Series IR / 10 Watts

DC to DC Converters

Single and Dual Output

Wide Input Range up to 3.33:1

Isolated, Regulated up to 10 DC to DC Converters

Full Regulated All Units Shielded

This series of high efficiency, wide input range, encapsulated regulators come in 90 different models. These units feature a 500 VOLT DC input to output isolation in both single and dual output models. The IR Series will operate over a temperature range of -25° C to +70° C with no heat sink or electrical derating. These units are excellent for applications where input voltage varies dramatically, yet a high efficiency and output voltage regulation must be maintained.

FEATURES
• Single and dual isolated outputs
• Voltage regulation over input range of

Unit	Low	High
IRE	5V	15V
IRF	8V	24V
IRA	18V	36V
IRB	36V	60V
IRC	18V	60V

• 6 sided shielding
• Encapsulated semiconductors, conservatively rated for maximum reliability.
• Load regulation (see table for typical variation at different loads)
• Line regulation = Typical values 5-15V DC = ±1.5%

8-24V DC = ±1.5%
18-36V DC = ±1.0%
36-60V DC = ±1.0%
18-60V DC = ±1.5%
• High efficiency - up to 84%
• Will operate over a temperature range
of -25° C to +70° C with no heat sink or electrical derating
• Isolation - 100 megohms at 500 volts DC
• External output trimming pin standard +5%
• Each unit is supplied with an external
control pin. This "C" pin, when connected to the negative (-) input, will disable the unit, allowing for remote shutdown

TYPICAL CHARACTERISTICS:
Test conditions: 25° C ambient
Operating temperature: -25° C to +70° C ambient
Output voltage tolerance: ± 1% at typical input voltage
Output voltage temperature coefficient: 0.02%/°C
Storage temperature: -55° C to 125° C
Short circuit protection: Temporary
Operating frequency: 40Khtz, typical

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

SERIES IR - SINGLE OUTPUT											
Pico Part Number	**Input Voltage Range**	**Output Voltage (V DC)**	**Max. Load Current mA**	**Max. Output Power (watts)**	**EFF.@ Full Load Typical (%)***	**Input Current Full Load Typical (mA)***	**Out Volt Ripple @ Full LD. 1-1MHz BW mv p-p**	**Out Volt Tolerance (± %)***	**** VLD. Reg. 25%-100% Load (± %)***	**Line Regu-lation (± %)**	**Price (US $)**
IRE2S	5-15	2	2000	4	68	588	250	1.50	5.00	5.50	168.31
IRE3.3S	5-15	3.3	1515	5	76	658	250	1.00	3.50	5.00	168.31
IRE5S	5-15	5	1200	6	80	750	175	0.75	2.00	2.00	168.31
IRE5.2S	5-15	5.2	1154	6	80	750	175	0.75	2.00	2.00	168.31
IRE9S	5-15	9	889	8	80	1000	150	0.50	1.50	1.00	168.31
IRE12S	5-15	12	667	8	78	1025	150	0.50	1.50	1.00	168.31
IRE15S	5-15	15	533	8	78	1025	150	0.50	1.50	1.00	168.31
IRE24S	5-15	24	333	8	82	975	150	0.50	0.75	1.00	168.31
IRE28S	5-15	28	286	8	83	965	200	0.50	0.50	0.50	168.31
IRE48S	5-15	48	167	8	83	905	250	0.50	0.50	0.50	168.31
IRE100S	5-15	100	60	6	80	750	300	0.50	0.50	0.75	226.11
IRF2S	8-24	2	2500	5	70	446	250	1.50	4.00	4.00	168.31
IRF3.3S	8-24	3.3	2424	8	77	650	200	1.00	2.50	2.50	168.31
IRF5S	8-24	5	2000	10	80	780	200	0.75	1.50	1.75	168.31
IRF5.2S	8-24	5.2	1923	10	80	780	200	0.75	1.50	1.75	168.31
IRF9S	8-24	9	1111	10	81	770	150	0.50	0.75	1.25	168.31
IRF12S	8-24	12	833	10	78	800	150	0.50	0.75	0.75	168.31
IRF15S	8-24	15	687	10	78	800	150	0.50	0.75	0.75	168.31
IRF24S	8-24	24	417	10	83	755	150	0.50	0.75	0.75	168.31
IRF28S	8-24	28	357	10	83	755	200	0.50	0.50	0.50	168.31
IRF48S	8-24	48	208	10	84	745	250	0.50	0.50	0.50	168.31
IRF100S	8-24	100	100	10	80	780	300	0.50	0.50	0.75	226.11

IRA2S	18-36	2	3000	6	71	313	200	1.50	4.00	2.50	168.31
IRA3.3S	18-36	3.3	2727	9	78	427	200	1.00	2.00	1.50	168.31
IRA5S	18-36	5	2000	10	81	455	125	0.75	1.25	0.75	168.31
IRA5.2S	18-36	5.2	1923	10	81	455	125	0.75	1.25	0.75	168.31
IRA9S	18-36	9	1111	10	83	445	100	0.50	1.00	0.50	168.31
IRA12S	18-36	12	833	10	78	475	75	0.50	1.00	0.25	168.31
IRA15S	18-36	15	687	10	78	475	75	0.50	0.75	0.25	168.31
IRA24S	18-36	24	417	10	83	445	75	0.50	0.75	0.25	168.31
IRA28S	18-36	28	357	10	83	445	100	0.50	0.75	0.25	168.31
IRA48S	18-36	48	208	10	84	440	150	0.50	0.50	0.25	168.31
IRA100S	18-36	100	100	10	81	455	250	0.50	0.50	0.50	226.11
IRB2S	36-60	2	3000	6	70	179	200	1.50	3.50	1.50	196.36
IRB3.3S	36-60	3.3	2727	9	76	247	200	1.00	2.00	1.50	196.36
IRB5S	36-60	5	2000	10	81	255	125	0.75	1.25	0.50	196.36
IRB5.2S	36-60	5.2	1923	10	81	255	125	0.75	1.25	0.50	196.36
IRB9S	36-60	9	1111	10	83	250	100	0.50	0.75	0.50	196.36
IRB12S	36-60	12	833	10	83	260	75	0.50	0.75	0.25	196.36
IRB15S	36-60	15	687	10	83	250	75	0.50	0.75	0.25	196.36
IRB24S	36-60	24	417	10	83	260	75	0.50	0.75	0.25	196.36
IRB28S	36-60	28	357	10	83	260	100	0.50	0.50	0.25	196.36
IRB48S	36-60	48	208	10	84	250	150	0.50	0.50	0.25	196.36
IRB100S	36-60	100	100	10	81	255	250	0.50	0.50	0.50	263.80
IRC2S	18-60	2	3000	6	70	220	200	1.50	4.00	3.00	210.38
IRC3.3	18-60	3.3	2727	9	76	304	200	1.00	2.00	1.50	210.38
IRC5S	18-60	5	2000	10	81	320	125	0.75	1.25	1.00	210.38
IRC5.2S	18-60	5.2	1923	10	81	320	125	0.75	1.25	1.00	210.38
IRC9S	18-60	9	1111	10	83	310	100	0.50	0.75	0.75	210.38
IRC12S	18-60	12	833	10	83	310	75	0.50	0.75	0.50	210.38
IRC15S	18-60	15	687	10	83	310	75	0.50	0.75	0.50	210.38
IRC24S	18-60	24	417	10	83	310	75	0.50	0.75	0.50	210.38
IRC28S	18-60	28	357	10	83	310	100	0.50	0.50	0.50	210.38
IRC48S	18-60	48	208	10	84	305	150	0.50	0.50	0.50	210.38
IRC100S	18-60	100	100	10	81	310	250	0.50	0.50	0.75	282.65

* Measurements taken with input voltage set at mid value
** 10% minimum load require

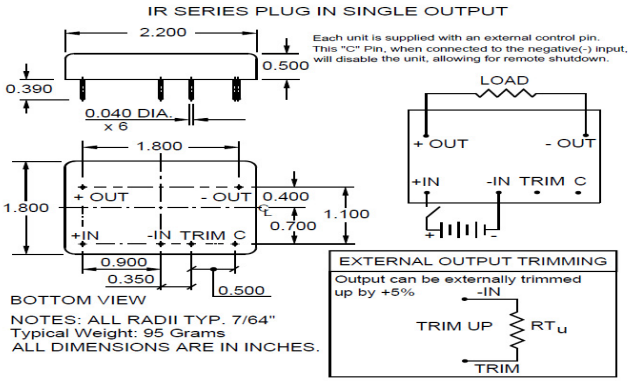
SERIES IR - DUAL OUTPUT

Pico Part Number	Input Voltage Range	Output Voltage DC Per Output	Max. Load Current mA Per Output	Max. Output Power (watts) Per Output	EFF.@ Full Load Typical (%)*	Input Current Full Load Typical (mA)*	Out Volt Ripple @ Full LD. 1-1MHz BW mv p-p	Out Volt Tolerance (± %)*	** VLD. Reg. 25%-100% Load (± %)*	Line Regu-lation (± %)	Price (US $)
IRE5D	5-15	5	600	3	80	750	175	0.75	2.00	2.00	203.37
IRE9D	5-15	9	444	4	80	1000	150	0.50	1.50	1.00	203.37
IRE12D	5-15	12	333	4	78	1025	150	0.50	1.50	1.00	203.37
IRE15D	5-15	15	267	4	78	1025	150	0.50	1.50	1.00	237.03
IRE24D	5-15	24	167	4	82	975	150	0.50	0.75	1.00	203.37
IRE28D	5-15	28	143	4	83	965	200	0.50	0.50	0.50	203.37
IRE48D	5-15	48	83	4	83	965	250	0.50	0.50	0.50	218.58
IRF5D	8-24	5	1000	5	80	780	200	0.75	1.50	1.75	203.37
IRF9D	8-24	9	556	5	81	770	150	0.50	0.75	1.25	203.37
IRF12D	8-24	12	417	5	78	800	150	0.50	0.75	0.75	203.37
IRF15D	8-24	15	333	5	78	800	150	0.50	0.75	0.75	203.37
IRF24D	8-24	24	208	5	83	755	150	0.50	0.75	0.75	203.37
IRF28D	8-24	28	179	5	83	755	200	0.50	0.50	0.50	203.37
IRF48D	8-24	48	104	5	84	745	250	0.50	0.50	0.50	218.58
IRA5D	18-36	5	1000	5	81	455	125	0.75	1.25	0.75	203.37
IRA9D	18-36	9	556	5	83	445	100	0.50	1.00	0.50	203.37
IRA12D	18-36	12	417	5	78	475	75	0.50	1.00	0.25	203.37
IRA15D	18-36	15	333	5	78	475	75	0.50	0.75	0.25	203.37
IRA24D	18-36	24	208	5	83	445	75	0.50	0.75	0.25	203.37
IRA28D	18-36	28	179	5	83	445	100	0.50	0.75	0.25	203.37
IRA48D	18-36	48	104	5	84	440	150	0.50	0.50	0.25	218.58
IRB5D	36-60	5	1000	5	81	255	125	0.75	1.25	0.50	231.42
IRB9D	36-60	9	556	5	83	250	100	0.50	0.75	0.50	231.42
IRB12D	36-60	12	417	5	83	250	75	0.50	0.75	0.25	231.42
IRB15D	36-60	15	333	5	83	250	75	0.50	0.75	0.25	231.42
IRB24D	36-60	24	208	5	83	250	75	0.50	0.75	0.25	231.42
IRB28D	36-60	28	179	5	83	250	100	0.50	0.50	0.25	231.42
IRB48D	36-60	48	104	5	84	250	150	0.50	0.50	0.25	248.72

IRC5D	18-60	5	1000	5	81	320	125	0.75	1.25	1.00	245.45
IRC9D	18-60	9	556	5	83	310	100	0.50	0.75	0.75	245.45
IRC12D	18-60	12	417	5	83	310	75	0.50	0.75	0.50	245.45
IRC15D	18-60	15	333	5	83	310	75	0.50	0.75	0.50	245.45
IRC24D	18-60	24	208	5	83	310	75	0.50	0.75	0.50	245.45
IRC28D	18-60	28	179	5	83	310	100	0.50	0.50	0.50	245.45
IRC48D	18-60	48	104	5	84	305	150	0.50	0.50	0.50	263.80

* Measurements taken with input voltage set at mid value
** 10% minimum load require

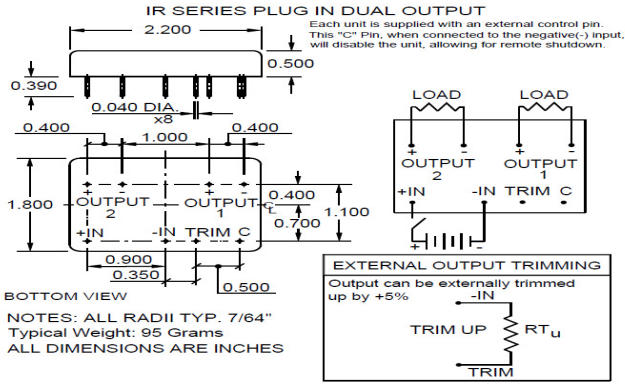
Series IR Single Output



Larger Size Drawing

Use 50 K Ohm trim pot rated 1/4 Watt between trim pin and negative input. Trim down to raise output voltage
to a maximum of 5%. Do not go beyond 5%. Reducing the resistance value further could damage the module.

Typical Weight: 95 Grams

Series IR Dual Output	 Larger Size Drawing Use 50 K Ohm trim pot rated 1/4 Watt between trim pin and negative input. Trim down to raise output voltage to a maximum of 5%. Do not go beyond 5%. Reducing the resistance value further could damage the module.
Typical Weight: 95 Grams	

For immediate engineering assistance or to place an order:
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