

Advanced Specification

15-20A DC/DC Power Modules

48V Input, 2.5V Output

- *High efficiency 87% Typ (2.5V) at full load*
- *Fast dynamic response, 100 μ s, ± 150 mV_{peak} Typ*
- *Low output ripple, 60 mV_{p-p} Typ*
- *High power density, 61 W/in³*
- *Wide input voltage range (36-75V)*
- *Industry standard footprint & pin-out*
- *1,500Vdc isolation voltage*
- *Max case temperature +100°C*
- *Designed to meet UL 1950 and EN 60950*



The PKM series represents a "third generation" of High Density DC/DC Power Modules in an industry standard package with unparalleled power densities and efficiencies. These breakthrough performance 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 PKM series is especially suited for limited board space and high dynamic load applications such as demanding microprocessors.

Ericsson's PKM Power Modules address the converging "New Telecoms" market by specifying the input voltage range in accordance with ETSI specifications. The PKM series also offers over-voltage protection, under-voltage protection, over-temperature protection, soft-start, 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 Components AB has been an ISO 9001 certified supplier since 1991.

For a complete product program please reference the back cover.

General

Connections

Designation	Function
-In	Negative input
RC	Remote control (primary). To turn-on and turn-off the output
+In	Positive input
-Out	Negative output
-Sen	Negative remote sense
Trim	Output voltage adjust
+Sen	Positive remote sense
+Out	Positive output

Note: If the remote sense is not needed the -Sen should be connected to -Out and +Sen should be connected to +Out.

Weight

55 grams

Case

Aluminum baseplate with metal standoffs.

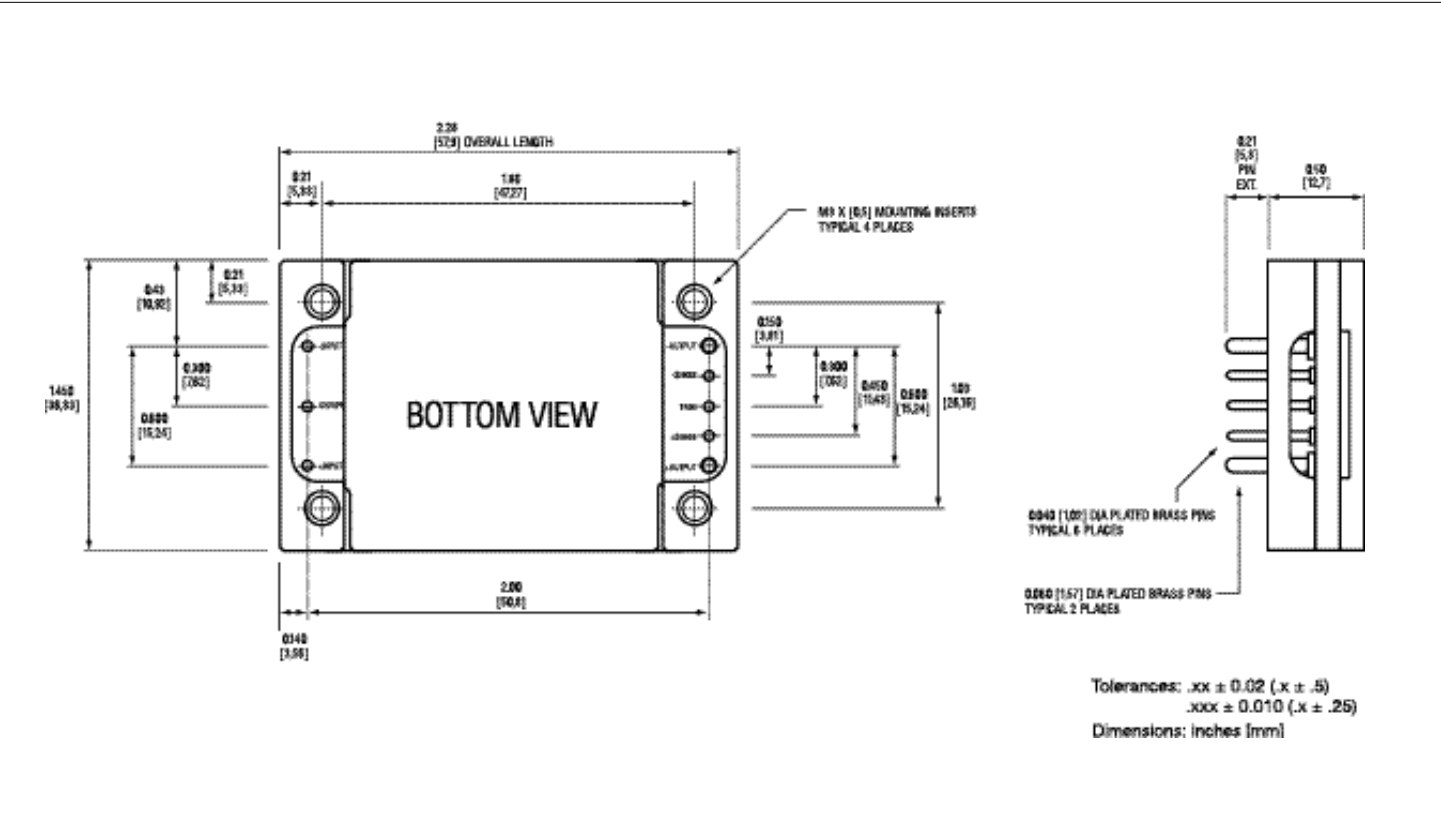
Pins

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_{loff}	Turn-off input voltage	Ramping from higher voltage		31	33		Vdc
V_{lon}	Turn-on input voltage	Ramping from lower voltage			34	36	Vdc
C_I	Input capacitance			1.5			μF
I_{lac}	Reflected ripple current	5 Hz to 20 MHz		10			mA p-p
I_{lmax}	Maximum input current	$V_I = V_{I \min}$	75 W 100 W			1.8 2.3	A
P_{II}	Input idling power		$I_O = 0$	2.6	4.5		W
P_{RC}	Input stand-by power (turned off with RC)	$V_I = 50V$	RC open	0.5	1.0		W
TRIM	Maximum input voltage on trim pin					6	Vdc

Mechanical Data



PKM 4519 PI (50W) $T_C = -40...+100^{\circ}\text{C}$, $V_I = 36...75\text{ V}$ dc unless otherwise specified.

Output

Characteristics		Conditions	Output			Unit
			min	typ	max	
V_{Oi}	Output voltage initial setting and accuracy	$T_C = +25^{\circ}\text{C}$, $V_I = 53\text{V}$, $I_O = I_{Omax}$	2.45	2.5	2.55	V
	Output adjust range	$I_O = 0$ to I_{Omax}	2.0		2.75	V
I_O	Output current		0		20	A
V_O	Output voltage tolerance band	$I_O = 0$ to I_{Omax}	2.4		2.6	V
	Line regulation	$I_O = I_{Omax}$		1	10	mV
	Load regulation	$V_I = 53\text{V}$, $I_O = 0$ to I_{Omax}		1	10	mV
V_{Tr}	Load transient voltage deviation	Load step = $0.25 \times I_{Omax}$ $dI/dt = 1\text{A}/\mu\text{s}$	± 150			mV _{peak}
t_{Tr}	Load transient recovery time		100			μs
t_s	Start-up time	From V_I connection to $V_O = 0.9 \times V_{Onom}$		25	40	ms
I_{lim}	Current limit threshold	$V_O = 0.96 V_{Onom}$ @ $T_C < 100^{\circ}\text{C}$	21	24	26	A
I_{SC}	Short circuit current			26	30	A
V_{Oac}	Output ripple and noise	$I_O = I_{Omax}$ $f \leq 20\text{ MHz}$		60	100	mVp-p
SVR	Supply voltage rejection (ac)	$f < 1\text{kHz}$	-53			dB
OVP	Over voltage protection	$V_{in} = 50\text{V}$	3.2	3.7	4.2	V

Miscellaneous

Characteristics		Conditions	min	typ	max	Unit
	Efficiency	$T_A = +25^{\circ}\text{C}$, $V_I = 53\text{V}$, $I_O = I_{Omax}$		87		%
P_d	Power dissipation	$I_O = I_{Omax}$, $V_I = 53\text{V}$		7.5		W

Absolute Maximum Ratings

Characteristics		min	max	Unit
T_C	Case temperature @ max output power	-40	+100	$^{\circ}\text{C}$
T_S	Storage temperature	-40	+125	$^{\circ}\text{C}$
V_I	Continuous input voltage	-0.5	+75	Vdc
V_{ISO}	Isolation voltage (input to output test voltage)	1,500		Vdc
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.

Product Program

V_I	V_O/I_O	P_{Omax}	Ordering Number
48/60 V	2.5V/20A	50W	PKM 4519 PI
48/60 V	2.5V/15A	37.5W	PKM 4319 PI

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Advanced Specification

AE/LZT 108 3297 R1
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