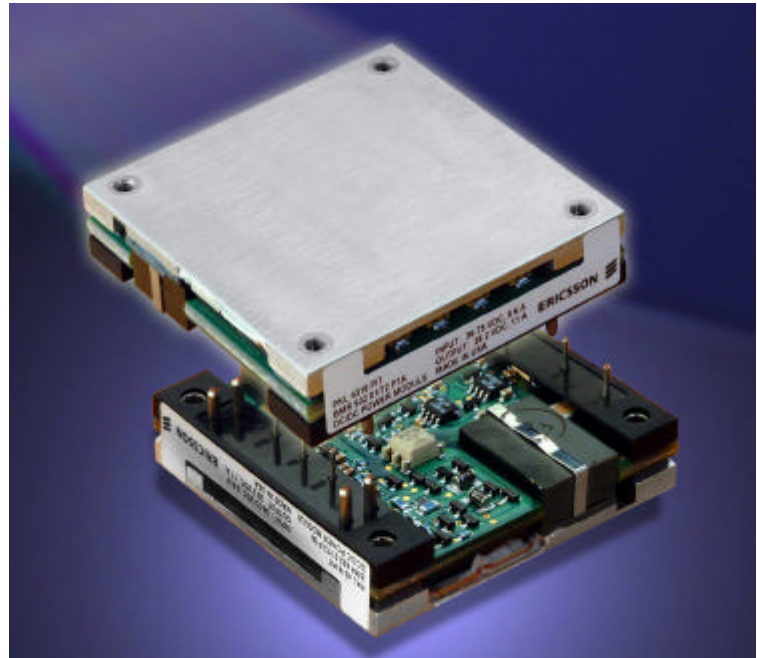


## Advanced Data Sheet

### 310W DC/DC Power Module

### 48V Input, 28.2V Output

- High Efficiency, 90% Typ. at 11A (full load)
- High Power Density, 106.7 W/in<sup>3</sup>
- Fast Dynamic Response, 100  $\mu$ s,  $\pm$ 750 mVpeak Typ
- Low Output Ripple, 50 mVp-p Typ.
- Parallelable with no external components
- 1,500 Vdc isolation voltage
- Max. case temperature +100°C
- Demonstrated compliance with isolation requirements equivalent to Basic Isolation per UL60 950
- UL/UL<sub>C</sub> 1950 and UL/UL<sub>C</sub> 60 950 Recognized
- MTBF > 3 million hours in accordance with Bellcore TR 332
- Input Transient Specification 100V, 100ms



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 4316 PIT module packs 106.7 W/in<sup>3</sup> at 91% efficiency (28.2V @ 11A) 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 power.

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

Ericsson's 28 volt PKL 4316 PIT Power Module has been designed with the global wireless 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 Supplier since 1991.

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





**Output**

$T_C = -40...+100^{\circ}\text{C}$ ,  $V_I = 36...75\text{V}_{\text{dc}}$  unless otherwise specified

Characteristics		Conditions		Output			Unit
				min	typ	max	
$V_{OI}$	Output voltage initial	$T_C = +25^{\circ}\text{C}$ , $I_O = I_{Omax}$ $= 11\text{A}$ , $V_I = 53\text{V}$	PKL4316PIT PKL4316PITM, PKL4316PITO	27.6 27.9	28.2	28.8 28.5	V
	Output adjust range			23.5		31	
$V_O$	Output voltage	Long term drift	$I_O = 0.1...1.0 \times I_{Omax}$	27.6	28.2	28.8	V
	Idling voltage	$I_O = 0\text{A}$		27.6	28.2	30.6	V
	Line regulation	$I_O = I_{Omax}$	$V_I = 36...75\text{V}$		14	56	mV
	Load regulation	$I_O = 0.1...1.0 \times I_{Omax}$			14	56	mV
$t_{tr}$	Load transient	$I_O = 0.1...1.0 \times I_{Omax}$ , Load step $= 0.25 \times I_{Omax}$			100		$\mu\text{s}$
$V_{tr}$	Load transient voltage	$di/dt = 0.1\text{A}/\mu\text{s}$ $V_I = 53\text{V}$			$\pm 0.75$		V
$t_r$	Ramp-up time	$I_O = 0.1...1.0 \times I_{Omax}$			20	40	ms
$t_s$	Start-up time	$I_O = 0.1...1.0 \times I_{Omax}$ , $V_I = 53\text{V}$			20	40	ms
$I_O$	Output current			0		11	A
$P_{Omax}$	Max output power	Calculated at $V_O = V_{Otyp}$				310	W
$I_{lim}$	Current limiting	$T_C < T_{Cmax}$			13.2	15.4	A
$I_{sc}$	Short circuit current	$V_O = 0.2...0.5\text{V}$ , $T_C = +25^{\circ}\text{C}$			15	16	A
$V_{Oac}$	Output ripple & noise		5 Hz...20MHz		50	130	mV <sub>p-p</sub>
			0.15 ...100 MHz		140		mV <sub>p-p</sub>
SVR	Supply voltage rejection (ac)	$f = 100\text{Hz}$ sine wave, $1V_{p-p}$ , $V_I = 53\text{V}$		-50			dB

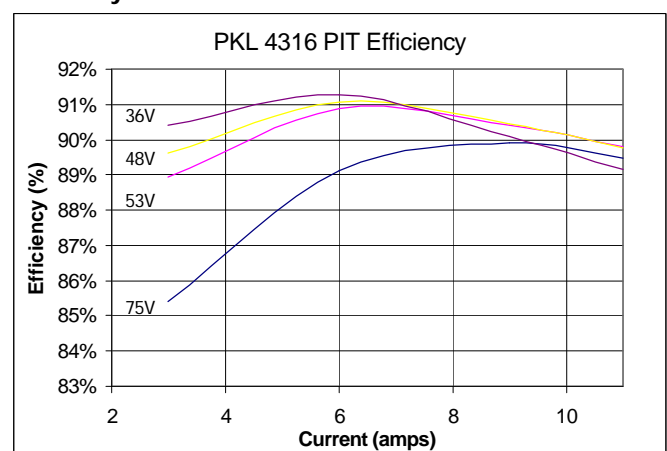
**Miscellaneous**

Characteristics		Conditions	min	typ	max	Unit
$\eta$	Efficiency	$I_O = I_{Omax}$ , $V_I = 48\text{V}$ , $T_C = +25^{\circ}\text{C}$		90		%
$P_d$	Power dissipation	$I_O = I_{Omax}$ , $V_I = 48\text{V}$ , $T_C = +25^{\circ}\text{C}$		30.7		W
$f_s$	Switching frequency	$I_O = 0...1.0 \times I_{Omax}$		130		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	Vdc
$V_{dc}$	Continuous		
	Transient (100ms)	+100	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	$\text{A}^2\text{s}$

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.

**Efficiency**

## Product Program

$V_i$	$V_o/I_o$	$P_{Omax}$	Ordering Number
48/60V	28V/11A	310W	PKL4316PIT

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)	-	PKL4316PIT
Non-threaded standoff w/ increased length (0.02")	M	PKL4316PITM
Positive remote on/off logic	P	PKL4316PIPT
Lead length $0.145" \pm 0.010"$	LA	PKL4316PITLA
Setpoint accuracy to +/- 1%, Non-threaded standoff w/ increased length (0.02")	O	PKL4316PITO

Information given in this Advanced Data Sheet is believed to be accurate and reliable. No responsibility is assumed for the consequences of its use for any infringement of patents or other rights of third parties that may result from its use. No license is granted by implication or otherwise under any patent or patent rights of Ericsson Microelectronics. These products are sold only according to Ericsson Microelectronics' general conditions of sale, unless otherwise confirmed in writing. Specifications are subject to change without notice.

Ericsson Inc.  
Microelectronics  
1700 International Pkwy.  
Richardson, Texas 75081  
Phone: 877-ERICMIC  
[www.ericsson.com/microelectronics](http://www.ericsson.com/microelectronics)

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

Advanced Data Sheet