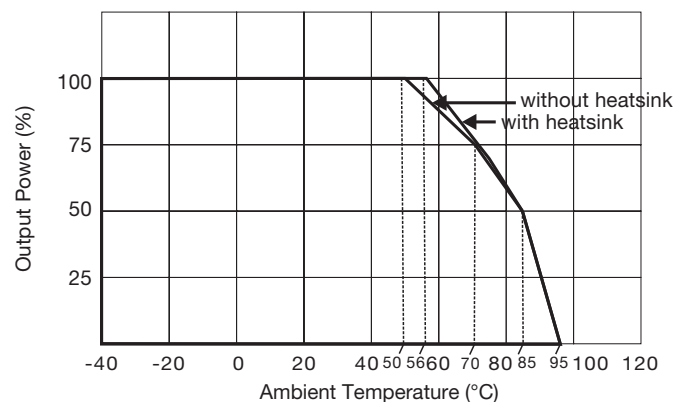
Pin Connections	
Pin	Single
1	+Vin
2	-Vin
3	Remote On/Off
4	+Vout
5	-Vout
6	Trim

Notes

- All dimensions are in inches (mm)
- Weight: 0.1 lbs (45.0g) approx.
- Tolerance: X.XX±0.01 (X.X±0.25)
X.XXX±0.005 (X.XX±0.13)
- Pin Tolerance: ±0.002 (±0.05)

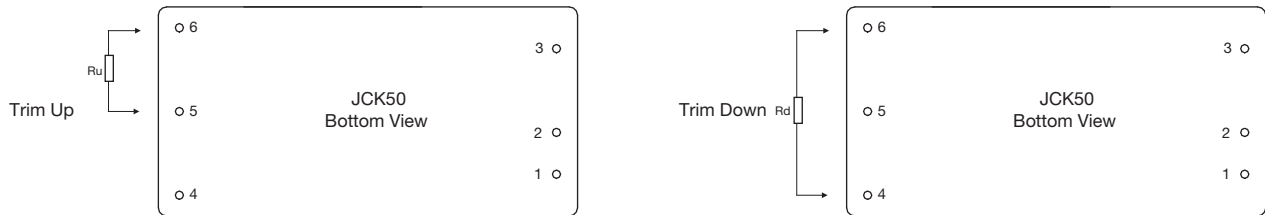
Application Notes

Derating Curve



Application Notes

External Output Trimming

Trim Down Resistor Values (R_d)

Models	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
	Voutx0.99	Voutx0.98	Voutx0.97	Voutx0.96	Voutx0.95	Voutx0.94	Voutx0.93	Voutx0.92	Voutx0.91	Voutx0.90
3V3	315.932 k Ω	172.257 k Ω	112.528 k Ω	79.806 k Ω	59.153 k Ω	44.930 k Ω	34.539 k Ω	26.616 k Ω	20.374 k Ω	15.330 k Ω
5V	230.566 k Ω	106.182 k Ω	64.301 k Ω	43.281 k Ω	30.643 k Ω	22.207 k Ω	16.177 k Ω	11.651 k Ω	8.129 k Ω	5.310 k Ω
12V	327.351 k Ω	142.100 k Ω	83.928 k Ω	55.470 k Ω	38.591 k Ω	27.418 k Ω	19.477 k Ω	13.542 k Ω	8.939 k Ω	5.264 k Ω
15V	433.811 k Ω	174.916 k Ω	100.946 k Ω	65.907 k Ω	45.468 k Ω	32.077 k Ω	29.96 k	15.596 k Ω	10.165 k Ω	5.842 k Ω

Trim Down Resistor Values (R_u)

Models	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
	Voutx1.01	Voutx1.02	Voutx1.03	Voutx1.04	Voutx1.05	Voutx1.06	Voutx1.07	Voutx1.08	Voutx1.09	Voutx1.10
3V3	544.612 k Ω	184.034 k Ω	103.305 k Ω	67.715 k Ω	47.676 k Ω	34.824 k Ω	25.880 k Ω	19.297 k Ω	14.249 k Ω	10.255 k Ω
5V	244.527 k Ω	113.776 k Ω	70.631 k Ω	49.142 k Ω	36.274 k Ω	27.707 k Ω	21.592 k Ω	17.010 k Ω	13.447 k Ω	10.598 k Ω
12V	371.425 k Ω	183.645 k Ω	117.623 k Ω	83.929 k Ω	63.489 k Ω	49.767 k Ω	39.919 k Ω	32.508 k Ω	26.728 k Ω	22.094 k Ω
15V	347.293 k Ω	178.523 k Ω	115.235 k Ω	82.084 k Ω	61.683 k Ω	47.863 k Ω	37.863 k Ω	30.336 k Ω	24.430 k Ω	19.682 k Ω