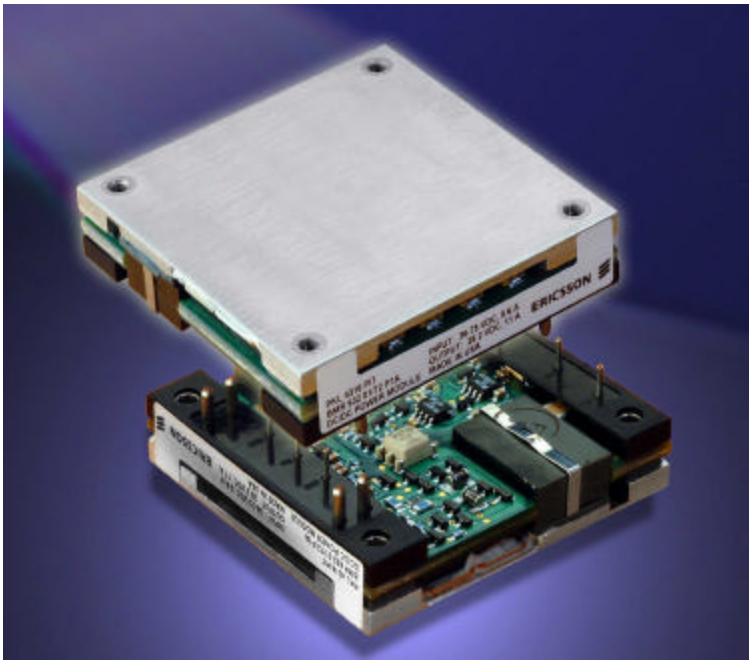
PKL 4118A PIT

Advanced Specification
100A DC/DC Power Module
48V Input, 1.8V Output

- *High Efficiency, 83% Typ. at 100A (full load)*
- *Fast Dynamic Response, 100 ms, ±350 mVpeak Typ.*
- *Optional heatsink for extended thermal range operation*
- *Monotonic Start-up*
- *Low Output Ripple, 200mVp-p Typ.*
- *Parallelable with no external components*
- *1,500 V dc isolation voltage*
- *Max. case temperature +100°C*
- *UL 1950 and UL_C Recognition pending*
- *TUV to EN60 950 Type Approval pending*
- *Demonstrated compliance with isolation requirements equivalent to Basic Isolation pwr UL60 950*



The PKL 4000 series represents another one of Ericsson's "industry first" achievements in the continuing development of our "Third Generation" of high-density, high-efficiency power modules. The PKL 4118A PIT module packs 62 W/in^3 at 83% efficiency (1.8V @ 100A) in an industry standard footprint. The PKL 4000 package has been enhanced to include two additional output pins for motherboard connection reliability at this high current. These additional pins help minimize the localized i^2r heating at the application connection.

This product features fast dynamic response times and low output ripple, which are important parameters when supplying high quality DC power to Data Processing and Communications applications. The PKL 4000 Series also is especially well suited for limited board space and high dynamic load applications.

Ericsson's 1.8 volt PKL 4118A PIT Power Module has been designed with the global Telecomm market in mind, by specifying the input voltage range in accordance with ETSI specifications.

These modules are manufactured on highly automated manufacturing lines. Ericsson's world-class quality commitment is reflected in our standard five year warranty. Ericsson Microelectronics has been an ISO 9001 certified Suplier since 1991.

For a complete product program, please reference the back cover.

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General

Connections

Pin	Designation	Function
1	-INPUT	Negative input
2	CASE	Connected to base plate
3	REMOTE ON/OFF	Remote control (primary) to turn-on and turn-off the output
4	+INPUT	Positive input.
5, 10	-OUTPUT	Negative output (two pins)
6	-SENSE	Negative remote sense
7	TRIM	Output voltage adjust
8	+SENSE	Positive remote sense
9, 11	+OUTPUT	Positive output (two pins)

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

Weight

110 grams

Case

Aluminum base plate with metal standoffs.

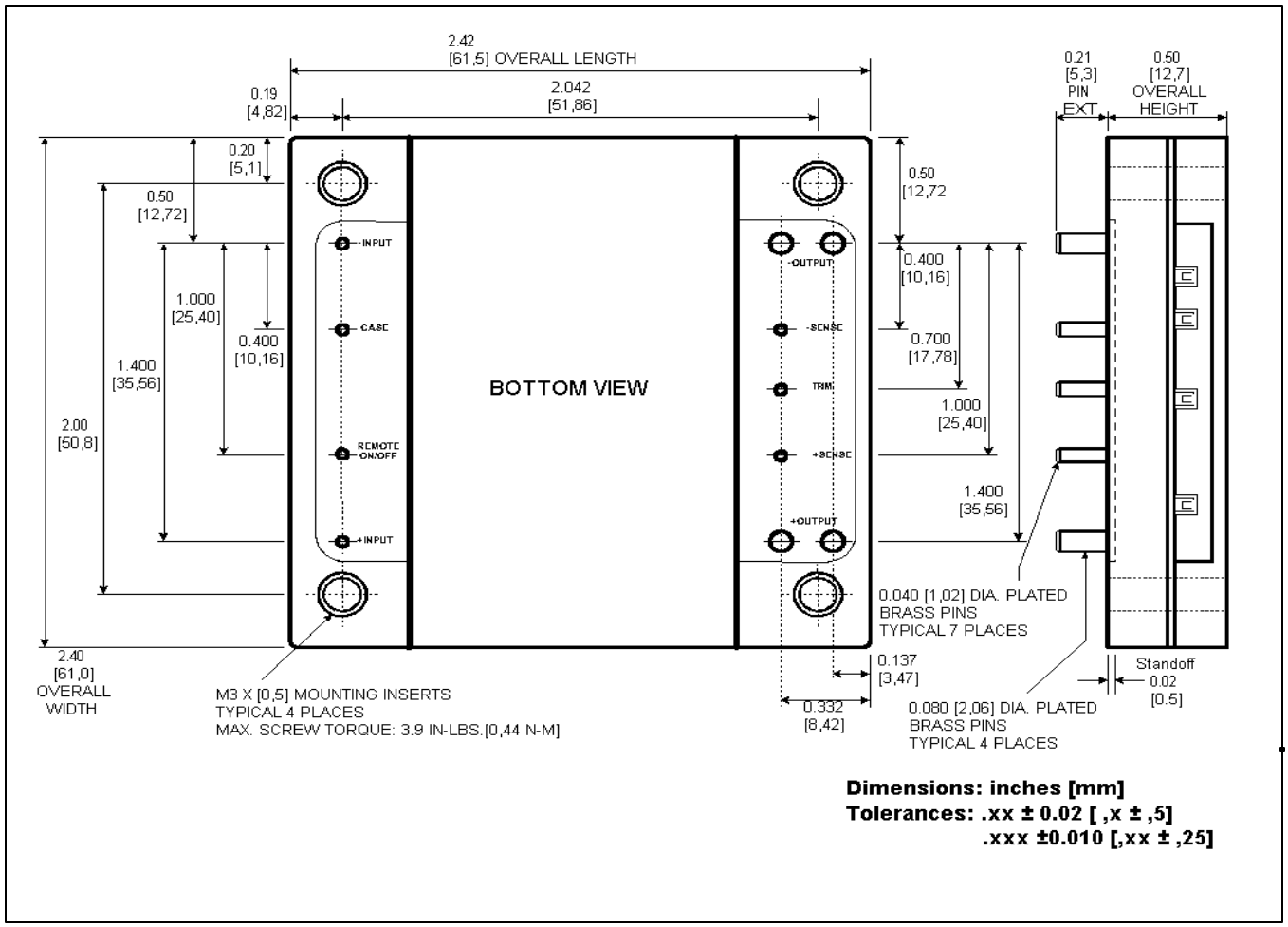
Pins

Pin Material: Brass
Pin Plating: Tin/Lead over Nickel

Input $T_C < T_{Cmax}$ unless otherwise specified

Characteristics		Conditions	min	typ	max	Units
V_I	Input voltage range		36		75	V_{dc}
$V_{I\,off}$	Turn-off input voltage	Ramping from higher voltage	31	33		V_{dc}
V_{Ion}	Turn-on input voltage	Ramping from lower voltage		34	36	V_{dc}
$I_{I\,max}$	Max. Input Current	$V_i = V_i min = 36$ V			6.0	A_{dc}
$I_{I\,rush}$	Inrush Current	Except Charging of C_i		TBD		A_{dc}
C_I	Input capacitance			TBD		µF
P_{Ii}	Input idling power	$I_O = 0$, $T_C = -30 \ldots +95$ °C		9		W
P_{RC}	Input stand-by power	$T_C = -30 \ldots +95$ °C, RC Open		0.4	0.6	W

Mechanical Data



PKL 4118A PIT (180W)

T_C = -40...+100°C, V_I = 36...75V_{dc} unless otherwise specified

Output

Characteristics		Conditions		Output min	Output typ	Output max	Unit
V_{Oi}	Output voltage initial setting and accuracy	T_C = +25°C, I_O = I_{Omax} = 11A, V_I = 53V		1.77	1.8	1.83	V
	Output adjust range			1.44		2.00	
V_O	Output voltage tolerance band	Long term drift included	I_O = 0.1...1.0 × I_{Omax}	1.75		1.85	V
	Idling voltage	I_O = 0A		1.77	1.8	1.83	V
	Line regulation	I_O = I_{Omax}	V_I = 36...75 V		5	15	mV
	Load regulation	I_O = 0.1...1.0 × I_{Omax} V_I = 53 V			5	15	mV
t_{tr}	Load transient recovery time	I_O = 0.1...1.0 × I_{Omax}, Load step =0.25A x I_{Omax}, Di/dt = 0.1A/µs V_I = 53 V			220		µs
V_{tr}	Load transient voltage				± 200		mV
t_r	Ramp-up time	I_O = 0.1...1.0 × I_{Omax}, V_O = 0.1...0.9 ×V_O,V_I = 53V			20	30	ms
t_s	Start-up time	I_O = 0.1...1.0 × I_{Omax}, V_I = 53 V From V_I connection to V_O = 0.9 ×V_{Oi}			20	30	ms
I_O	Output current			0		100	A
P_{Omax}	Max output power	Calculated at V_O=$V_O$typ				180	W
I_{lim}	Current limiting threshold	T_C<T_{Cmax}			110	128	A
I_{sc}	Short circuit current	V_O = 0.2...0.5 V, T_C =+25°C			125	132	A
V_{Oac}	Output ripple & noise	I_O = $I_{O\ max}$	5 Hz...20MHz		80	150	mV_{p-p}
			0.15 ...100 MHz			TBD	dBµV
SVR	Supply voltage rejection (ac)	f = 100 Hz sine wave, $1V_{p-p}$, V_I = 53 V (SVR = 20 log (1 V_{p-p}/V_{Op-p}))		-50			dB

Miscellaneous

Characteristics		Conditions		min	typ	max	Units
η	Efficiency	I_{O1}= I_{Omax}	V_I = 48 V		83		%
P_d	Power dissipation		V_I = 48 V		36		W
f_O	Switching Frequency	I_O = 0...1.0 x I_{Omax}			180		kHz

Absolute Maximum Ratings

Characteristics		min	max	Units
T_C	Case Temperature @ max output power	-40	+100	°C
T_S	Storage Temperature	-40	+125	°C
V_I	Input voltage: Continuous Transient (100 ms)	-0.5	+80 +100	V_{dc} V
V_{ISO}	Osolation voltage (input to output test voltage)	1,500		V_{dc}
V_{RC}	Remote control voltage (pin 3)		12	V_{dc}
V_{adj}	Output adjust voltage (pin 7)	TBD	TBD	V_{dc}

Product Program

V_I	V_O/I_O	$P_O$max	Ordering Number
48/60V	1.8V/100A	180W	PKL4118APIT

The PKL 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_o Adjust)	-	PKL4118APIT
Positive remote on/off logic	P	PKL4118APIPT
Lead length 0.145" ± 0.010"	LA	PKL4118APITLA

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

Advanced Specification

EN/LZT 108 5475 P1