

TEN 40WIR

40W, Ultra Wide Input Range, Single & Dual Output DC/DC Converters

FEATURES

- ▶ RAILWAY APPLICATION
- ▶ 40 WATTS OUTPUT POWER
- ▶ OUTPUT CURRENT UP TO 10A
- ▶ STANDARD 2.00 X 1.00 X 0.40 INCH
- ▶ HIGH EFFICIENCY UP TO 92%
- ▶ LOW STANDBY POWER DISSIPATION
- ▶ 4:1 ULTRA WIDE INPUT VOLTAGE RANGE
- ▶ SIX-SIDED CONTINUOUS SHIELD
- ▶ FIXED SWITCHING FREQUENCY
- ▶ UL60950-1, EN60950-1, IEC60950-1 & EN50155 APPROVALS PENDING
- ▶ ISO9001 CERTIFIED MANUFACTURING FACILITIES
- ▶ COMPLIANT TO RoHS EU DIRECTIVE 2002/95/EC



APPLICATIONS

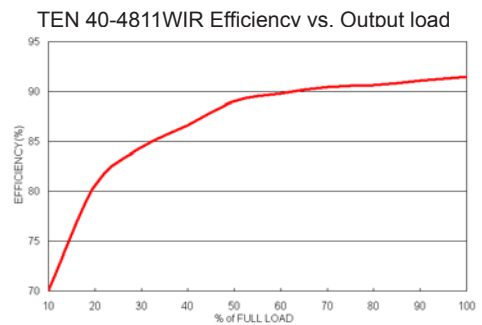
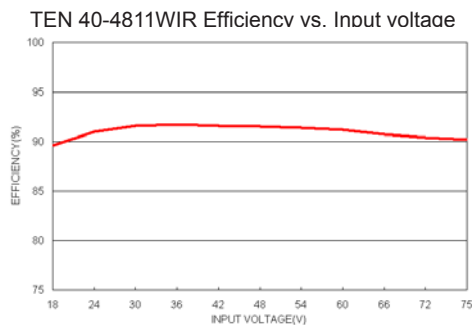
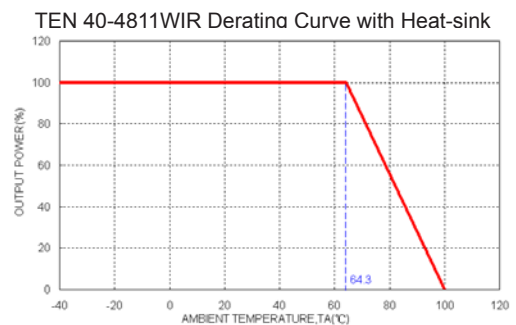
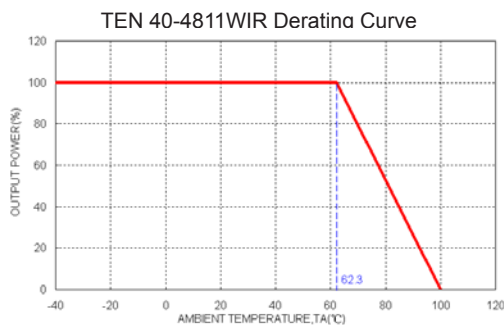
- ▶ Wireless Network
- ▶ Telecom/Datacom
- ▶ Industry Control System
- ▶ Measurement
- ▶ Semiconductor Equipment
- ▶ Railway System

OPTIONS

Negative logic Remote On/Off

DESCRIPTION

The TEN 40WIR series offer 40 watts of output power from a 2 x 1 x 0.4 inch package. TEN 40WIR series have 4:1 ultra wide input voltage of 9~36, 18~75VDC and 43~160VDC. The TEN 40WIR have features 1600VDC of isolation, short circuit protection, over-current protection, over-voltage protection, over-temperature protection and six sided shielding.



Trim Resistor Table and Outline Drawing with Pin Description

TEN 40-xx10WIR

Trim down	1	2	3	4	5	6	7	8	9	10	%
$V_{out} =$	3.267	3.234	3.201	3.168	3.135	3.102	3.069	3.036	3.003	2.970	Volts
$R_D =$	69.37	31.18	18.46	12.09	8.27	5.73	3.91	2.55	1.49	0.64	kΩ
Trim up	1	2	3	4	5	6	7	8	9	10	%
$V_{out} =$	3.333	3.366	3.399	3.432	3.465	3.498	3.531	3.564	3.597	3.630	Volts
$R_U =$	58.03	26.22	15.61	10.31	7.13	5.01	3.49	2.35	1.47	0.76	kΩ

TEN 40-xx11WIR

Trim down	1	2	3	4	5	6	7	8	9	10	%
$V_{out} =$	4.950	4.900	4.850	4.800	4.750	4.700	4.650	4.600	4.550	4.500	Volts
$R_D =$	45.43	20.56	12.27	8.12	5.64	3.98	2.79	1.91	1.21	0.66	kΩ
Trim up	1	2	3	4	5	6	7	8	9	10	%
$V_{out} =$	5.050	5.100	5.150	5.200	5.250	5.300	5.350	5.400	5.450	5.500	Volts
$R_U =$	36.42	16.50	9.86	6.54	4.55	3.22	2.27	1.56	1.01	0.57	kΩ

TEN 40-xx12WIR

Trim down	1	2	3	4	5	6	7	8	9	10	%
$V_{out} =$	11.886	11.766	11.646	11.525	11.405	11.285	11.165	11.045	10.925	10.805	Volts
$R_D =$	458.88	206.89	122.90	80.90	55.70	38.90	26.90	17.91	10.91	5.31	kΩ
Trim up	1	2	3	4	5	6	7	8	9	10	%
$V_{out} =$	12.126	12.246	12.366	12.486	12.606	12.726	12.846	12.966	13.086	13.206	Volts
$R_U =$	369.12	166.56	99.04	65.28	45.02	31.52	21.87	14.64	9.01	4.51	kΩ

TEN 40-xx13WIR

Trim down	1	2	3	4	5	6	7	8	9	10	%
$V_{out} =$	14.850	14.700	14.550	14.400	14.250	14.100	13.950	13.800	13.650	13.500	Volts
$R_D =$	284.89	128.68	76.61	50.58	34.96	24.55	17.11	11.53	7.19	3.72	kΩ
Trim up	1	2	3	4	5	6	7	8	9	10	%
$V_{out} =$	15.150	15.300	15.450	15.600	15.750	15.900	16.050	16.200	16.350	16.500	Volts
$R_U =$	419.81	199.91	126.60	89.95	67.96	53.30	42.83	34.98	28.87	23.98	kΩ
Trim up	11	12	13	14	15	16	17	18	19	20	%
$V_{out} =$	16.650	16.800	16.950	17.100	17.250	17.400	17.550	17.700	17.850	18.000	Volts
$R_U =$	19.98	16.65	13.83	11.42	9.32	7.49	5.87	4.43	3.15	1.99	kΩ

TEN 40-xx15WIR

Trim down	1	2	3	4	5	6	7	8	9	10	%
$V_{out} =$	23.774	23.534	23.294	23.054	22.813	22.573	22.333	22.093	21.853	21.613	Volts
$R_D =$	838.15	376.78	222.98	146.09	99.95	69.19	47.22	30.74	17.93	7.68	kΩ
Trim up	1	2	3	4	5	6	7	8	9	10	%
$V_{out} =$	24.240	24.480	24.720	24.960	25.200	25.440	25.680	25.920	26.160	26.400	Volts
$R_U =$	1275.20	606.60	383.73	272.30	205.44	160.87	129.03	105.15	86.58	71.72	kΩ
Trim up	11	12	13	14	15	16	17	18	19	20	%
$V_{out} =$	26.640	26.880	27.120	27.360	27.600	27.840	28.080	28.320	28.560	28.800	Volts
$R_U =$	59.56	49.43	40.86	33.51	27.15	21.57	16.66	12.29	8.38	4.86	kΩ

EXTERNAL OUTPUT TRIMMING

Output can be externally trimmed by using the method shown below.

TRIM UP

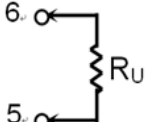


Diagram showing a variable resistor R_U connected between pin 6 and pin 5.

TRIM DOWN

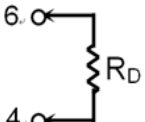
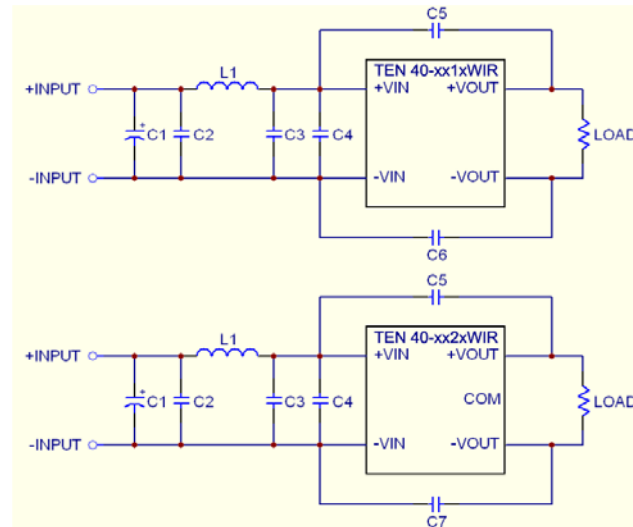


Diagram showing a variable resistor R_D connected between pin 6 and pin 4.



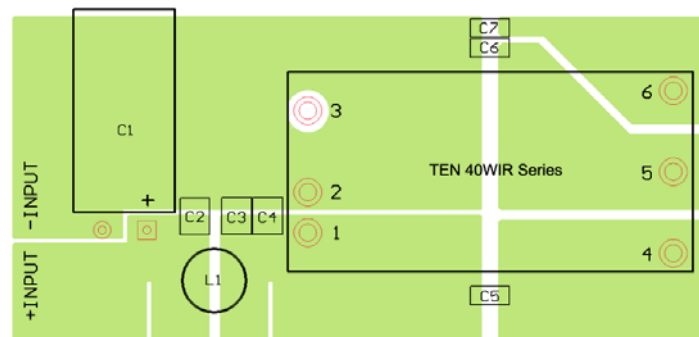
Recommended Filter for EN55022 & EN55011 Class A Compliance



The components used in the above figure, together with the manufacturers' part numbers for these components, are as follows:

Single Output	C1	C2	C3	C4	C5/C6	L1
TEN 40-241xWIR	N/A	6.8μF 50V 1812 MLCC	N/A	6.8μF 50V 1812 MLCC	1000pF 2KV 1206 MLCC	2.2μH
TEN 40-481xWIR	N/A	4.7μF 100V 1812 MLCC	N/A	4.7μF 100V 1812 MLCC	1000pF 2KV 1206 MLCC	10μH
TEN 40-721xWIR	68μF 200V	N/A	1μF 250V 1812 MLCC	1μF 250V 1812 MLCC	1000pF 2KV 1206 MLCC	22μH

Dual Output	C1	C2	C3	C4	C5/C6	L1
TEN 40-242xWIR	N/A	6.8μF 50V 1812 MLCC	N/A	6.8μF 50V 1812 MLCC	1000pF 2KV 1206 MLCC	2.2μH
TEN 40-482xWIR	N/A	4.7μF 100V 1812 MLCC	N/A	4.7μF 100V 1812 MLCC	1000pF 2KV 1206 MLCC	10μH
TEN 40-722xWIR	68μF 200V	N/A	1μF 250V 1812 MLCC	1μF 250V 1812 MLCC	1000pF 2KV 1206 MLCC	22μH



Recommended EN55022 Class A Filter Circuit Layout

Specifications can be changed without notice