

SERIES XGR/XSGR SURFACE MOUNT and PLUG-IN

**Regulated
Hi Reliability, Isolated, DC-DC Converters**

**Low Profile 0.35" Height Up to 4.5 Watts
No Heat Sink or Electrical Derating Required**

This series of encapsulated converters come in 100 different models. The units feature single and isolated dual outputs. They will operate over a temperature range of -25° C to +70° C. No heat sink is required. These units are excellent for applications where the input voltage varies ±10% and the output must be held to ±0.2%. The output voltage is maintained to within 0.5% from no load to full load.

FEATURES

- Excellent load regulations ±0.5%
- Encapsulated semiconductors, conservatively rated for maximum reliability.
- Excellent line regulations 0.2%
- Up to 4.5 watts output power at 70° C ambient
- Low output ripple
- 100 megohm 500V DC isolation
- Single and dual isolated outputs
- No heat sink required
- Miniature size
- No output capacitor required

**TYPICAL CHARACTERISTICS
FOR ALL MODELS:**

Test conditions: 25° C ambient.
Output voltage tolerance: Single units 2 or 3 V outputs 3%, single units all others 1%, dual units ±2%
Line regulations: ±0.2% (for the input voltage range of ±10%)
Load regulation: 0.5% (from full load to no load)
Converter frequency: 20-40K Hz
Operating temperature: -25° C to +70° C ambient.
Output voltage temperature coefficient: 0.005%/°C
Storage temperature: -55° C to +125° C
Isolation: 100 megohms minimum at 500 volts DC
Short circuit protection: Continuous

OPTIONS AVAILABLE

- Per Mil. Std. 883
- Expanded operating temp (-55° C to +85° C)
- Stabilization Bake (125° C ambient)
- Temperature Cycle (-55° C to +125° C)
- Hi Temp, full power burn in (100% power, 125° C case temp)

SERIES XGR/XSGR - SINGLE OUTPUT

PICO Plug-In Part Number	PICO Surface Mount Part Number	*Input Volt. (V DC)	Output Volt. (V DC)	Max. Load Current (mA)	Max. Output Power (watts)	Eff. @ Full Load at Nominal Input Volt. Typical (%)	Input Current @ Full Load Typical (mA) at Nominal Input Volt.	Output Volt. Ripple @ Full Load (mVp-p) max.	Input Current @ No Load Typical at Nominal Input Volt. (mA)	Eff. @ Full Load Typical (%)		Price (US \$)
										High Line	Low Line	
*5XGR2S	*5XSGR2S	5	2	625	1.25	45	556	30	90	40	50	100.85
*5XGR3.3S	*5XSGR3.3S	5	3.3	530	1.75	50	700	30	90	45	55	100.85
5XGR5S	5XSGR5S	5	5	400	2	55	727	50	90	50	60	100.85
5XGR9S	5XSGR9S	5	9	278	2.5	54	926	50	90	51	58	100.85
5XGR12S	5XSGR12S	5	12	250	3	60	1000	50	90	53	67	100.85
5XGR15S	5XSGR15S	5	15	200	3	61	984	50	100	55	68	100.85
*12XGR2S	*12XSGR2S	12	2	750	1.5	45	278	30	25	40	50	100.85
*12XGR3.3S	*12XSGR3.3S	12	3.3	606	2	50	333	30	25	45	55	100.85
12XGR5S	12XSGR5S	12	5	400	2	54	309	50	25	50	60	100.85
12XGR9S	12XSGR9S	12	9	334	3	52	481	50	30	47	57	100.85
12XGR12S	12XSGR12S	12	12	333	4	64	521	50	30	58	70	100.85
12XGR15S	12XSGR15S	12	15	266	4	66	505	50	30	61	73	100.85
*15XGR2S	*15XSGR2S	15	2	750	1.5	45	222	30	30	40	50	100.85
*15XGR3.3S	*15XSGR3.3S	15	3.3	606	2	50	267	30	30	45	55	100.85
15XGR5S	15XSGR5S	15	5	400	2	54	247	50	30	50	60	100.85
15XGR9S	15XSGR9S	15	9	334	3	52	481	50	30	47	57	100.85
15XGR12S	15XSGR12S	15	12	333	4	64	417	50	30	58	70	100.85
15XGR15S	15XSGR15S	15	15	266	4	66	404	50	30	61	73	100.85
*24XGR2S	*24XSGR2S	24	2	750	1.5	50	125	30	25	45	56	100.85
*24XGR3.3S	*24XSGR3.3S	24	3.3	606	2	50	154	30	25	45	55	100.85
24XGR5S	24XSGR5S	24	5	500	2.5	54	193	50	25	47	61	100.85
24XGR9S	24XSGR9S	24	9	334	3	56	223	50	25	51	52	100.85
24XGR12S	24XSGR12S	24	12	333	4	63	265	50	25	56	71	100.85
24XGR15S	24XSGR15S	24	15	266	4	66	253	50	30	58	73	100.85

*28XGR2S	*28XSGR2S	28	2	750	1.5	50	107	30	25	45	56	100.85
*28XGR3.3S	*28XSGR3.3S	28	3.3	606	2	54	132	30	25	49	59	100.85
28XGR5S	28XSGR5S	28	5	600	3	56	191	50	25	52	65	100.85
28XGR9S	28XSGR9S	28	9	388	3.5	55	227	50	25	51	52	100.85
28XGR12S	28XSGR12S	28	12	375	4.5	65	247	50	25	58	74	100.85
28XGR15S	28XSGR15S	28	15	300	4.5	67	240	50	30	60	75	100.85

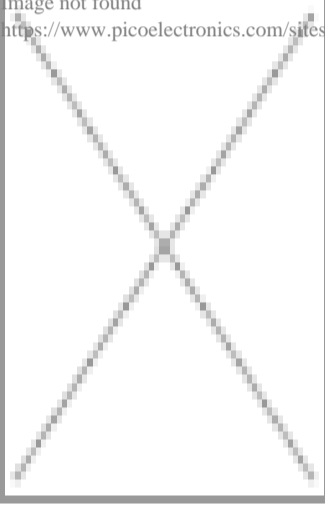
*Output Voltage Tolerance = ±3% max.

Output Voltage Tolerance = ±1% max.

Load Regulation = 0.5% Full Load to No Load

Line Regulation = 0.2% for Input Voltage Range of ±10%

<p style="text-align: center;">XGR Single</p> <div style="text-align: center;">  <p>image not found https://www.picoelectronics.com/sites/all/staticpage_images/pe771s.jpg</p> </div> <p style="text-align: center;">Typical Weight: 28 Grams Bottom View</p> <p style="text-align: center;">Larger Size Drawing [1]</p>	<div style="text-align: center;">  <p>image not found https://www.picoelectronics.com/sites/all/staticpage_images/pe772s.jpg</p> </div> <p style="text-align: center;">Larger Size Schematic [2]</p>
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<table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th>Pin no.</th> <th>Single</th> </tr> </thead> <tbody> <tr><td>1</td><td>-INP</td></tr> <tr><td>2</td><td>-INP</td></tr> <tr><td>3</td><td>N/C</td></tr> <tr><td>4</td><td>N/C</td></tr> <tr><td>5</td><td>+INP</td></tr> <tr><td>6</td><td>+INP</td></tr> <tr><td>7</td><td>+OUT</td></tr> <tr><td>8</td><td>-OUT</td></tr> <tr><td>9</td><td>N/C</td></tr> <tr><td>10</td><td>N/C</td></tr> <tr><td>11</td><td>N/C</td></tr> <tr><td>12</td><td>N/C</td></tr> </tbody> </table>	Pin no.	Single	1	-INP	2	-INP	3	N/C	4	N/C	5	+INP	6	+INP	7	+OUT	8	-OUT	9	N/C	10	N/C	11	N/C	12	N/C	<p style="text-align: center;">XSGR Single</p> <div style="text-align: center;">  <p>image not found https://www.picoelectronics.com/sites/all/staticpage_images/pe773s.jpg</p> </div> <p style="text-align: center;">Typical Weight: 25 grams Bottom View</p> <p style="text-align: center;">Larger Size Drawing [3]</p>
Pin no.	Single																										
1	-INP																										
2	-INP																										
3	N/C																										
4	N/C																										
5	+INP																										
6	+INP																										
7	+OUT																										
8	-OUT																										
9	N/C																										
10	N/C																										
11	N/C																										
12	N/C																										

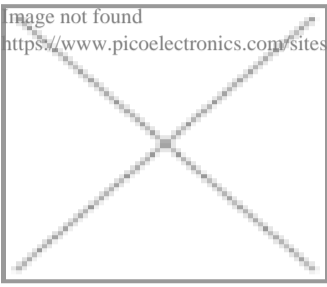
SERIES XGR/XSGR - DUAL OUTPUT

PICO Plug-In Part Number	PICO Surface Mount Part Number	*Input Volt. (V DC)	Dual Output Volt. Isolated (V DC)	Max. Load Current Per Output (mA)	Max. Output Power Per Output (watts)	Eff. @ Full Load at Nominal Input Volt. Typical (%)	Input Current @ Full Load Typical (mA) at Nominal Input Volt.	Output Volt. Ripple @ Full Load (mVp-p) max.	Input Current @ No Load Typical at Nominal Input Volt. (mA)	Eff @ Full Load Typical (%)		Price (US \$)
										High Line	Low Line	
5XGR5D	5XSGR5D	5	5	200	1	55	727	50	90	50	60	120.29
5XGR9D	5XSGR9D	5	9	139	1.25	54	926	50	90	51	58	120.29
5XGR12D	5SGR12D	5	12	125	1.5	60	1000	50	90	53	67	120.29
5XGR15D	5SGR15D	5	15	100	1.5	61	984	50	100	55	68	120.29
12XGR5D	12XSGR5D	12	5	200	1	54	309	50	30	50	60	120.29
12XGR9D	12XSGR9D	12	9	167	1.5	52	481	50	30	47	57	120.29
12XGR12D	12XSGR12D	12	12	166	2	64	521	50	30	58	70	120.29
12XGR15D	12XSGR15D	12	15	133	2	66	505	50	30	61	73	120.29
15XGR5D	15XSGR5D	15	5	200	1.0	54	247	50	30	50	60	120.29
15XGR9D	15XSGR9D	15	9	167	1.5	52	385	50	30	47	57	120.29
15XGR12D	15XSGR12D	15	12	166	2.0	64	417	50	30	58	70	120.29
15XGR15D	15XSGR15D	15	15	133	2.0	66	404	50	30	61	73	120.29
24XGR5D	24XSGR5D	24	5	250	1.25	54	193	50	25	47	61	120.29
24XGR9D	24XSGR9D	24	9	167	1.5	56	223	50	25	51	62	120.29
24XGR12D	24XSGR12D	24	12	166	2	63	265	50	25	56	71	120.29
24XGR15D	24XSGR15D	24	15	133	2	66	253	50	30	58	73	120.29

28XGR5D	28XSGR5D	28	5	300	1.5	56	191	50	25	52	65	120.29
28XGR9D	28XSGR9D	28	9	194	1.75	55	227	50	25	51	62	120.29
28XGR12D	28XSGR12D	28	12	188	2.25	65	247	50	25	58	74	120.29
28XGR15D	28XSGR15D	28	15	150	2.25	67	240	50	30	60	75	120.29

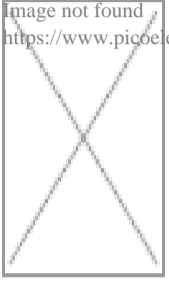
Output Voltage Tolerance = $\pm 2\%$ max.
 Load Regulation = 0.5% Full Load to No Load
 Line Regulation = 0.2% for Input Voltage Range of $\pm 10\%$

XGR Dual



Typical Weight: 29 grams
Bottom View

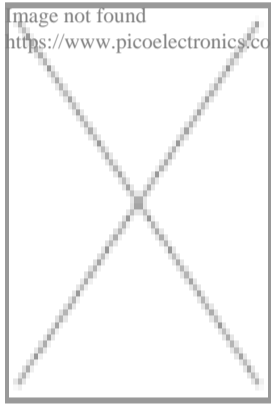
[Larger Size Drawing \[4\]](#)



[Larger Size Schematic \[5\]](#)

Pin no.	Dual
1	-INP
2	-INP
3	N/C
4	N/C
5	+INP
6	+INP
7	+OUT1
8	-OUT1
9	N/C
10	N/C
11	+OUT2
12	-OUTPUT2

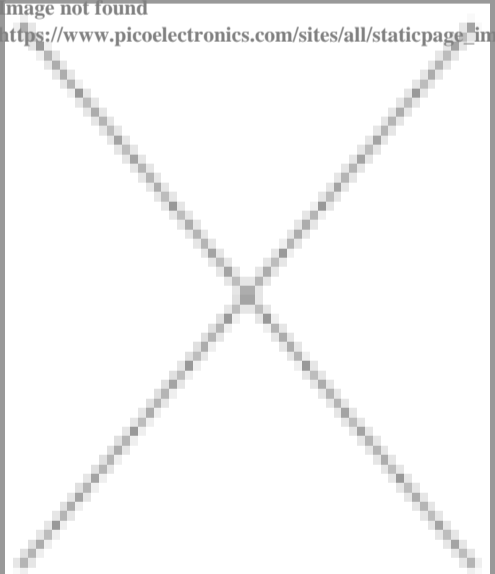
XSGR Dual



Typical Weight: 28 Grams
Bottom View

[Larger Size Drawing \[6\]](#)

RECOMMENDED LAND PATTERN DIMENSIONS



Ordering Instructions:

No minimum.
 Net 30 days F.O.B. Pelham, NY

Delivery--stock to one week for sample orders.

For immediate engineering assistance or to place an order:
Call Toll Free: 800-431-1064

PICO Electronics, Inc.

143 Sparks Ave. Pelham, NY 10803-1810
Tel: 914-738-1400 or Fax: 914-738-8225
