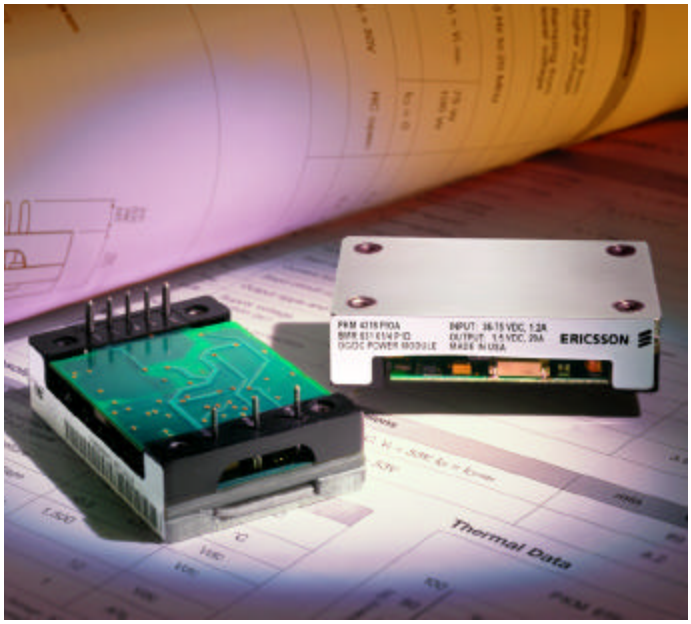
PKM 4318A PIOB

Advanced Specification
42W DC/DC Power Module
48 V Input; 1.2V Output

- *High Efficiency 89% Typ*
- *Fast Dynamic Response, 100us, +/- 150 mVpeak Typ*
- *Heatsinks available as an option for extended operation*
- *Low Output Ripple, 60mV$_{p-p}$ Typ*
- *High power density, 60 W/in^3*
- *Wide input voltage range (36-75V) according to ETSI Specifications*
- *Industry standard footprint & pin-out*
- *1,500 Vdc isolation voltage*
- *Max case temperature +100°C*
- *UL 1950/UL$_C$ 1950 Recognized Pending*
- *Demonstrated compliance with isolation requirements equivalent to Basic Isolation per UL60 950*
- *TUV to EN60 950 Type Approved Pending*



The PKM 4000A series of DC/DC power modules 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 quarter brick package with unparalleled performance. The PKM 4318A PIOB module is a new addition to the PKM 4000A series family specifically for low voltage silicon devices in a one step conversion at 89% typical efficiency. These breakthrough features have been achieved by using the most advanced patented topology, ultilizing 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 PKM 4000A series is especially suited for limited board space and high dynamic load applications. Ericsson's PKM 4000A Power Modules address the converging "New Telecoms" market by specifying the input voltage range in accordance with ETSI specifications. Included in the PKM 4000A series are over-voltage protection, under voltage protection, over temperature protection, soft-start, short circuit protection, and industry standard output trim adjustment. The PKM 4000A Series also offers the flexibility of using an optional heatsink when needed, enabling reduced airflow, extended reliability, and higher ambient temperature operation.

These modules are manufactured using highly automated manufacturing lines with a world-class quality commitment which is reflected in our standard five-year warranty. Ericsson Inc., Microelectronics has been an ISO 9001 certified supplier since 1991.

ERICSSON

For a complete product program please reference the back cover.

General

Connections

Pin	Designation	Function
1	- IN	Negative Input
2	ON/OFF	Remote control (primary). To turn on and turn off the output.
3	+ IN	Positive Input.
4	- OUT	Negative Output.
5	- SEN	Negative Remote Sense
6	Trim	Output Voltage Adjust
7	+ SEN	Positive Remote Sense
8	+ OUT	positive Output

Weight

Maximum 55 g

Case

Aluminum baseplate with metal standoffs.

Pins

Pin material: Brass

Pin plating: Tin/Lead over Nickel.

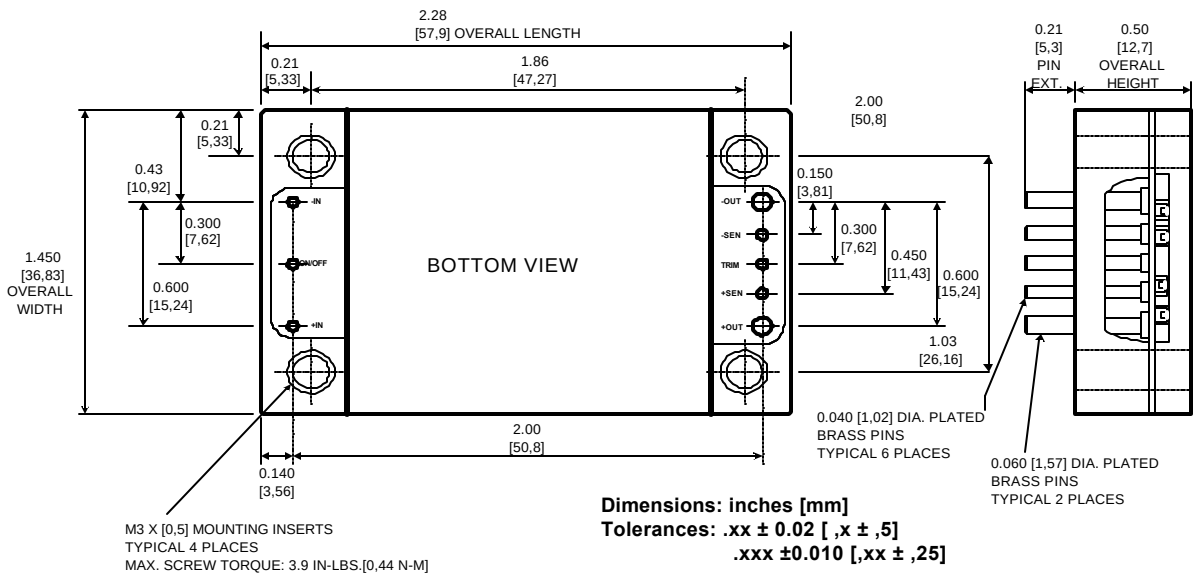
Input $T_C < T_{C\,max}$

Characteristics		Conditions	min	typ	max	Unit
V_I	Input voltage range[1)]		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			2.8		µF
I_{Iac}	Reflected ripple current	5 Hz to 20 MHz		20		mA_{p-p}
$I_{I\,max}$	Maximum input current	$V_I = V_{Imin}$, V_I = 53V PKM 4318A PIOB			1.44	A
P_{Ii}	Input idling power	I_O=0, V_I = 53 V		2.6	4.6	W
P_{RC}	Input stand-by power (turned off with RC)	V_I=53V, RC open		0.4	0.6	W
VTRIM	Maximum input				6	Vdc

Note:

1) The input voltage range 36...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



PKM 4318A PIOB (42W)

T_C = –40…+100°C, V_I = 36 ...75V unless otherwise specified.

Output

Characteristics		Conditions	Output			Unit
			min	typ	max	
V_{Oi}	Output voltage initial setting and accuracy	T_C =+25°C, V_I = 53 V, I_O =I_{Omax}	1.19	1.2	1.22	V
	Output adjust range	I_O =I_{Omax}	0.96		1.3	V
V_O	Output voltage tolerance band	I_O=0 to I_{Omax}	1.16		1.24	V
	Line regulation	I_O=I_{Omax}		3	10	mV
	Load regulation	V_I = 53V, I_O=0 to I_{Omax},		3	10	mV
V_{tr}	Load transient voltage deviation	Load step = 0.25 x I_{Omax} di/dt = 1A/us		+/-150		mV
t_{tr}	Load transient recovery time			100		µs
t_s	Start-up time	From V_I connection to V_O= 0.9 × V_{Onom}		25	40	ms
I_O	Output current		0		35	A
P_{Omax}	Max output power	At V_O = V_{Onom}			42	W
I_{lim}	Current limit threshold	V_O = 0.96 V_{Onom} @ T_C <100°C	37	38	43	A
I_{sc}	Short circuit current			39	44	A
V_{Oac}	Output ripple & noise	I_O=I_{Omax}, f < 20 MHz		60	100	mV_{p-p}
SVR	Supply voltage rejection (ac)	f < 1kHz	-53			dB
OVP	Over voltage protection	V_I= 50 V	1.8	2.0	2.24	V

Miscellaneous

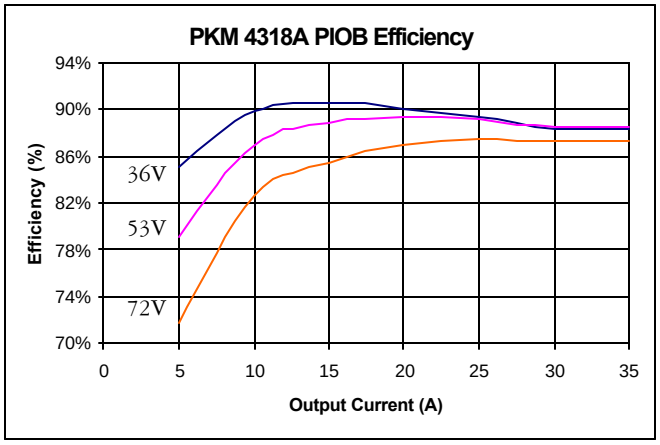
Characteristics		Conditions	min	typ	max	Unit
η	Efficiency	I_O = I_{Omax}, V_I = 53V, T_C = +25°C		89		%
P_d	Power dissapation	I_O = I_{Omax}, V_I = 53V, T_C = +25°C		5.2		W
f_s	Switching frequency	I_O = 0...1.0 x I_{Omax}		200		kHz

Absolute Maximum Ratings

Characteristics		min	max	Unit
T_C	Maximum Operating Case Temperature	-40	+100	°C
T_S	Storage temperature	-40	+125	°C
V_I V dc	Input voltage Continuous	- 0.5	+ 80	Vdc
	Transient (100ms)		+100	V dc
V_{ISO}	Isolation voltage (input to output test voltage)	1,500		V dc
V_{RC}	Remote control voltage		12	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 max	P_O max	Ordering No.
48/60 V	1.2V/35A	42 W	PKM 4318A PIOB

The PKM 4318A PIOB 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_o Adjust)	-	PKM 4318A PIOB
Positive remote on/off logic	P	PKM 4318A PIPOB
Lead length 0.145"± 0.010"	LA	PKM 4318A PIOBLA
Additional Insulation Pad	C	PKM 4318A PIOBC

Example of Combined Options:

PKM 4318A PIOBLAC - 0.145" lead length with additional insulation pad.

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The latest and most complete information can be found on our website!

Advanced Specification

AE/LZT 108 5517 R1