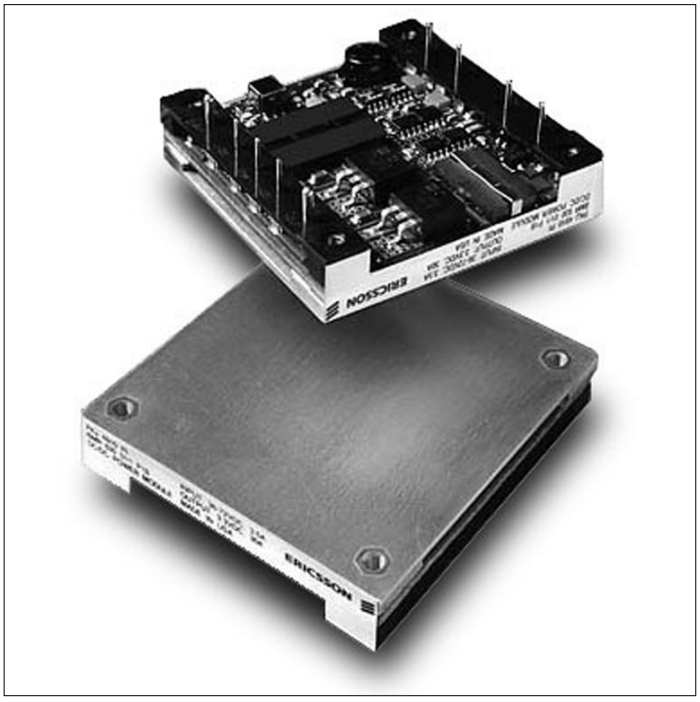
Advanced Specification
15-30A DC/DC Power Modules
48V Input, 1.8V Output

- *High efficiency 87.5% Typ (15A) at full load*
- *Industry standard footprint*
- *Max case temperature +100ºC*
- *Wide input voltage range according to ETSI specifications*
- *High power density, up to 55W/in³*
- *1,500 Vdc isolation voltage*
- *MTBF > 3 million hours in accordance with Bellcore TR-332*



The PKJ series represents a "third generation" of High Density DC/DC Power Modules providing high efficiencies. To achieve this high efficiency, Ericsson uses proprietary drive and control circuits with planar magnetics and low resistivity multilayer PCB technology, and a patent pending topology with active rectification. The PKJ series can be used without bulky and height consuming heatsinks, resulting in a lower total cost. This also provides narrow board spacing for electronic, shelf based applications.

The products are in the industry standard package size and offer a beneficial alternative to competing products on the market. Because for certain applications they may not require heatsinks, they are ideal for cost sensitive or high-density applications.

The PKJ series also offers the flexibility of using a heatsink when needed, enabling reduced airflow, extended reliability or higher ambient temperature operation in a wide range of 48V and 60V DC powered systems. Similar to other Ericsson Power Modules, the PKJ series includes an under-voltage shut down facility, protecting the associated batteries from being too deeply discharged. The PKJ series also offers over-voltage protection, over-temperature protection and is short circuit proof.

These products are manufactured using highly automated manufacturing lines with a world-class quality commitment and a five-year warranty. Ericsson Microelectronics has been an ISO 9001 certified supplier since 1991.

For product program please see back cover.

ERICSSON

General

Connections

Designation	Function
-In	Negative input
Case	Connected to base plate
RC	Remote control (primary). To turn-on and turn-off the output
+In	Positive input
-Out	Negative output
-Sen	Negative remote sense (if sense is not needed, connect to -Out)
Trim	Output voltage adjust
+Sen	Positive remote sense (if sense is not needed, connect to +Out)
+Out	Positive output

Weight
85 grams

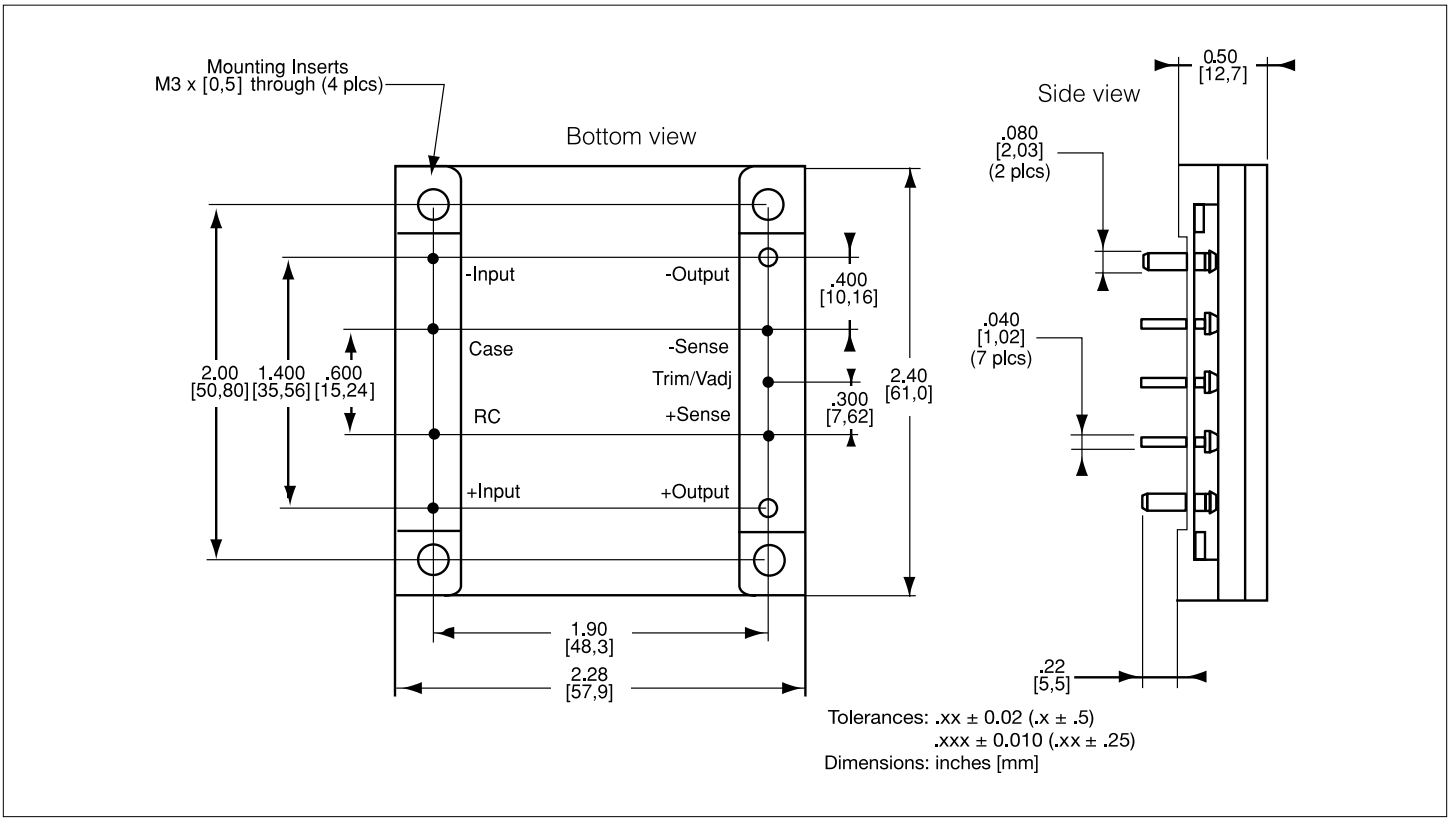
Case
Aluminum baseplate with metal standoffs.

Pins
Pin material: Brass
Pin plating: Tin/Lead over Nickel.

Input $T_C < T_{Cmax}$

Characteristics		Conditions		min	typ	max	Unit
V_I	Input voltage range			36		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			34	36	Vdc
C_I	Input capacitance				2.35		µF
I_{Iac}	Reflected ripple current	5 Hz to 20 MHz			20		mA p-p
I_{Imax}	Maximum input current	$V_I = V_{I\ min}$	27 W 36 W 54 W			1.0 1.3 2.0	A
P_{Ii}	Input idling power		$I_O = 0$		2.5	7.5	W
P_{RC}	Input stand-by power (turned off with RC)	$V_I = 50V$	RC open		0.6	1.5	W
TRIM	Maximum input voltage on trim pin					6	Vdc

Mechanical Data



PKJ 4518 PIT/PKJ 4318 PIT/PKJ 4218 PIT T_C = -40...+100°C, V_I = 36...75 V dc unless otherwise specified.

Output

Characteristics		Conditions	Device	Output			Unit
				min	typ	max	
V_{Oi}	Output voltage initial setting and accuracy	T_C = +25°C, V_I = 53V, I_O = I_{Omax}	All	1.77	1.8	1.83	V
	Output adjust range	I_O = 0 to I_{Omax}	All	1.44		2.0	V
I_O	Output current		PKJ 4518 PIT PKJ 4318 PIT PKJ 4218 PIT	0 0 0		30 20 15	A
V_O	Output voltage tolerance band	I_O = 0 to I_{Omax}	All	1.71		1.89	V
	Line regulation	I_O = I_{Omax}	All		2	15	mV
	Load regulation	V_I = 53V, I_O = 0 to I_{Omax}	All		2	15	mV
V_{tr}	Load transient voltage deviation	Load step = 0.25 x I_{Omax} dI/dt = 1A/µs	All		±100		mV_{peak}
t_{tr}	Load transient recovery time		All		50		µs
t_s	Start-up time	From V_I connection to V_O = 0.9 x V_{Onom}	All		20	30	ms
I_{lim}	Current limit threshold	V_O = 0.96 V_{Onom} @ T_C<100°C	PKJ 4518 PIT PKJ 4318 PIT PKJ 4218 PIT	30.5 20.5 15.5	35 24 18	40 29 21	A
I_{SC}	Short circuit current		PKJ 4518 PIT PKJ 4318 PIT PKJ 4218 PIT		36 25 19	40 29 21	A
V_{Oac}	Output ripple and noise	I_O = I_{Omax} f ≤ 20 MHz	All		60	120	mVp-p
SVR	Supply voltage rejection (ac)	f<1kHz	All	-50			dB
OVP	Over voltage protection	Vin = 50V	All		2.5	2.9	V

Miscellaneous

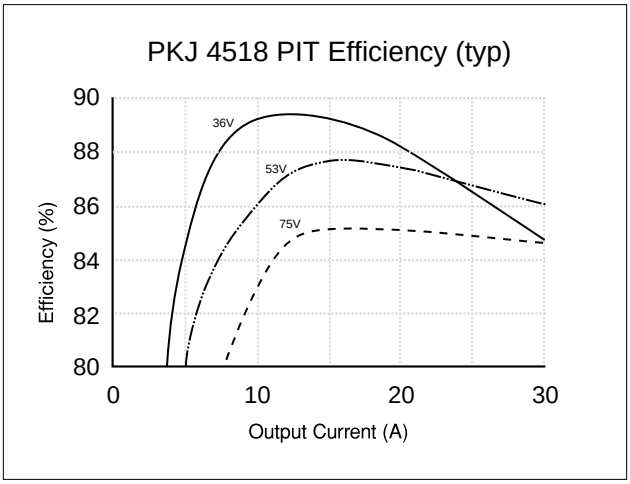
Characteristics		Conditions	Device	min	typ	max	Unit
η	Efficiency	T_A = +25°C, V_I = 53V, I_O = I_{Omax}	PKJ 4518 PIT PKJ 4318 PIT PKJ 4218 PIT		86 87 87.5		%
P_d	Power dissipation	I_O = I_{Omax}, V_I = 53V	PKJ 4518 PIT PKJ 4318 PIT PKJ 4218 PIT		8.8 5.4 3.9		W

Absolute Maximum Ratings

Characteristics		min	max	Unit
T_C	Case temperature @ max output power	-40	+100	°C
T_S	Storage temperature	-40	+125	°C
V_I	Continuous input voltage	-0.5	+80	Vdc
V_{ISO}	Isolation voltage (input to output test voltage)	1,500		Vdc
V_{RC}	Remote control voltage		15	Vdc
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.

Thermal Data



Product Program

V_I	V_O/I_O	P_{Omax}	Ordering Number
48/60 V	1.8V/30A	54W	PKJ 4518 PIT
48/60 V	1.8V/20A	36W	PKJ 4318 PIT
48/60 V	1.8V/15A	27W	PKJ 4218 PIT

The PKJ 4000 DC/DC power modules will be available with the different options listed in the Product Options table.

Please check with the factory for availability.

Product Options

Option	Suffix	*Example*
Negative remote on/off logic Industry Standard Trim, (i.e. V_{out} Adjust)	–	*PKJ 4518 PIT*
Positive remote on/off logic	P	*PKJ 4518 PIPT*
Lead length of 0.145" ± 0.010"	LA	*PKJ 4518 PITLA*

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Advanced Specification

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