



## 15D16W4\_1.6RP series

15W - Single/Dual Output - Wide Input - Isolated & Regulated DC-DC Converter

## DC-DC Converter 15 Watt

- ⊕ 15W DIL Package
- ⊕ 4:1 wide input voltage range
- ⊕ High efficiency up to 90%
- ⊕ Regulated output types
- ⊕ No minimum load required
- ⊕ Over power and short circuit protection
- ⊕ Operating temperature: -40°C to +84°C (with derating)
- ⊕ UL94V-0 package material
- ⊕ 100% burned-in
- ⊕ 3 years warranty

The 15D16W4\_1.6RP series is an excellent performance and high power density design. Wide 2:1 input voltage ranges: 9V-18V and 18V-36V.

It features efficiency up to 90%, 1600VDC isolation, operating temperature of -40°C to +84°C, input under-voltage protection, output over-current, short circuit protection, which make them widely applied in medical care, industrial control, electric power, instruments and communication fields.



Common specifications	
Short circuit protection:	Continuous [Hiccup Mode], Auto-Recovery
Operating Ambient Temperature (Power Derating See Derating Graph):	<ul style="list-style-type: none"> <li>• 15D16W4_2405S1.6RP, 15D16W4_4805S1.6RP, 15D16W4_2412S1.6RP, 15D16W4_4812S1.6RP, 15D16W4_2424S1.6RP, 15D16W4_4824S1.6RP, 15D16W4_2415D1.6RP, 15D16W4_4812D1.6RP, -40°C~+59.2°C</li> <li>• 15D16W4_2415S1.6RP, 15D16W4_4815S1.6RP, 15D16W4_2412S1.6RP -40°C~+54.5°C</li> <li>• 15D16W4_4815D1.6RP -40°C~+63.8°C</li> </ul>
Thermal Impedance:	<ul style="list-style-type: none"> <li>• 20LFM 24.7 °C/W</li> <li>• 100LFM 21.2 °C/W</li> <li>• 200LFM 17.1 °C/W</li> <li>• 400LFM 11.3 °C/W</li> </ul>
Case temperature:	+105°C MAX
Storage temperature:	-55°C ~+125°C
Storage humidity:	5-95% RH, Non Condensing
Thermal Shock:	MIL-STD-810F
Shock &Vibration Test:	MIL-STD-810F
Switching Frequency:	500kHz TYP, PWM mode
MTBF:	705 K hours (MIL-HDBK 217F @25°C; calculated)
Case material:	Copper, Black Coating
Potting Material:	Silicone (UL94-V0)
Cooling:	Natural Convection
Weight:	11g TYP.
Dimensions:	24.0 x 14.0 x 9.5 mm

Input specifications					
Item	Test condition	Min	Typ	Max	Units
Input Voltage	24V Models	9		36	VDC
	48V Models	18		75	VDC
Surge voltage (1 sec. max)	24V Models	-0.7		50	VDC
	48V Models	-0.7		100	VDC
Start-up voltage	24V Models			9	VDC
	48V Models			18	VDC
Under Voltage Shutdown	24V Models		8		VDC
	48V Models		15		VDC
Start-up Time (Nominal Vin)	Constant Resistive Load • Power-up		30		ms
Input under voltage protection	• 12VDC input	5.5	6.5		VDC
	• 24VDC input	12	15.5		VDC
Input filter	Internal LC type				

Output specifications					
Item	Test condition	Min	Typ	Max	Units
Voltage Tolerance	100% Load	-2		+2	%
Line regulation	Vin=min to max, 100% load	-0.5		+0.5	%
Load regulation	0% Load to 100% Load	-0.5		+0.5	%
Load Cross Regulation	Asymmetrical Load 25% / 100% Load • Dual Output	-0.5		+0.5	%
Ripple & Noise (BW = 20MHz)	All models		60	100	mVp-p
Transient Response Setting Time	25% Load Step Change		350	500	us
Transient response deviation	25% load step change	-5	±3	±5	%
Temperature coefficient		-0.02		+0.02	%/°C
Output Power Protection	% of Io, Hiccup mode, Auto-recovery	120	150	180	%
Switching Frequency	100% Load, Nominal Input • 5V Output		270		KHz
	• Other Output		390		KHz
Over Voltage Protection	• 5Vout		6.2		VDC
	• 12Vout		15		VDC
	• 15Vout		18		VDC
	• 24Vout		30		VDC

Isolation specifications					
Item	Test condition	Min	Typ	Max	Units
Isolation voltage	Tested for 1 second				
	• Input To Output (60sec)	1600			VDC
	• Input(Output) To Case (60sec)	1000			VDC
Isolation resistance	500VDC, input to output	1000			MΩ
Isolation capacitance	Input/Output, 100KHz/1V			2200	pF

### Example:

#### 15D16W4\_1.6RP

15 = 15 Watt; D16 = DIP16; W4 = 4:1 wide input; 24 = 9-36Vin; 05 = 5Vout; S = Single Output; 1.6 = 1600VDC isolation; R = Regulated Output; P = Short Circuit Protection

### Note:

- All specifications measured at Ta = 25°C, humidity <75%, nominal input voltage and rated output load unless otherwise specified.
- In this datasheet, all the test methods of indications are based on corporate standards.

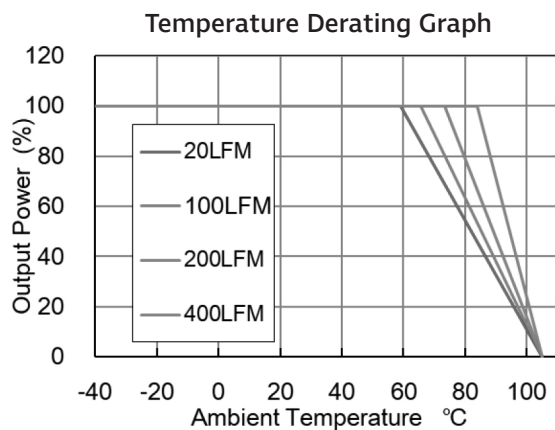
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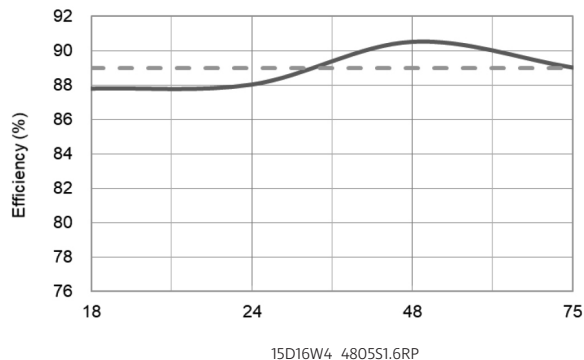
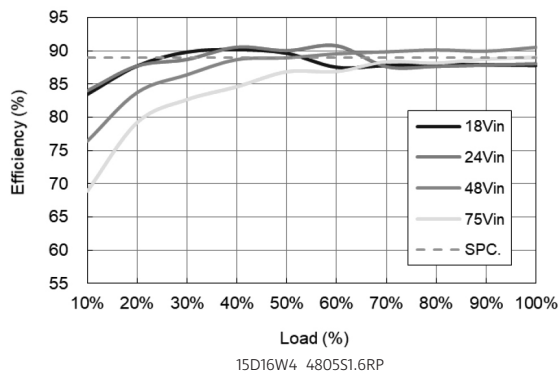
### Product Selection Guide

Part Number	Input Voltage [VDC, Range]	Input Current [No-Load Full-Load]	Output Voltage [VDC]	Output Current [mA, max.]	Efficiency [%, typ.]	Capacitive Load [max.]
15D16W4_2405S1.6RP	9-36	10 702	5	3000	89	3300
15D16W4_2412S1.6RP	9-36	10 702	12	1250	89	1000
15D16W4_2415S1.6RP	9-36	10 710	15	1000	88	680
15D16W4_2424S1.6RP	9-36	10 702	24	625	89	360
15D16W4_4805S1.6RP	18-75	7 351	5	3000	89	3300
15D16W4_4812S1.6RP	18-75	7 351	12	1250	89	1000
15D16W4_4815S1.6RP	18-75	7 355	15	1000	88	680
15D16W4_4824S1.6RP	18-75	7 351	24	625	89	360
15D16W4_2412D1.6RP	9-36	10 710	±12	±625	88	±560
15D16W4_2415D1.6RP	9-36	10 702	±15	±500	89	±360
15D16W4_4812D1.6RP	18-75	7 351	±12	±625	89	±560
15D16W4_4815D1.6RP	18-75	7 347	±15	±500	90	±360

### Typical characteristics



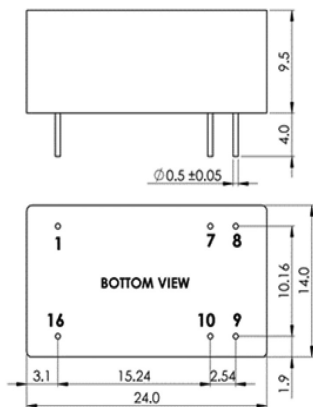
### Efficiency



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### Mechanical dimensions



Unit : mm

Tolerance : XX.X ± 0.5    XX.XX ± 0.25

Pin	Single	Dual	Diameter
1	-Vin	-Vin	0.5mm [0.02"]
7	NC	NC	0.5mm [0.02"]
8	NC	Com	0.5mm [0.02"]
9	+Vout	+Vout	0.5mm [0.02"]
10	-Vout	-Vout	0.5mm [0.02"]
16	+Vin	+Vin	0.5mm [0.02"]