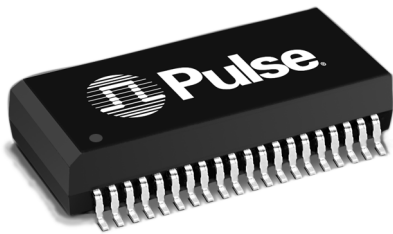


T1/CEPT(E1)/ISDN-PRI TRANSFORMERS

Eight Transformers for Quad T1/E1 Ports



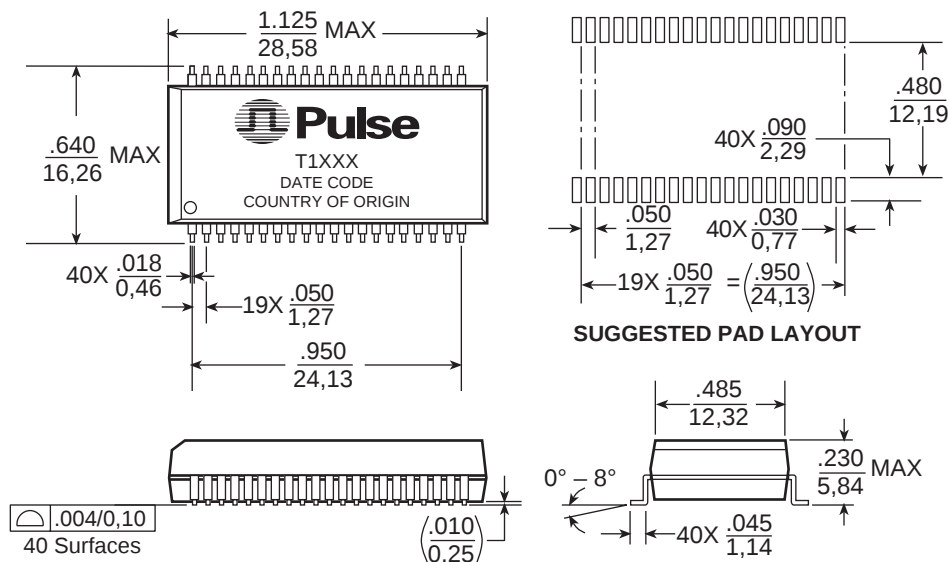
- Eight transformers in a surface mount package supports four transmit and four receive channels
- Crosstalk: -65 dB or better
- Models matched to leading quad and dual T1/E1/CEPT/ISDN-PRI transceivers
- UL 1950 recognized. BABT approval to EN 60950

Electrical Specifications @ 25°C

Part Number	Turns Ratio ^{A,B} (Pri:Sec ±2%)		OCL @ 25°C (mH MIN)		L _L (μH MAX)		C _{WW} (pF MAX)		Package/ Schematic ^E	Primary Pins	
	Transmit	Receive	Trans.	Rec.	Trans.	Rec.	Trans.	Rec.		Transmit	Receive
T1063	1:1.36	1:1.36CT	1.2	1.2	.4	.5	20	20	TOU/1	1-2, 6-7, 11-12, 16-17	38-36, 33-31, 28-26, 23-21
T1064	1:1.14	1:1.14CT	1.2	1.2	.6	.6	35	35	TOU/1	1-2, 6-7, 11-12, 16-17	38-36, 33-31, 28-26, 23-21
T1065	1:2CT	1:2CT	1.2	1.2	.6	.6	35	35	TOU/3	4-5, 9-10, 14-15, 19-20	24-25, 29-30, 34-35, 39-40
T1066	1:2	1:2CT	1.2	1.2	.6	.6	35	35	TOU/4	1-2, 9-10, 11-12, 19-20	23-25, 26-28, 33-35, 36-38
T1067	1:1.36CT	1:2CT	1.2	1.2	.6	.6	35	35	TOU/3	24-25, 29-30, 34-35, 39-40	4-5, 9-10, 14-15, 19-20
T1068	1:2CT	1:1CT	1.2	1.2	.6	.6	35	35	TOU/2	1-2, 6-7, 11-12, 16-17	21-22, 26-27, 31-32, 36-37
T1069	1CT:1.41	1CT:1.41	1.2	1.2	.6	.6	35	35	TOU/3	1-3, 6-8, 11-13, 16-18	21-23, 26-28, 31-33, 36-38
T1070	1:1.15	1:2CT	1.2	1.2	.6	.6	35	35	TOU/1	1-2, 6-7, 11-12, 16-17	21-23, 26-28, 31-33, 36-38
T1071 ^D	1:1/1.26	1:2CT	1.2	1.2	.6	.6	35	35	TOU/2	1-2, 6-7, 11-12, 16-17	21-22, 26-27, 31-32, 36-37
T1072	1:1.15	1:1.15	1.2	1.2	.6	.6	35	35	TOU/5	1-3, 6-8, 11-13, 16-18	4-5, 9-10, 14-15, 19-20
T1073	1:2	1:2	1.2	1.2	.6	.6	35	35	TOU/5	1-3, 6-8, 11-13, 16-18	4-5, 9-10, 14-15, 19-20
T1124	1:2CT	1CT:2	1.2	1.2	.6	.6	35	35	TOU/3	4-5, 9-10, 14-15, 19-20	1-3, 6-8, 11-13, 16-18
T1142 ^F	1:2.4	1:1	1.0	1.0	.5	.5	35	35	TOU/6	1-2, 8-9, 11-12, 18-19	24-25, 27-28, 34-35, 37-38

Mechanical

TOU



Weight 4.0 grams
Tape & Reel250/reel
Tube15/tube

Dimensions: Inches
mm
Unless otherwise specified, all tolerances are ± .010
0,25

T1/E1/CEPT/ISDN-PRI TRANSFORMERS

Eight Transformers for Quad T1/E1 Ports

Transformer Selection Guide

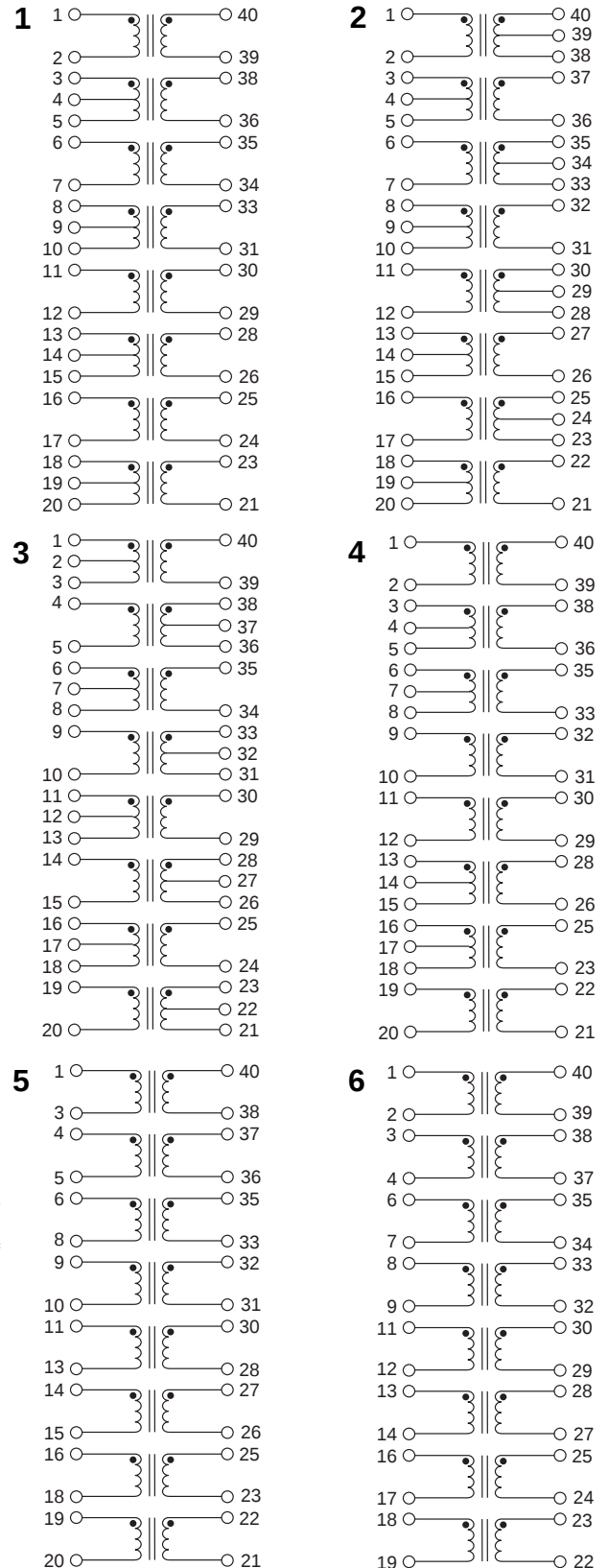


Company	IC Part Number	Comments	Pulse Part Number
Rockwell	BT8370 R8069, R8069A, R8069B	T1, E1 —	T1067 T1068
Crystal	61574 61535A, 61574A, 61575, 6158A 61535A, 61574A, 61575, 6158A 61583 61583 61584, 61584A	T1 & PCM-30 T1 E1 T1/E1 (3.3 V) T1/E1 (5.0 V) IQ3	T1065 T1070 T1065 T1073 T1072 T1065
Dallas	DS2186, DS2187 DS2151, DS2152, DS2153, DS2154 DS21Q352, DS21Q354 DS21Q552, DS21Q554	— T1, E1 3V Quad 5V Quad	T1067 T1067 T1068 T1067
Exar	T5650, T5620, T5675, T5681, T5683 56L22, 56L85, C240, C260, C262, C277 T5793, T5794 T5684 T7288	— — Quad E1 T1 CEPT	T1065 T1065 T1071 T1067 T1067
Level One	LXT300/301/305 LXT304A/305A LXT304A/305A LXT310/311 LXT317/318 LXT317/318 LXT317/318 LXT317/318 LXT331 LXT332 LXT332 LXT334 LXT334 LXT335 LXT360/361/370	— T1 PCM-30/75/120 ^C — T1/E1 T1/E1 (Alternate) T1/E1 (Alternate) E1 E1 E1 (Alternate) Quad E1 Quad T1 Quad E1 T1/E1	T1065 T1070 T1071 T1068 T1065 T1066 T1068 T1068 T1065 T1066 T1066 T1068 T1068 T1067 T1068
Lucent Technologies	T7288 T7289 T7290 T7688 T7689 T7690 T7690	CEPT DS1 T1 & CEPT Quad E1 Quad T1 DS1 CEPT	T1067 T1070 T1067 T1063 T1064 T1064 T1063
PMC-Sierra	PM4341, PM6341 PM4314	— —	T1067 T1067
Siemens	PEB 2254 PEB 22554	— —	T1069 T1142
VLSI	VP14Q574 VP14Q574 VP14Q575 VP14Q575	T1 E1 T1 E1 75	T1070 T1070 T1070 T1070

NOTES FROM TABLES

- A. OCL (primary inductance) is measured at the primary winding. Turns ratio is specified primary:secondary. (CT = Center Tap).
- B. To make a 1CT:1 ratio from a 1CT:2CT ratio, use only one-half of the secondary (2CT) winding.
- C. It is possible to use the same transformer model for the three impedance levels of T1 (100 Ω) and CEPT (75 Ω & 120 Ω). For specific connection information and resistor values, refer to IC vendors' data book.
- D. Dual Ratio Transformer (**T1071**) — This transformer has tapped secondary windings to provide 2 turns ratios (T/R). Use the entire primary winding and connect the secondary pins listed below to obtain desired turns ratio:
- | Part Number | Turns Ratio 1 | Secondary Pins | Turns Ratio 2 | Secondary Pins |
|--------------|---------------|----------------|---------------|----------------|
| T1071 | 1:1 | 39-40 | 1:1.26 | 38-40 |
| | 1:1 | 34-35 | 1:1.26 | 33-35 |
| | 1:1 | 29-30 | 1:1.26 | 28-30 |
| | 1:1 | 24-25 | 1:1.26 | 23-25 |
- E. Standard packaging for the surface mount package is anti-static tubes. Optional Tape & Reel packaging can be ordered by adding a "T" suffix to the part number, (i.e. T1063T).
- F. Safety Agency approvals are pending.

Schematics

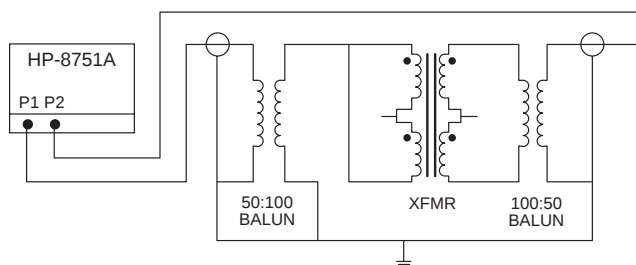


T1/E1/CEPT/ISDN-PRI TRANSFORMERS

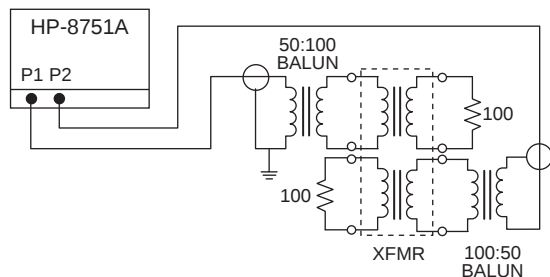
Eight Transformers for Quad T1/E1 Ports



1. **ET Product** — All coils have an ET product of 10 V- μ sec minimum.
2. **Flammability** — Materials used in the products are recognized as UL94-VO approved. Products meet the requirements of IEC 695-2-2 (Needle Flame Test).
3. **Balance Characteristics** — The transformers meet the requirements for longitudinal balance of FCC part 68.
4. **Common Mode Rejection Ratio** — the CMRR for all transformers is better than 50 dB at 1 MHz. A typical test circuit is shown below.
9. **General Information** — The transformers are specifically designed for use in 1.544 Mbps (T1), 2.048 Mbps (CEPT) and ISDN Primary rate (PRI) interface applications. They are matched to the majority of the line interface transceiver ICs currently available. Use of the proper transformer allows the interface circuit to comply with ITU-T G.703 and other standards regarding pulse waveform, return loss, and balance.
10. **Common Mode Chokes** — Additional high-frequency 16-line and 4-line common mode chokes may be used to provide an effective means of complying with national and international regulations on EMI. The common mode chokes are designed to be used in conjunction with Pulse's T1/CEPT transformers as shown in the typical application below. Crosstalk is typically -65 dB or better.



5. **Crosstalk Attenuation** — In the packages which contain transmit and receive transformers side by side, sufficient crosstalk attenuation is achieved by the inherent characteristics of the toroid cores as well as by their proper positioning. The crosstalk attenuation is typically 65 dB or better. This result was established with the test circuit shown below.



6. **Return Loss** — ITU-T G.703 and European national regulatory documents specify minimum return loss levels. The transformers will allow these limits to be complied within the situations where they are applicable.

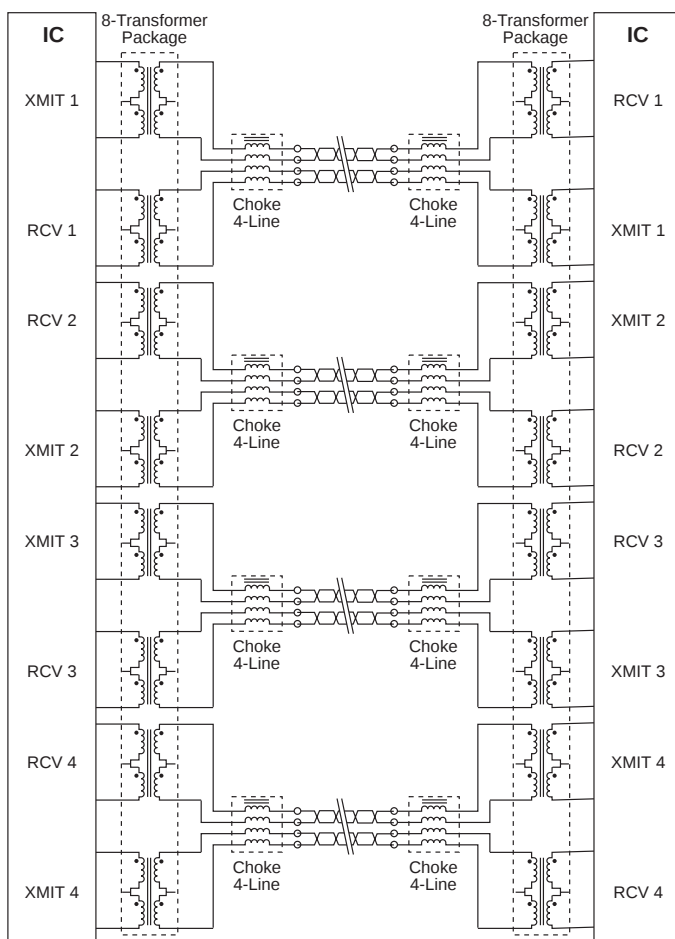
Frequency	50-100 KHz	100 KHz-2 MHz	2-3 MHz
Return Loss			
XMIT	9 dB	15 dB	11 dB
RCV	12 dB	18 dB	14 dB

7. **Surge Voltage Capability** — All transformers and chokes meet surge voltage tests according to the most stringent regulatory documents, when used with the proper voltage and current suppression devices:

Metallic Voltage: 800 V peak, 10/560 μ sec
Longitudinal Voltage: 2,400 V peak, 10/700 μ sec

8. **Isolation Voltage** — 100% of transformers are tested during production to the specified isolation voltage level.

Typical Application



T1/E1/CEPT/ISDN-PRI TRANSFORMERS

Eight Transformers for Quad T1/E1 Ports



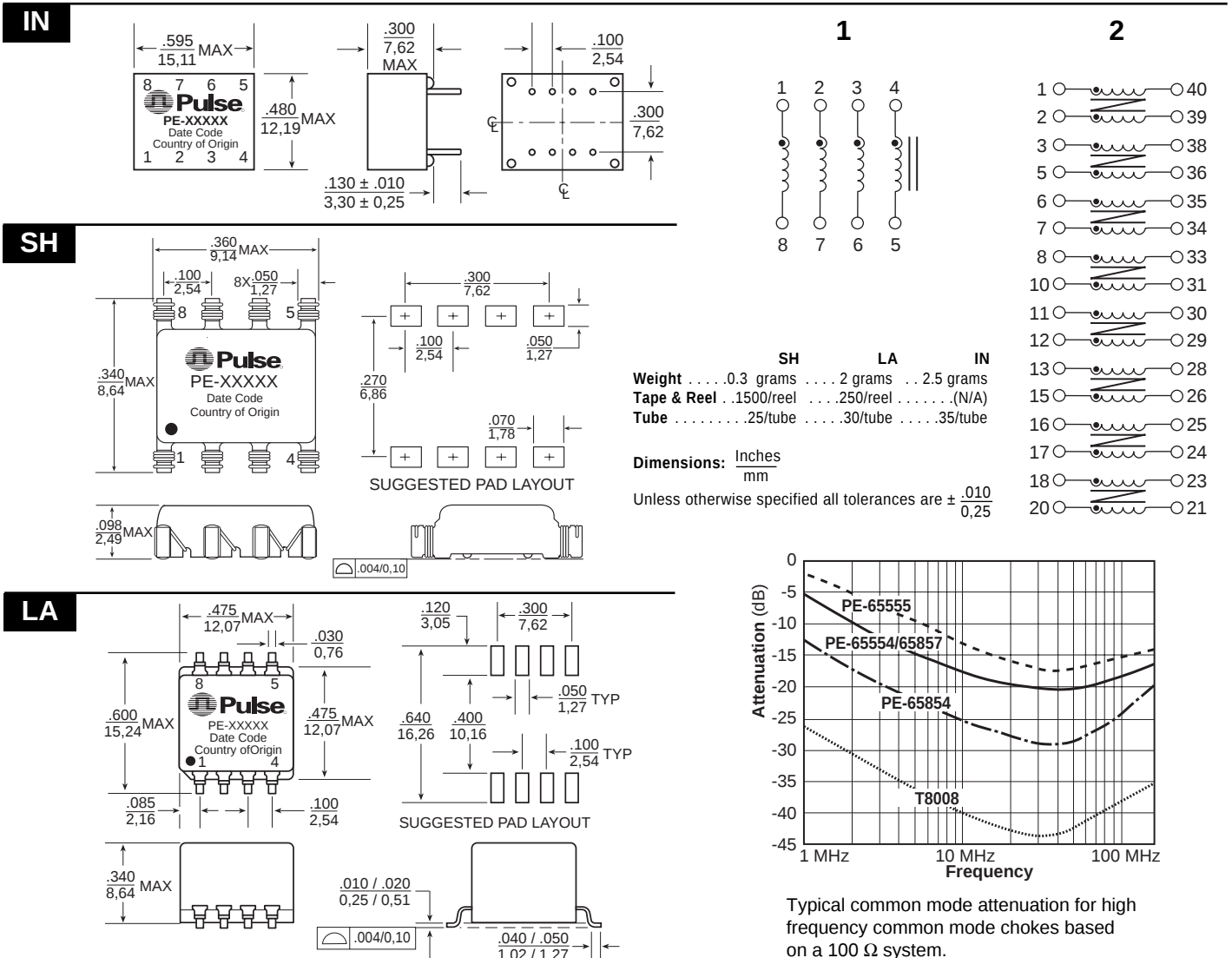
Electrical Specifications @ 25°C — Operating Temperature 0°C to 70°C

Pulse Part Number	Number of Lines	Turns Ratio (±5%)	OCL (μH MIN)	C _{w/w} (pF MAX)	L _L (μH MAX)	DCR (Ω MAX)	Isolation (Vrms MIN)	Package/ Schematic
HIGH FREQUENCY COMMON MODE CHOKES								
T8008	16 (8 x 2 line)	1:1 (8 places)	47.0	25	.18	0.40	500	TOU/2 (Surface Mount)
PE-65554	4	1:1:1:1	24.0	15	.20	0.30	500	IN/1 (Through Hole)
PE-65555	4	1:1:1:1	8.0	10	.20	0.25	500	IN/1 (Through Hole)
PE-65854	4	1:1:1:1	47.0	16	.20	0.30	500	SH/1 (Surface Mount)
PE-65857	4	1:1:1:1	24.0	15	.23	0.30	500	LA/1 (Surface Mount)

NOTE: For additional Common Mode Chokes, refer to data sheet G002.

Mechanicals

Schematics



Corporate

12220 World Trade Drive
San Diego, CA 92128
Tel: 619 674 8100
FAX: 619 674 8262
<http://www.pulseeng.com>
Quick-Facts: 619 674 9672

Europe

1 & 2 Huxley Road
The Surrey Research Park
Guildford, Surrey GU2 5RE
United Kingdom
Tel: 44 1483 401700
FAX: 44 1483 401701

Asia

150 Kampong Ampat
#07-01/02
KA Centre
Singapore 368324
Tel: 65 287 8998
FAX: 65 280 0080

Distributor

Performance warranty of products offered on this data sheet is limited to the parameters specified. Data is subject to change without notice. Other brand and product names mentioned herein may be products and/or registered trademarks of their respective owners.