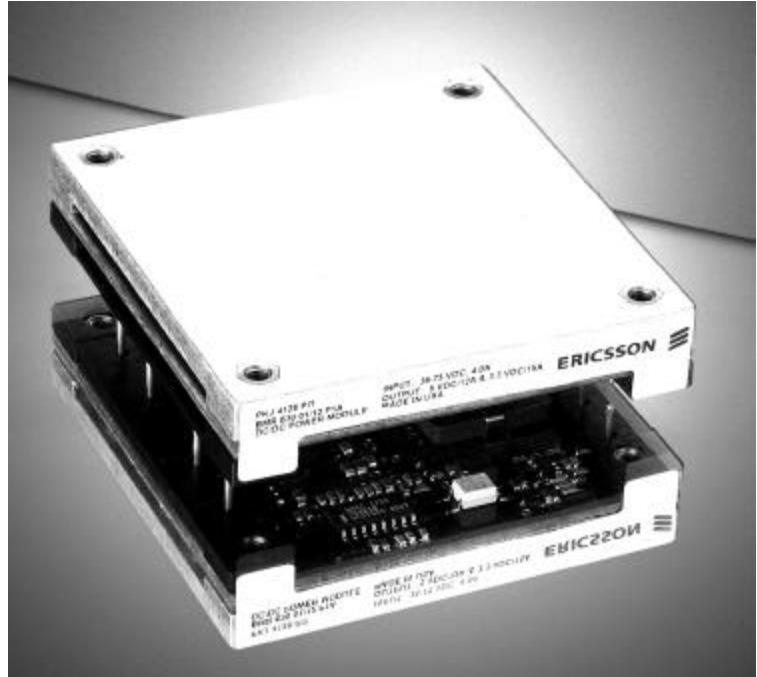


Advanced Specification 110W Dual Output DC/DC Power Module 48 V Input; 5.0V and 3.3V Independent Outputs

- High Efficiency 90% Typ at full load
- Fast Dynamic Response, 100us, +/- 150 mVpeak Typ
- Independent Dual Outputs with Independent Trim Adjustment
- Low Output Ripple, 75mV_{p-p} Typ
- High power density, 40.2 W/in³
- Wide input voltage range (34-75V)
- Industry standard footprint & pin-out
- 1,500 Vdc isolation voltage
- Max case temperature +100°C
- UL 1950/UL_C 1950 Recognized pending
- Basic Isolation Rating per EN60 950 (December 2000) verified by Underwriters Laboratory



The PKJ 4128 PIT DC/DC power module represents another Ericsson "industry first" achievement in the continued development of our "Third Generation" of high density, high efficiency DC/DC power modules in an industry standard half brick package with unparalleled performance. These breakthrough features have been achieved by using the most advanced patented topology, utilizing integrated magnetics and synchronous rectification on a low resistivity multilayer PCB.

The product features fast dynamic response times and low output ripple, which are important parameters when supplying low voltage logics. The PKJ 4128 PIT dual output converter's excellent high efficiency and advanced design allows both of the independent outputs to be operated at their typical

ratings, 5V @ 12A and 3.3V @ 15A, concurrently with more than 90% efficiency.

Ericsson's PKJ 4128 PIT Power Modules address the converging "New Telecoms" market by specifying the input voltage range in accordance with ETSI specifications. The PKJ 4128 PIT also offers over-voltage protection, under voltage protection, over temperature protection, soft-start, and is short circuit proof.

These modules are manufactured using highly automated manufacturing lines with a world-class quality commitment using ISO 9000, 6s, and SPC. Ericsson Inc., Microelectronics has been an ISO 9001 certified supplier since 1991. All product has a five-year warranty from date of manufacture.

General

Connections

Pin	Designation	Function
1	- IN	Negative Input
2	CASE	Connected to baseplate
3	RC	Remote Control to turn on and off the output
4	+ IN	Positive Input
5	+ OUT 2	Positive Output 2
6	- OUT 2	Negative Output 2
7	TRIM 2	Output 2 Voltage Adjust
8	+ OUT 1	Positive Output 1
9	- OUT 1	Negative Output 1
10	TRIM 1	Output 1 Voltage Adjust

Weight

Maximum 100 g

Case

Aluminum baseplate with metal standoffs.

Pins

Pin material: Brass

Pin plating: Tin/Lead over Nickel.

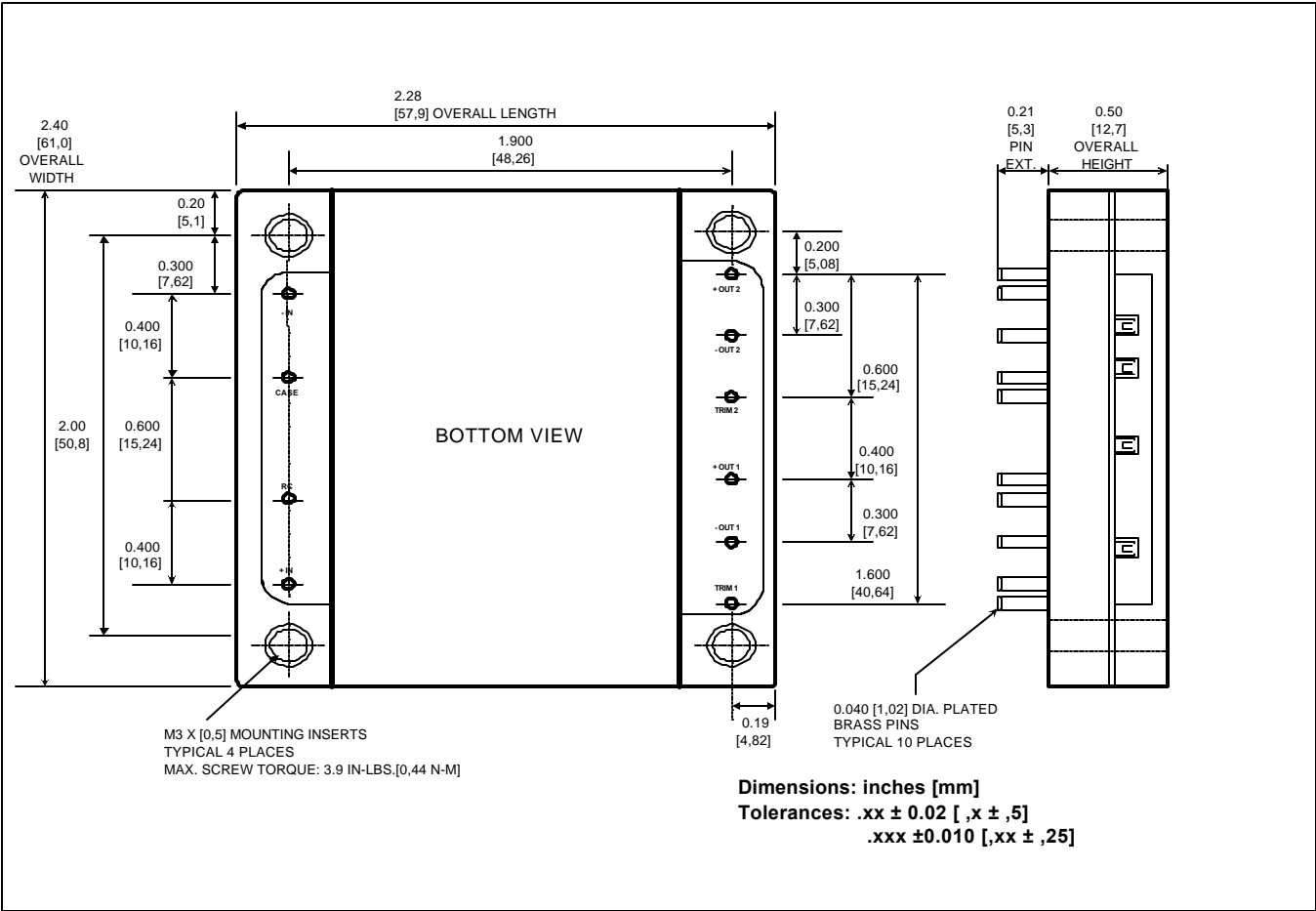
Input $T_C < T_{C\max}$

Characteristics		Conditions	min	typ	max	Unit
V_I	Input voltage range ¹⁾		34		75	Vdc
V_{Ioff}	Turn-off input voltage	Ramping from higher voltage	31	33		Vdc
V_{Ion}	Turn-on input voltage	Ramping from lower voltage		35	36	Vdc
C_I	Input capacitance			2.0		μF
I_{Iac}	Reflected ripple current	5 Hz to 20 MHz		10		mA_{p-p}
I_{Imax}	Maximum input current	$V_I = V_{Imin}, V_I = 53V$ PKJ 4128 PI			3.7	A
P_{Ii}	Input idling power	$I_O = 0, V_I = 53 V$		4.4		W
P_{RC}	Input stand-by power (turned off with RC)	$V_I = 53V, RC$ open		TBD		W
I_I	Inrush current	Except charging of C_I			5.0	Adc

Note:

1) The input voltage range 34...75 V meets the requirements in the European Telecom Standard prETS 300 132-2 for Normal input voltage range in 48 V and 60 V DC power systems, -40.5...-57.0 V and -50.0...-72.0 V respectively.

Mechanical Data



PKJ 4128 PIT (110W)

$T_C = -40...+100^{\circ}\text{C}$, $V_I = 34 ...75\text{V}$ unless otherwise specified.

Output

Characteristics		Conditions	Output 1			Output 2			Unit
			min	typ	max	min	typ	max	
V_{OI}	Output voltage initial setting and accuracy	$T_C = +25^{\circ}\text{C}$, $V_I = 53\text{V}$, $I_O = I_{Omax}$	4.95	5.00	5.05	3.26	3.30	3.33	V
	Output adjust range	$I_O = I_{Omax}$	4.50		5.55	2.97		3.66	V
V_O	Output voltage tolerance band	$I_O = 0$ to I_{Omax}	4.85		5.15	3.2		3.4	V
	Line regulation	$I_O = I_{Omax}$		1	10		1	10	mV
	Load regulation	$V_I = 53\text{V}$, $I_O = 0$ to I_{Omax} ,		1	10		1	10	mV
V_{tr}	Load transient voltage deviation	Load step = $0.25 \times I_{Omax}$ $di/dt = 1\text{A}/\mu\text{s}$		+120 -120	+200 -200		+120 -120	+200 -200	mV mV
t_{tr}	Load transient recovery time			20			20		μs
t_r	Ramp-up time	From V_I connection to $V_O = 0.9 \times V_{Onom}$		5			5		ms
t_s	Start-up time	From V_I connection to $V_O = 0.9 \times V_{Onom}$		10	15		10	15	ms
I_O	Output current		0		12	0		15	A
P_{Omax}	Max output power	At $V_O = V_{Onom}$			60			50	W
I_{lim}	Current limit threshold	$V_O = 0.96 V_{Onom}$ @ $T_C < 100^{\circ}\text{C}$	14.9	18.5	20	18	22	25	A
I_{sc}	Short circuit current			25	32		25	32	A
V_{Oac}	Output ripple & noise	$I_O = I_{Omax}$, $f < 20\text{MHz}$		75		75			mVp-p
SVR	Supply voltage rejection (ac)	$f < 1\text{kHz}$	-53			-53			dB

Miscellaneous

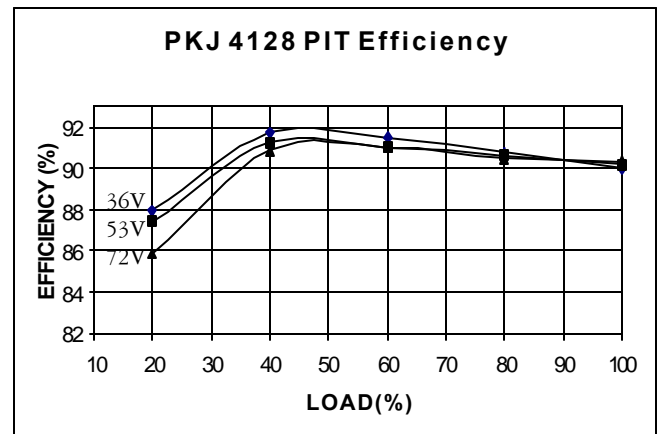
Characteristics		Conditions	min	typ	max	Unit
η	Efficiency	$I_O = I_{Omax}$, $V_I = 53\text{V}$, $T_C = +25^{\circ}\text{C}$		90		%
P_d	Power dissipation'	$I_O = I_{Omax}$, $V_I = 53\text{V}$, $T_C = +25^{\circ}\text{C}$		14		W
f_s	Switching frequency	$I_O = 0...1.0 \times I_{Omax}$		300		kHz

Absolute Maximum Ratings

Characteristics		min	max	Unit
T_C	Maximum Operating Case Temperature	-40	+100	$^{\circ}\text{C}$
T_s	Storage temperature	-40	+125	$^{\circ}\text{C}$
V_I	Input voltage	-0.5	+80	V dc
V_{iso}	Isolation voltage	1,500		V dc
V_{RC}	Remote control voltage		12	V dc
I^2t	Inrush transient		1	A^2s

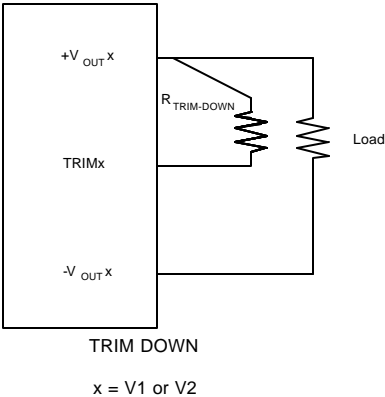
Stress in excess of Absolute Maximum Ratings may cause permanent damage. Absolute Maximum Ratings, sometimes referred to as "no destruction limits," are normally tested with one parameter at a time exceeding the limits of output data or electrical characteristics. If exposed to stress above these limits, function and performance may degrade in an unspecified manner.

Typical Characteristics



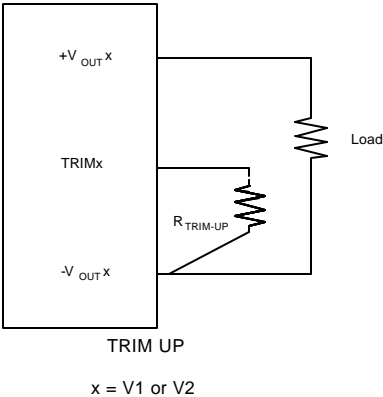
Output Voltage Adjust (Trim)

TRIM RESISTOR CALCULATIONS AND CIRCUIT CONFIGURATION



$$5V\ R_{\text{TRIM-DOWN}} = [2.50 - (4.32 * DV_o)]/DV_o$$

$$3.3V\ R_{\text{TRIM-DOWN}} = [0.256 - (0.685 * DV_o)]/$$



$$5V\ R_{\text{TRIM-UP}} = [2.50 - (3.32 * DV_o)]/DV_o$$

$$3.3V\ R_{\text{TRIM-UP}} = [0.8 - 0.365 * DV_o)]/DV_o$$

Product Options

The PKJ 4128 PI DC/DC power modules will be available with the different options listed in the Product Options Table

Please check with the factory for availability.

Option	Suffix	Example
Negative remote on/off logic, Industry Standard trim (i.e. V _o Adjust)	-	PKJ 4128 PIT
Positive remote on/off logic	P	PKJ 4128 PIPT
Lead length 0.145"± 0.010"	LA	PKJ 4128 PITLA

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Advanced Specification

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