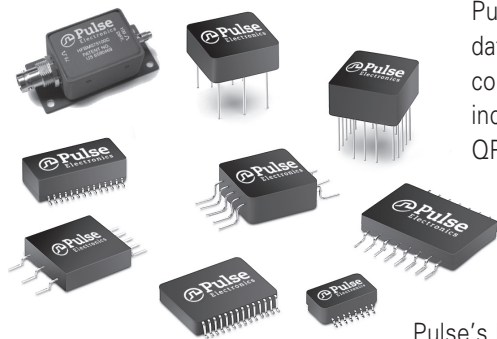


# MILITARY/AEROSPACE PRODUCTS



Pulse is one of the leading manufacturers of magnetic interface transformers, data bus couplers, delay lines, ethernet transformers, and custom electronic components for Military/Aerospace applications. Both catalog and custom designs include a comprehensive range of high-performance solutions and packaging for QPL and non-QPL MIL-STD-1553 interface transformers, various MIL-STD-1553

Data Bus Couplers and QPL and non-QPL active and passive delay lines. In addition, Copperhead transformers and transceivers support a variety of high-speed applications that includes Fibre Channel, Gigabit Ethernet, SONET, HDTV, IEEE1394B, SMTPE, Ethernet and AFDX buses.

Pulse's Military/Aerospace products are designed to meet the most demanding requirements for military, aerospace and industrial applications. For catalog and/or custom designed products, contact Pulse's Military/Aerospace Division at 215-781-6400 or find an authorized distributor or representative on the Pulse website.

## HIGH SPEED DATA BUS

### Copperhead™ Series Transceiver Line Interface Modules

#### High Speed Data and Communications over 100+ Meters of Copper

- Withstands infrared and vapor phase soldering
- Military temperature range -55°C to +125°C
- Low transmit/receive jitter
- Low power dissipation; 450 mW typical
- ECL logic interface
- Surface mount – pick-and-place compatible

**Applications:** Fibre Channel, Gigabit Ethernet, SONET, HDTV, IEEE 1394B, SMTPE

#### Ordering Information<sup>1</sup>

<b>TM</b>	<b>531</b>	<b>D</b>	<b>S</b>	<b>A</b>	<b>1</b>	<b>(XX)</b>	
							(XX) – Customer product designator
					<b>blank</b>		– No transmit driver
					<b>1</b>		– 1100 mV output transmit driver and military temperature range
					<b>2</b>		– 1100 mV output transmit drive and industrial temperature range
					<b>5</b>		– Active cable equalizer circuit
				<b>A</b>			– 5.00 Volt
				<b>B</b>			– 3.30 Volt
			<b>S</b>				– Impedance matched for STP and Twinax (150 Ω)
			<b>U</b>				– Impedance matched for Unshielded Twisted Pair (100 Ω)
			<b>V</b>				– Impedance matched for Video and Mini-Coax (75 Ω)
			<b>C</b>				– Impedance matched for Coax (50 Ω)
		<b>D</b>					– Gull wing, DIP, 28-pin package: 0.800"L x 0.400"W x 0.200"H
		<b>F</b>					– Gull wing, flatpack, 28-pin package: 0.760"L x 0.610"W x 0.125"H
		<b>H</b>					– Gull wing, half-DIP, 16-pin package: 0.300"L x 0.500"W x 0.250"H
	<b>133</b>						– 132.8125 Mbaud version, 1/8 Speed Fibre Channel/ATM
	<b>266</b>						– 265.625 Mbaud version, 1/4 Speed Fibre Channel
	<b>531</b>						– 531.25 Mbaud version, 1/2 Speed Fibre Channel
	<b>1062</b>						– 1.0625 Gbaud version, Full Speed Fibre Channel
	<b>1250</b>						– 1.250 Gbaud version, Gigabit Ethernet (both short haul and long haul)
	<b>1485</b>						– 1.485 Gbaud version, SMPTE (16-pin package is only available on passive units.)
	<b>2125</b>						– 2.125 Gbaud Double Speed Fiber Channel

1. See data sheet "Copperhead™ Series Fibre Channel Transceiver Line Interface Module" (fibre.pdf) on the data sheet menu at [www.pulseelectronics.com](http://www.pulseelectronics.com).

#### Copperhead™ Series<sup>1,2</sup>

Part Number	Package L/W/H	Turns Ratio (±5%)	Primary Inductance (μH MIN)	Rise Time (ps MAX @ 20-80%)	DC Resistance (Ω MAX)	Hipot (V <sub>RMS</sub> MIN)	Insertion Loss (dB MAX)	Application Nominal Bit Rate (Mbaud)
T-330SCT	.500/.435/.180	1CT:1CT	26.0 @ 1.0 VRMS, 100 kHz	350	0.2	1500	-1.5 (15-165 MHz)	265.625 (quarter speed)
T-531SCT	.500/.435/.180	1CT:1CT	7.5 @ 1.0 VRMS, 100 kHz	325	0.2	1500	-2.0 (50-265 MHz)	531 (half speed)
T-1062SCT	.500/.435/.180	1CT:1CT	3.75 @ 1.0 VRMS, 100 kHz	280	0.2	1500	-2.0 (100-625 MHz)	1062.50 (full speed)
T-1250SCT	.500/.435/.180	1CT:1CT	3.75	280	0.2	1500	-2.0	1250
T-1485SCT	.500/.435/.180	1CT:1CT	3.75	280	0.2	1500	-2.0	1485 (SMPTE)
T-3200SCT	.500/.375/.235	1:1	0.70	200	0.2	1500	-4.50	3200

1. Web: <http://www.pulseelectronics.com> home page, click on "DATA SHEETS." Then select Military Aerospace, "CopperHead™ High Speed Dual Transformers" (M105.pdf).

2. Dual Transformers designed specifically for Point-to-Point Coupling to 150 Ω Twinax Cable: **Withstands** infrared and vapor phase soldering; **Military Temp Range** = -55°C to +125°C; **Weight** = 1.0 grams; **Surface Mount** = pick-and-place compatible. **Applications:** Fibre Channel, Gigabit Ethernet, SONET, HDTV, IEEE 1394B, SMTPE.

3. Parts can be ordered RoHS.

**Application Notes:** These isolation transformers protect the station from static charges that may develop on the cable and prevent ground loop currents from being transferred between stations. They have also been designed to provide common mode rejection within the transmission band, reducing EMI.

SM = Surface Mount

# MILITARY/AEROSPACE PRODUCTS

## IEEE 1394B FIREWIRE 1.062GB TRANSCEIVER LINE

Part Number	Transmit/Receive Data Rate (Mb/s)		Transmit Differential Signal Level - Vout			Total Power Dissipation (mW) TYP	Receive Turns Ratio TYP	Receive Primary Inductance - Lm (uH) MIN	Receive Insertion Loss (dB) -2 MAX	Transmit/Receive Return Loss (dB) -12 MIN	Package L/W/H (in.)	Data Sheet
	MIN	MAX	MIN	TYP	MAX							
TM1062TXDUA	246	1062	1200	1300	1500	232	1:1	4.5	-2 MAX	-12 MIN	.800 / .400 / .200	M103
TM1062TXHUA	246	1062	1200	1300	1500	232	1:1	4.5	-2 MAX	-12 MIN	.510 / .300 / .140	M103
TM1062TX3DUA	246	1062	1200	1300	1500	700	1:1	4.5	-2 MAX	-12 MIN	.800 / .400 / .185	M103
TM125TXHUA	98	246	1200	1300	1500	232	1:1	40	-2 MAX	-12 MIN	.510 / .300 / .140	M103
TM1062DUXB	246	1062	1200	1300	1500	232	1:1	4.5	-2 MAX	-12 MIN	.800 / .400 / .200	M186
TM1062HUXB	246	1062	1200	1300	1500	232	1:1	4.5	-2 MAX	-12 MIN	.510 / .300 / .140	M186
TM1062DU3XB	246	1062	1200	1300	1500	700	1:1	5.5	-2 MAX	-12 MIN	.800 / .400 / .185	M186

## High Frequency Balun Adapters

Part Number	Impedance Unbalanced	Impedance Balanced	Insertion Loss dB MAX 1.485GBs	Jitter Dj pSec. MAX 1.485GBs, P7	Datasheet
HFBM075100C*	75	100	-2.0	110.0	M147
HFB075100A	75	100	-2.0	110.0	M146
HFB075100B	75	100	-2.0	110.0	M146

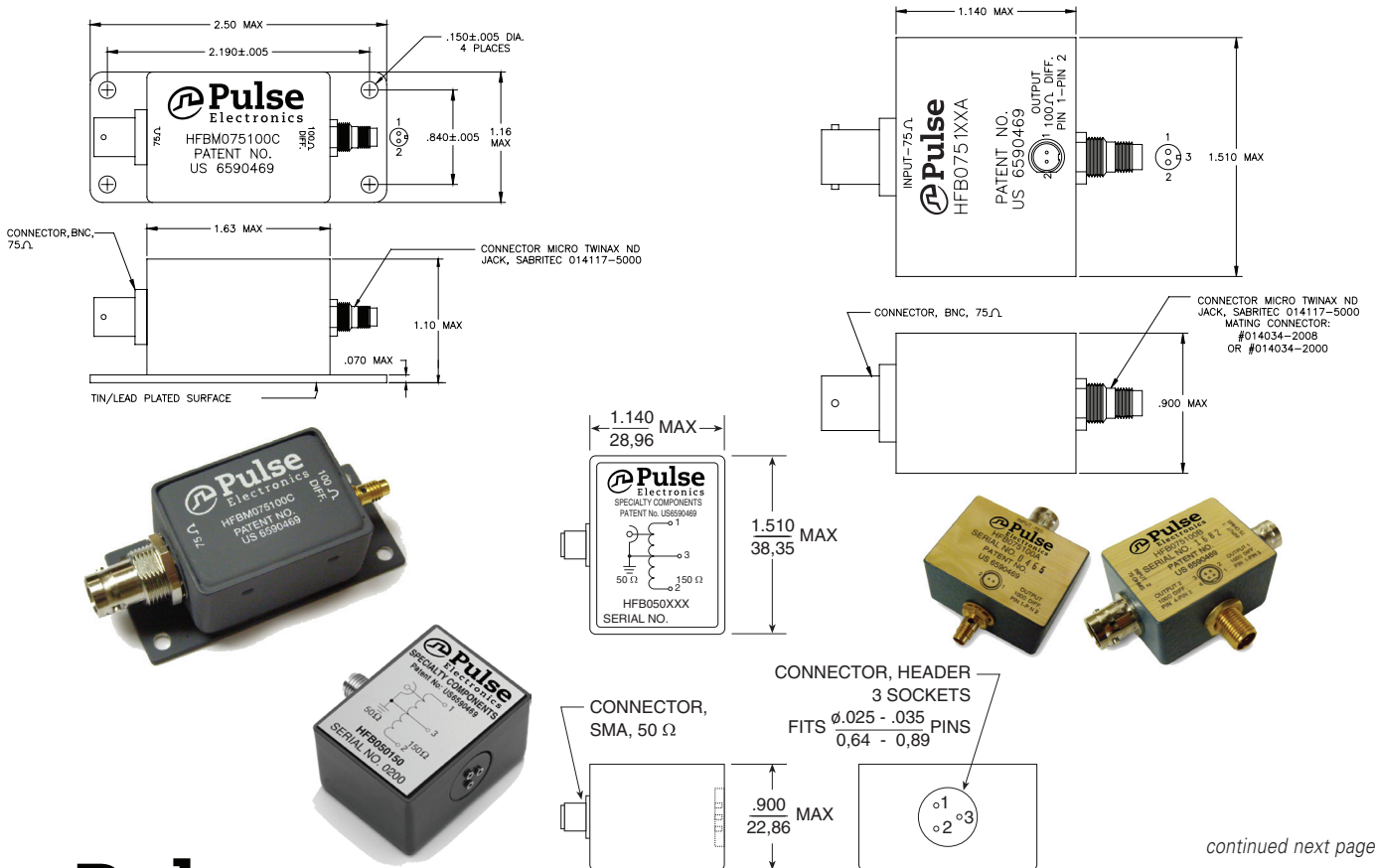
Transforms 100Ω balanced differential signal to 75Ω, Grounded unbalanced signal. Designed for SMPTE-292M HDTV application at 1.485GBs data rate.

\*Designed for flight application with super Environmental, EMI and corrosion protection.

Part Number	Impedance Unbalanced	Impedance Balanced	Insertion Loss dB MAX 1.485GBs	Return Loss (dB MIN) 1.0MHz - 1.2 GHz	Datasheet
HFB050150	50	150	-2	15	M100
HFB050100	50	100	-2	15	M100
HFB050078	50	78	-2	15	M100

Transforms a balanced differential signal to a 50Ω, grounded, unbalanced signal for testing different cable.

Designed for standard test equipment with SMA connectors. Wide bandwidth- 1.0MHz - 1.2GHz



continued next page

# MILITARY/AEROSPACE PRODUCTS

## HIGH SPEED DATA BUS

### T1/E1/CEPT/ISDN-PRI SMT TRANSFORMER

Part Number	Turns Ratio Pri: Sec: ±2%	OCL Pri@25 deg C (µH MIN)	C <sub>ww</sub> (pf MAX)	DCR Pri (Ω MAX)	Primary Pins	Package L/W/H	Datasheet
PL1374	1CT:1CT	1.2	35	.8	1-3	.275 / .275 / .250	M119

## MILITARY/AEROSPACE ETHERNET/AFDX

### 10/100

Number of Ports	Part Number	Turns Ratio	Configuration <sup>1</sup>		Style <sup>2</sup>	Package Size L/W/H (in.)	Data Sheet <sup>1</sup>
			RX	TX			
Single	100B-1001F	1CT:1CT	T, C, S	T,C	12-pin SMT	.630/.470/.185	M101
	100B-1001FX	1CT:1CT	T, C, S	T,C	12-pin SMT	.630/.470/.185	M101
	100B-1003F	1CT:1CT	T,C	T,C	16-pin SOIC	.500/.265/.235	M101
	100B-1003FX	1CT:1CT	T,C	T,C	16-pin SOIC	.500/.265/.235	M101
	100B-1018F	1CT:1CT	T,C	T,C,S	12-pin SMT	.583/.470/.180	M189
	100B-1018FX	1CT:1CT	T,C	T,C,S	12-pin SMT	.583/.470/.180	M189
Dual	100B-2002F	1CT:1CT	T, C	T,C	24-pin SMT	.518/.595/.241	M110
	100B-2002FX	1CT:1CT	T, C	T,C	24-pin SMT	.518/.595/.241	M110
Quad	100B-4005F	1CT:1CT	T,C	T,C	40-pin SOIC	1.125/.480/.280	M102
	100B-4005FX	1CT:1CT	T,C	T,C	40-pin SOIC	1.120/.480/.280	M102
	100B-4009F	1CT:1CT	T,C	T,C	40-pin SMT	1.125/.480/.280	M190
	100B-4009FX	1CT:1CT	T,C	T,C	40-pin SMT	1.125/.480/.280	M190
	100B-4011F	1CT:1CT	T,C	T,C	40-pin SMT	1.125/.480/.280	M151
	100B-4011FX	1CT:1CT	T,C	T,C	40-pin SMT	1.125/.480/.280	M151

1. "10/100Base-TX Single-Port Transformer Modules - Military/Aerospace Grade" (M101.pdf) or "10/100Base-TX Quad-Port Transformer Modules - Military/Aerospace Grade" (M102.pdf) at [www.pulseelectronics.com](http://www.pulseelectronics.com).

2. T = Transformer, C = Choke, S = Shunt inductor, SMT = 50 mil pitch leads, SOIC = 100 mil pitch leads

### 10/100/1000

Single	1000B-5001F	1CT:1CT	T, C, S	T, C, S	24-pin SOIC	.695/.635/.230	M106 <sup>1</sup>
	1000B-5001FX	1CT:1CT	T, C, S	T, C, S	24-pin SOIC	.695/.635/.230	M106 <sup>1</sup>
	1000B-5002F	1CT:1CT	T, C, S	T, C, S	24-pin SOIC	.695/.635/.230	M106 <sup>1</sup>
	1000B-5002FX	1CT:1CT	T, C, S	T, C, S	24-pin SOIC	.695/.635/.230	M106 <sup>1</sup>
Dual	1000B-5003F	1CT:1CT	T, C,	T, C,	50-pin SOIC <sup>3</sup>	1.095/.430/.340	M106 <sup>2</sup>
	1000B-5003FX	1CT:1CT	T, C,	T, C,	50-pin SOIC <sup>3</sup>	1.095/.430/.340	M106
Quad	1000B-5012F	1CT:1CT	T, C, S	T, C, S	24-pin SMT	.595/.518/.241	M187
	1000B-5012FX	1CT:1CT	T, C, S	T, C, S	24-pin SMT	.595/.518/.241	M187

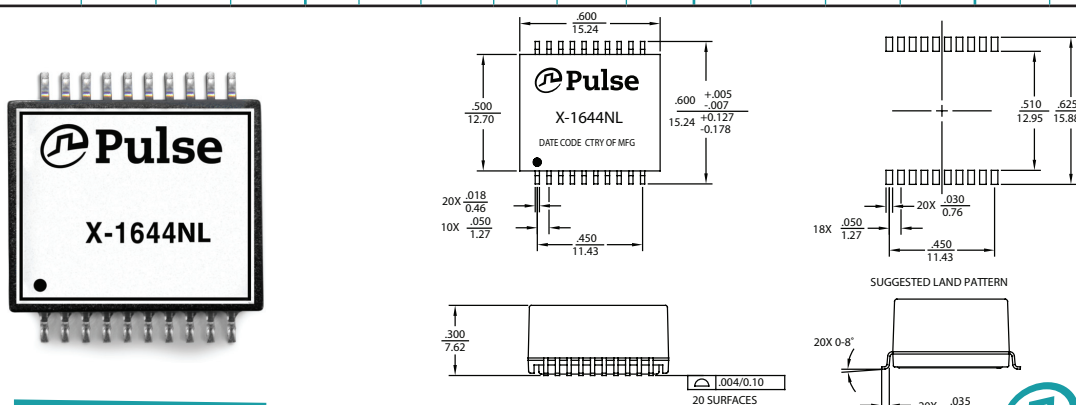
1. Web: [www.pulseelectronics.com](http://www.pulseelectronics.com) home page, pick data sheets "10/100/1000Base-T Single Port Transformer Modules - Military/ space rade" (M106.pdf).

2. T = Transformer, C = Choke, S = Shunt inductor, SMT = 50 mil pitch leads, SOIC = 100 mil pitch leads

3. 0.99mm (0.39") pitch leads

## High Isolation Ethernet

Part Number	Insertion Loss (dB MAX)				Return Loss (dB MIN)						Crosstalk (dB MIN)				Differential to Common Mode Rejection (dB MIN)			
	0.1-30MHz	60MHz	80MHz	100MHz	5MHz	30MHz	50MHz	60MHz	80MHz	100MHz	1MHz	30MHz	60MHz	100MHz	30MHz	60MHz	100MHz	200MHz
X-1644NL	-1	-2	-2.5	-3.5	-18	-9	-6	-5	-3	-2	-45	-30	-27	-25	-36	-32	-30	-25



# MILITARY/AEROSPACE PRODUCTS

## MIL-STD-1553

### Non-QPL, Low Profile and Stacked <sup>1</sup>

Part Number <sup>2</sup>	Turns Ratio (±3%)	Impedance (Ω MIN)	Package* L/W/H (in.)	Data Sheet	Part Number <sup>2</sup>	Turns Ratio (±3%)	Impedance (Ω MIN)	Package* L/W/H (in.)	Data Sheet
FL1553-1	1CT:1CT/1CT:.707CT	4,000	.630/.630/.155	MC118 2,3	DTL1553-45	1CT:2.5CT/1CT:1.79CT	4,000	.930/.630/.155	MC118 2,3
GL1553-1	1CT:1CT/1CT:.707CT	4,000	.630/.630/.155	MC118 2,3	STQ1553-1	1CT:1CT/1CT:.707CT	4,000	.630/.630/.340	MC118 2,3
TL1553-1	1CT:1CT/1CT:.707CT	4,000	.630/.630/.155	MC118 2,3	Q1553-70	1CT:3CT/1CT:2.15CT	4000	.625 / .625 / .250	M128
FL1553-2	1.4CT:1CT/2CT:1CT	7,200	.630/.630/.155	MC118 2,3	STQ1553-2	1.4CT:1CT/2CT:1CT	7,200	.630/.630/.340	MC118 2,3
GL1553-2	1.4CT:1CT/2CT:1CT	7,200	.630/.630/.155	MC118 2,3	STQ1553-3	1.25CT:1CT/1.66CT:1CT	4,000	.630/.630/.340	MC118 2,3
TL1553-2	1.4CT:1CT/2CT:1CT	7,200	.630/.630/.155	MC118 2,3	STQ1553-5	1CT:2.12CT/1CT:1.5CT	4,000	.630/.630/.340	MC118 2,3
FL1553-3	1.25CT:1CT/1.66CT:1CT	4,000	.630/.630/.155	MC118 2,3	STQ1553-45	1CT:2.5CT/1CT:1.79CT	4,000	.630/.630/.340	MC118 2,3
GL1553-3	1.25CT:1CT/1.66CT:1CT	4,000	.630/.630/.155	MC118 2,3	SFQ1553-1	1CT:1CT/1CT:.707CT	4,000	.630/.630/.340	MC118 2,3
TL1553-3	1.25CT:1CT/1.66CT:1CT	4,000	.630/.630/.155	MC118 2,3	SGQ1553-1	1CT:1CT/1CT:.707CT	4,000	.630/.630/.340	MC118 2,3
FL1553-5	1CT:2.12CT/1CT:1.5CT	4,000	.630/.630/.155	MC118 2,3	SFQ1553-2	1.4CT:1CT/2CT:1CT	7,200	.630/.630/.340	MC118 2,3
GL1553-5	1CT:2.12CT/1CT:1.5CT	4,000	.630/.630/.155	MC118 2,3	SGQ1553-2	1.4CT:1CT/2CT:1CT	7,200	.630/.630/.340	MC118 2,3
TL1553-5	1CT:2.12CT/1CT:1.5CT	4,000	.630/.630/.155	MC118 2,3	SFQ1553-3	1.25CT:1CT/1.66CT:1CT	4,000	.630/.630/.340	MC118 2,3
FL1553-45	1CT:2.5CT/1CT:1.79CT	4,000	.630/.630/.155	MC118 2,3	SGQ1553-3	1.25CT:1CT/1.66CT:1CT	4,000	.630/.630/.340	MC118 2,3
GL1553-45	1CT:2.5CT/1CT:1.79CT	4,000	.630/.630/.155	MC118 2,3	SFQ1553-5	1CT:2.12CT/1CT:1.5CT	4,000	.630/.630/.340	MC118 2,3
TL1553-45	1CT:2.5CT/1CT:1.79CT	4,000	.630/.630/.155	MC118 2,3	SGQ1553-5	1CT:2.12CT/1CT:1.5CT	4,000	.630/.630/.340	MC118 2,3
DFL1553-1	1CT:1CT/1CT:.707CT	4,000	.930/.630/.155	MC118 2,3	SFQ1553-45	1CT:2.5CT/1CT:1.79CT	4,000	.630/.630/.340	MC118 2,3
DGL1553-1	1CT:1CT/1CT:.707CT	4,000	.930/.630/.155	MC118 2,3	SGQ1553-45	1CT:2.5CT/1CT:1.79CT	4,000	.630/.630/.340	MC118 2,3
DTL1553-1	1CT:1CT/1CT:.707CT	4,000	.930/.630/.155	MC118 2,3	SLQG1553-1	1CT:1CT/1.4CT:1CT	4,000	.630/.630/.280	M104 2
DFL1553-2	1.4CT:1CT/2CT:1CT	7,200	.930/.630/.155	MC118 2,3	SLQG1553-2	1.4CT:1CT/2CT:1CT	7,200	.630/.630/.280	M104 2
DGL1553-2	1.4CT:1CT/2CT:1CT	7,200	.930/.630/.155	MC118 2,3	SLQG1553-3	1.25CT:1CT/1.66CT:1CT	4,000	.630/.630/.280	M104 2
DTL1553-2	1.4CT:1CT/2CT:1CT	7,200	.930/.630/.155	MC118 2,3	SLQG1553-5	1CT:2.12CT/1CT:1.5CT	4,000	.630/.630/.280	M104 2
DFL1553-3	1.25CT:1CT/1.66CT:1CT	4,000	.930/.630/.155	MC118 2,3	SLQG1553-45	1CT:2.5CT/1CT:1.79CT	4,000	.630/.630/.280	M104 2
DGL1553-3	1.25CT:1CT/1.66CT:1CT	4,000	.930/.630/.155	MC118 2,3	SLQT1553-1	1CT:1CT/1.4CT:1CT	4,000	.630/.630/.280	M104 2
DTL1553-3	1.25CT:1CT/1.66CT:1CT	4,000	.930/.630/.155	MC118 2,3	SLQT1553-2	1.4CT:1CT/2CT:1CT	7,200	.630/.630/.280	M104 2
DFL1553-5	1CT:2.12CT/1CT:1.5CT	4,000	.930/.630/.155	MC118 2,3	SLQT1553-3	1.25CT:1CT/1.66CT:1CT	4,000	.630/.630/.280	M104 2
DGL1553-5	1CT:2.12CT/1CT:1.5CT	4,000	.930/.630/.155	MC118 2,3	X-1584	1CT:1.79CT	3,000	.500/.350/.172	M157
DTL1553-5	1CT:2.12CT/1CT:1.5CT	4,000	.930/.630/.155	MC118 2,3	X-1596	1CT:2.5CT	3,000	.500/.350/.173	M157
DFL1553-45	1CT:2.5CT/1CT:1.79CT	4,000	.930/.630/.155	MC118 2,3	SMQT1553-70	1CT:3CT/1CT:2.15CT	4,000	.625/.625/.251	M128
DGL1553-45	1CT:2.5CT/1CT:1.79CT	4,000	.930/.630/.155	MC118 2,3					

\*Mounting: FP = Flat Pack TH = Through Hole SM = Surface Mount

1. **Designed** and built to conform to MIL-PRF-21038/27

2. **Prefix/Operating Temperature** : C / 0°C to +70°C ; N / -40°C to +85°C; TQ / -55°C to +125°C

continued next page

# MILITARY/AEROSPACE PRODUCTS

## MIL-STD-1553 (continued)

### Non-QPL, Low Profile and Stacked (continued)<sup>1</sup>

Part Number	Turns Ratio (±3%)	Impedance (Ω MIN)	Package* L/W/H (in.)	Data Sheet <sup>2</sup>
SLOT1553-5	1CT:2.12CT/1CT:1.5CT	4,000	.630/.630/.280	M104
SLOT1553-45	1CT:2.5CT/1CT:1.79CT	4,000	.630/.630/.280	M104
SLOF1553-1	1CT:1CT/1.4CT:1CT	4,000	.630/.630/.280	M104
SLOF1553-2	1.4CT:1CT/2CT:1CT	7,200	.630/.630/.280	M104
SLOF1553-3	1.25CT:1CT/1.66CT:1CT	4,000	.630/.630/.280	M104
SLOF1553-5	1CT:2.12CT/1CT:1.5CT	4,000	.630/.630/.280	M104
SLOF1553-45	1CT:2.5CT/1CT:1.79CT	4,000	.630/.630/.280	M104

1. **Designed** and built to conform to MIL-PRF-21038/27
2. <http://www.pulseelectronics.com>: home page, pick DATA SHEETS "Non-QPL MIL-STD-1553 Interface Transformers" (N\_QPL\_Cat2\_links.pdf) or "MIL-STD-1553 InterfaceTransformers - Low profile/Stacked/Dual Ratio" (M104.pdf).

### Interface Transformers — COTS Series<sup>1,2</sup>

Part Number	Turns Ratio (±3%)	Impedance (Ω MIN)	Package* (L/W/H) in.	Data <sup>3</sup> Sheet
x1553-1	1CT:1CT/1CT:.707CT	4,000	.625/.625/.250	MC118
x1553-2	1.4CT:1CT/2CT:1CT	7,200	.625/.625/.250	MC118
x1553-3	1.25CT:1CT/1.66CT:1CT	4,000	.625/.625/.250	MC118
x1553-5	1CT:2.12CT/1.5CT:1CT	4,000	.625/.625/.250	MC118
x1553-45	1CT:2.5CT/1CT:1.79CT	4,000	.625/.625/.250	MC118

1. **Designed** and built to conform to MIL-PRF-21038/27
2. **Prefix/Operating Temperature:** C/0°C to +70°C; N/-40°C to +85°C; TQ/-55°C to +125°C
3. **Web:** <http://productfinder.pulseeng.com/products/datasheets/MC118.pdf>

### Interface Transformers — Low Profile Miniature Series

Part Number	Turns Ratio (±3%)	Impedance (Ω MIN)	Package* (L/W/H) in.	Data Sheet
SMG1553-60	1.25CT:1CT	4,000	.400/.400/.185	M112
SMG1553-61	1.66CT:1CT	4,000	.400/.400/.185	M112
SMG1553-62	1.41CT:1CT	7,200	.400/.400/.185	M112
SMG1553-63	2CT:1CT	7,200	.400/.400/.185	M112
SMG1553-65	1CT:1.79CT	4,000	.400/.400/.185	M112
SMG1553-66	1CT:2.7CT	4,000	.400/.400/.185	M112

\*Mounting: FP = Flat Pack TH = Through Hole SM = Surface Mount

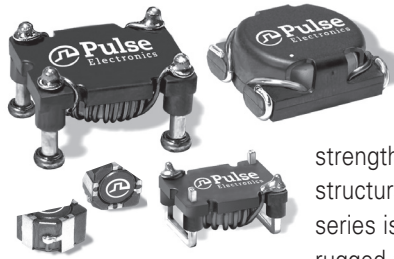
### QPL Series — Qualified to MIL-PRF-21038/27

Part 1 Number	Military Designation Number	Turns Ratio (±3%)	Impedance (Ω MIN)	Package* L/W/H (in.)	Data <sup>2</sup> Sheet
Q1553-20	M21038/27-05	1:1.41	3,000	.500/.350/.250	MC118
Q1553-21	M21038/27-06	1CT:1CT	3,000	.500/.350/.250	MC118
Q1553-22	M21038/27-07	1CT:1.41CT	3,000	.500/.350/.250	MC118
Q1553-23	M21038/27-08	1CT:1.66CT	3,000	.500/.350/.250	MC118
Q1553-24	M21038/27-09	1CT:2CT	3,000	.500/.350/.250	MC118
Q1553-25	M21038/27-28	1CT:1.5CT	3,000	.500/.350/.250	MC118
Q1553-51	M21038/27-29	1CT:1.79CT	3,000	.500/.350/.250	MC118
Q1553-52	M21038/27-30	1CT:2.5CT	3,000	.500/.350/.250	MC118
Q1553-1	M21038/27-01	1CT:1CT/1CT:.707CT	4,000	.625/.625/.250	MC118
Q1553-2	M21038/27-02	1.4CT:1CT/2CT:1CT	7,200	.625/.625/.250	MC118
Q1553-3	M21038/27-03	1.25CT:1CT/1.66CT:1CT	4,000	.625/.625/.250	MC118
Q1553-5	M21038/27-10	1CT:2.12CT/1CT:1.5CT	4,000	.625/.625/.250	MC118
Q1553-45	M21038/27-26	1CT:2.5CT/1CT:1.79CT	4,000	.625/.625/.275	MC118
Q1553-81	M21038/27-21	1CT:1CT/1CT:.707CT	4,000	.625/.625/.275	MC118
Q1553-82	M21038/27-22	1.4CT:1CT/2CT:1CT	7,200	.625/.625/.275	MC118
Q1553-83	M21038/27-23	1.25CT:1CT/1.66CT:1CT	4,000	.625/.625/.275	MC118
Q1553-84	M21038/27-24	1CT:2.12CT/1CT:1.5CT	4,000	.625/.625/.275	MC118
Q1553-85	M21038/27-25	1CT:2.5CT/1CT:1.79CT	4,000	.625/.625/.275	MC118
FPQ1553-6	M21038/27-16	1CT:1CT/1CT:.707CT	4,000	.625/.625/.250	MC118
SMQ1553-6	M21038/27-11	1CT:1CT/1CT:.707CT	4,000	.625/.625/.250	MC118
FPQ1553-7	M21038/27-17	1.4CT:1CT/2CT:1CT	7,200	.625/.625/.250	MC118
SMQ1553-7	M21038/27-12	1.4CT:1CT/2CT:1CT	7,200	.625/.625/.250	MC118
FPQ1553-8	M21038/27-18	1.25CT:1CT/1.66CT:1CT	4,000	.625/.625/.250	MC118
SMQ1553-8	M21038/27-13	1.25CT:1CT/1.66CT:1CT	4,000	.625/.625/.250	MC118
FPQ1553-10	M21038/27-20	1CT:2.12CT/1CT:1.5CT	4,000	.625/.625/.250	MC118
SMQ1553-10	M21038/27-15	1CT:2.12CT/1CT:1.5CT	4,000	.625/.625/.250	MC118
FPQ1553-45	M21038/27-31	1CT:2.5CT/1CT:1.79CT	4,000	.625/.625/.250	MC118
SMQ1553-45	M21038/27-27	1CT:2.5CT/1CT:1.79CT	4,000	.625/.625/.250	MC118
Q1553-70	M21038	1CT:3CT/1CT:2.15CT	4,000	.625/.625/.250	M128
SMQ1553-70	M21038	1CT:3CT/1CT:2.15CT	4,000	.625/.625/.250	M128
GL1553-71	M21038	1CT:3.54CT/1CT:2.50CT	4,000	.630/.630/.155	M128
DGL1553-71	M21038	1CT:3.54CT/1CT:2.5CT	4,000	.930/.630/.155	M128
TQ1553-7	M21038	1CT:3.54CT/1CT:2.5CT	4,000	.625/.625/.250	M128

1. **Part number options:** C and T level QPL testing (xxQC1553-xx, xxQT1553-xx, M21038/27-xxC, M21038/27-xxT).
2. **Web:** Go to [www.pulseelectronics.com](http://www.pulseelectronics.com) home page, select "DATA SHEETS" on the right-hand navigation bar and from the menu select Military/Aerospace and then click on MC118.
3. **Summary Performance Specifications:**
  - Droop** = 20%
  - Overshoot** = ±1 V MAX;
  - Common Mode Rejection** = 45 dB
  - Frequency Range** (no load) = 75 kHz to 1 MHz
  - Operating Temperature Range** = -55°C to +130°C
  - Weight** = 5 grams
  - Insulation Resistance** = 10 kMΩ @ 250 Vdc



# MILITARY/AEROSPACE PRODUCTS



Pulse offers off-the-shelf inductors and transformers for modern military and aerospace power applications: the SLED™, the SLIC, and the POGO™ series. The SLED series consists of rail-mount inductors with a ruggedized header for durable board connections, utilizing two rails for board mounting and cores bonded to high temperature headers for durability and mechanical strength. The SLIC series, self-leaded transformers and inductors, has ruggedized construction. The structural header is bonded to the cores and lead wires, increasing mechanical durability. The POGO series is made up of pad-mounted inductors with open construction for robust board mounting and rugged pins used for both surface board mounting and electrical connection.

Pulse also offers shielded drum core inductors, including ruggedized mounting hardware to improve board mounting performance for enhanced mechanical durability. These inductors eliminate the use of pure tin plating for compliance with military and aerospace requirements. A variety of inductances and current capacity is offered in five different physical sizes to meet the majority of system

## OFF-THE-SHELF POWER INDUCTORS & TRANSFORMERS

Toroid Power Inductors - SLED Series						
Part Number	@ I <sub>RATED</sub> (μH)	I <sub>RATED</sub> (A)	DCR (mΩ MAX)	Inductance @0A <sub>DC</sub> (μH)	Package* L/W/H (in.)	Data Sheet
<b>SLED 20</b>						
PL8100	1.01	3.40	11	1.1	.400/.345/.250	M107
PL8101	6.2	1.40	70	7	.400/.345/.250	M107
PL8102	17.6	1.00	125	22.7	.400/.345/.250	M107
<b>SLED 30</b>						
PL8110	3.8	4.80	17.3	5.2	.625/.525/.400	M107
PL8111	9.4	2.80	43.4	12.3	.625/.525/.400	M107
PL8112	29.7	1.40	166	35.3	.625/.525/.400	M107
PL8113	114	0.94	380	167	.625/.525/.400	M107
<b>SLED 40</b>						
PL8120	2.5	8.00	8.3	3.8	.725/.575/.410	M107
PL8121	5.1	5.40	17.7	7.5	.725/.575/.410	M107
PL8122	16.2	2.70	72	21.9	.725/.575/.410	M107
PL8123	58.1	1.30	290	73	.725/.575/.410	M107
PL8124	192	0.90	560	292	.725/.575/.410	M107
PL8125	383	0.72	862	672	.725/.575/.410	M107
PL8130	4.9	7.80	12.4	7.9	.725/.575/.410	M107
PL8131	9	5.50	28	14	.725/.575/.410	M107
PL8132	29.1	2.70	100	40.5	.725/.575/.410	M107
PL8133	645	0.74	1250	1134	.725/.575/.410	M107
PL8150	0.81	14.30	2.5	1.25	.725/.575/.410	M107
PL8151	1.32	11.50	4.0	2.1	.725/.575/.410	M107
<b>SLED 50</b>						
PL8140	9.3	7.20	18.7	16	.900/.690/.520	M107
PL8141	16.1	5.10	32.0	25.9	.900/.690/.520	M107
PL8142	50	2.60	133	72.9	.900/.690/.520	M107
PL8143	x1070	0.71	1700	1950	.900/.690/.520	M107
PL8160	1.68	13.90	3.6	2.8	.900/.690/.520	M107
PL8161	2.5	11.40	5.4	4.2	.900/.690/.520	M107
PL8170	3.5	12.40	6.6	6.5	.900/.690/.520	M107
PL8171	4.7	10.40	8.3	8.4	.900/.690/.520	M107

SMT Common Mode Chokes: SLIC Series					
Part Number	Inductance (mH ±35%)	I <sub>RATED</sub> (A)	DCR (mΩ MAX)	Package* L/W/H (in.)	Data Sheet
<b>SLIC Series, Common Mode Chokes</b>					
PL8200	0.47	14.0	8	1.220/1.000/500	M108
PL8201	0.63	11.6	10	1.220/1.000/500	M108
PL8202	0.81	9.70	14	1.220/1.000/500	M108
PL8203	0.53	7.20	15	1.110/1.000/395	M108
PL8204	0.59	5.60	21	.770/670/395	M108
PL8205	0.77	4.70	40	.770/670/395	M108
PL8206	0.22	3.30	60	.770/670/390	M108
PL8207	1.32	3.30	60	.770/670/395	M108
PL8208	1.47	2.80	80	.770/670/395	M108
PL8209	0.88	1.63	110	.500/500/215	M108
PL8210	1.17	1.22	200	.500/500/215	M108

SMT Power Inductors: SLIC (HCCI-80) Series						
Part Number	@ I <sub>RATED</sub> (μH)	I <sub>RATED</sub> (A)	DCR (mΩ MAX)	Inductance @0A <sub>DC</sub> (μH)	Package* L/W/H (in.)	Data Sheet
<b>SLIC (HCCI) Series</b>						
PL8304 P	1.1	38	1.3	2.1	1.220/1.000/500	M109
PL8303 P	1.6	34	1.6	3.5	1.220/1.000/500	M109
PL8302 P	2.45	27	2.5	5.1	1.2 20/1.000/500	M109
PL8301 P	3.2	24	3.5	7.2	1.220/1.000/500	M109
PL8304 S	4.3	19	5.1	8.4	1.220/1.000/500	M109
PL8300 P	4.52	19	4.8	9.5	1.220/1.000/500	M109
PL8303 S	6.4	17	6.4	13.8	1.220/1.000/500	M109
PL8302 S	9.8	13.5	10.1	20.4	1.220/1.000/500	M109
PL8301 S	12.8	12	13.8	28.7	1.220/1.000/500	M109
PL8300 S	18.1	9.5	19.3	38.0	1.220/1.000/500	M109

1. Connection: P = Parallel, S = Series

SMT Power Inductors: Toroid, SLED Series						
<b>SLED 25</b>						
PL8500	9.4	3.8	32	10.4	.625/.525/.310	M113
PL8501	13.3	3.2	46	14.6	.625/.525/.310	M113
PL8502	23	2.4	74	25	.625/.525/.310	M113
PL8503	50	1.6	135	56	.625/.525/.310	M113
PL8504	75	1.3	220	83	.625/.525/.310	M113
PL8505	90	1.2	285	100	.625/.525/.310	M113
PL8506	137	1	425	152	.625/.525/.310	M113
PL8507	200	.82	673	220	.625/.525/.310	M113
PL8508	305	.66	972	331	.625/.525/.310	M113
PL8509	439	.56	1520	472	.625/.525/.310	M113

SMT Power Inductors: Toroid, POGO Series						
<b>POGO 25</b>						
PL8600 P	2.0	8.30	7.6	2.2	.625/.525/.310	M114
PL8601 P	2.4	7.20	10.9	2.6	.625/.525/.310	M114
PL8602 P	5.0	5.20	19.0	5.5	.625/.525/.310	M114
PL8600 S	7.0	4.16	16.0	8.75	.625/.525/.310	M114
PL8603 P	9.3	3.80	29.8	10.4	.625/.525/.310	M114
PL8601 S	8.4	3.78	21.8	10.4	.625/.525/.310	M114
PL8604 P	14.1	3.10	45.3	15.7	.625/.525/.310	M114
PL8605 P	19.8	2.6	66.3	22.1	.625/.525/.310	M114
PL8602 S	17.9	2.6	38.0	22.45	.625/.525/.310	M114
PL8606 P	29.3	2.20	106	32.8	.625/.525/.310	M114
PL8603 S	33.8	1.89	60	41.7	.625/.525/.310	M114
PL8607 P	42.6	1.80	151	47.6	.625/.525/.310	M114
PL8604 S	50.9	1.54	91	62.8	.625/.525/.310	M114
PL8608 P	61.3	1.50	224	67.5	.625/.525/.310	M114
PL8605 S	71.5	1.30	133	88.2	.625/.525/.310	M114

1. Connection: P = Parallel, S = Series

(continued next page)

\*SM = Surface Mount

# MILITARY/AEROSPACE PRODUCTS

## OFF-THE-SHELF POWER INDUCTORS & TRANSFORMERS (continued)

### SMT Power Inductors: Toroid, POGO Series (continued)

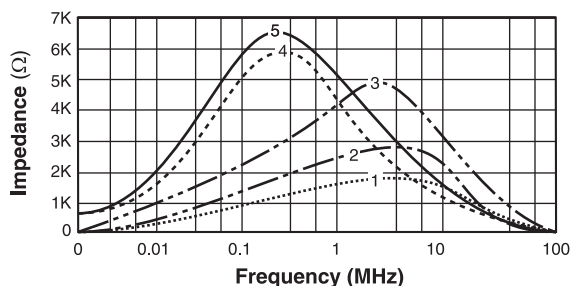
Part Number	@ I <sub>RATED</sub> (μH)	I <sub>RATED</sub> (A)	DCR (mΩ MAX)	Inductance @0A <sub>DC</sub> (μH)	Package* L/W/H (in.)	Data Sheet
<b>POGO 25 (continued)</b>						
PL8609 <sup>P</sup>	84.2	1.20	324	91.0	.625/.525/.310	M114
PL8606 <sup>S</sup>	106.1	1.07	202	131.0	.625/.525/.310	M114
PL8607 <sup>S</sup>	154.2	0.89	302	190.3	.625/.525/.310	M114
PL8608 <sup>S</sup>	218.9	0.74	444	270.2	.625/.525/.310	M114
PL8609 <sup>S</sup>	295.0	0.64	636	364.0	.625/.525/.310	M114
<b>POGO 40</b>						
PL8400 <sup>S</sup>	43.6	1.1	309	77	.725/.575/.380	M111
PL8700 <sup>P</sup>	1.5	14.40	4.41	2.2	.725/.600/.380	M115
PL8701 <sup>P</sup>	2.4	11.20	6.54	3.5	.725/.600/.380	M115
PL8702 <sup>P</sup>	4.2	8.20	10.47	5.9	.725/.600/.380	M115
PL8703 <sup>P</sup>	5.8	6.80	14.94	7.9	.725/.600/.380	M115
PL8700 <sup>S</sup>	6.1	7.20	17.60	9.0	.725/.600/.380	M115
PL8704 <sup>P</sup>	7.6	5.70	20.99	10.1	.725/.600/.380	M115
PL8701 <sup>S</sup>	9.7	5.60	26.20	14.0	.725/.600/.380	M115
PL8705 <sup>P</sup>	12.1	5.40	23.24	18.5	.725/.600/.380	M115
PL8702 <sup>S</sup>	17.0	4.10	41.90	23.7	.725/.600/.380	M115
PL8706 <sup>P</sup>	18.0	4.40	38.15	27.4	.725/.600/.380	M115
PL8703 <sup>S</sup>	23.1	3.40	59.70	31.5	.725/.600/.380	M115
PL8707 <sup>P</sup>	27.0	3.54	53.21	40.5	.725/.600/.380	M115
PL8704 <sup>S</sup>	30.6	2.85	84.00	40.5	.725/.600/.380	M115
PL8708 <sup>P</sup>	34.8	3.00	73.89	50.5	.725/.600/.380	M115
PL8705 <sup>S</sup>	48.5	2.70	93.00	74.1	.725/.600/.380	M115
PL8706 <sup>S</sup>	72.0	2.20	152.60	109.8	.725/.600/.380	M115
PL8708 <sup>S</sup>	139.1	1.50	295.60	202.2	.725/.600/.380	M115
PL8707 <sup>S</sup>	108.0	1.77	212.80	161.8	.725/.600/.380	M115
<b>POGO 50</b>						
PL8401 <sup>S</sup>	21.9	2.7	90.5	39.5	.910/.700/.510	M111
PL8402 <sup>S</sup>	4.025	6.4	23	6.575	.910/.700/.510	M111
PL8403 <sup>P</sup>	0.53	23.8	3	0.88	.910/.700/.510	M111
PL8404 <sup>P</sup>	1.1	21	2.5	2.1	.910/.700/.510	M111
<b>POGO 60</b>						
PL8405 <sup>P</sup>	2.1	22.4	3.4	4	1.280/1.070/.510	M111

1. Connection: **P** = Parallel, **S** = Series

### SMT Common Mode Inductors: Toroid, POGO Series

Part Number	Inductance (mH ±30%)	I <sub>RATED</sub> (A)	DCR (mΩ) MAX	SRF (MHz)	Impedance Curve <sup>1</sup>	Package* L/W/H (in.)	Data Sheet
<b>POGO 40</b>							
PL8801	1.5	1.50	60	2	2	.725/.575/.380	M116
PL8803	10.0	1.00	450	0.5	4	.725/.575/.380	M116
PL8804	22.0	0.50	850	0.3	5	.725/.575/.380	M116
<b>POGO 50</b>							
PL8800	1.0	3.60	50	4	1	.910/.700/.510	M116
PL8802	3.0	2.50	80	2.2	3	.910/.700/.510	M116

1. See graph below.



\*SM = Surface Mount

### SMT Power Inductors: Shielded Drum Core

Part Number	Inductance @I <sub>RATED</sub> (μH TYP)	I <sub>RATED</sub> <sup>1</sup> (A)	DCR (mΩ) MAX	Inductance @0A <sub>DC</sub> <sup>2</sup> (μH)	Saturation Current @25°C	Package* L/W/H (in.)	Data Sheet
PL8901	0.80	11	4.0	1.0 <sup>2</sup>	14	.413/.413/.280	M117
PL8902	1.20	10	6.0	1.5 <sup>2</sup>	13	.413/.413/.280	M117
PL8903	2.1	9.0	7.3	2.7 <sup>2</sup>	11	.413/.413/.280	M117
PL8904	2.9	8.0	8.5	3.7 <sup>2</sup>	9.2	.413/.413/.280	M117
PL8905	3.7	7.3	9.5	4.7 <sup>2</sup>	8.2	.413/.413/.280	M117
PL8906	4.8	6.0	16.5	6.0 <sup>2</sup>	6.9	.413/.413/.280	M117
PL8907	6	5.5	18.5	7.6 <sup>2</sup>	6.2	.413/.413/.280	M117
PL8908	8	5.0	21.8	10	5.5	.413/.413/.280	M117
PL8909	9.6	4.5	29.0	12	5.1	.413/.413/.280	M117
PL8910	12	4.1	35.4	15	4.4	.413/.413/.280	M117
PL8911	14.4	4.0	37.0	18	4.3	.413/.413/.280	M117
PL8912	17.6	3.8	42.0	22	3.8	.413/.413/.280	M117
PL8913	21.6	3.4	45.9	27	3.4	.413/.413/.280	M117
PL8914	26.4	3.0	64.8	33	3.0	.413/.413/.280	M117
PL8915	31.2	2.7	81.5	39	2.8	.413/.413/.280	M117
PL8916	37.6	2.6	89.0	47	2.6	.413/.413/.280	M117
PL8917	54.4	2.1	135.0	68	2.1	.413/.413/.280	M117
PL9101	0.96	10.5	4.5	1.0 <sup>2</sup>	12.7	.413/.413/.248	M121
PL9102	1.52	9.5	5.5	1.8 <sup>2</sup>	10.1	.413/.413/.248	M121
PL9103	2.34	7.8	7.8	2.7 <sup>2</sup>	8.4	.413/.413/.248	M121
PL9104	3.27	6.7	11.0	3.9 <sup>2</sup>	7.2	.413/.413/.248	M121
PL9105	4.39	5.6	15.6	5.1 <sup>2</sup>	6.3	.413/.413/.248	M121
PL9106	5.54	5.2	18.0	6.8 <sup>2</sup>	5.6	.413/.413/.248	M121
PL9107	6.73	5.0	20.0	8.2 <sup>2</sup>	5.1	.413/.413/.248	M121
PL9108	8.19	4.6	22	10	4.6	.413/.413/.248	M121
PL9109	9.9	4.2	27	12	4.2	.413/.413/.248	M121
PL9110	13.4	3.6	30	15	3.6	.413/.413/.248	M121
PL9111	15.4	3.4	40	18	3.4	.413/.413/.248	M121
PL9112	17.6	3.2	45	22	3.2	.413/.413/.248	M121
PL9113	22.5	2.8	62	27	2.8	.413/.413/.248	M121
PL9114	28.5	2.5	70	33	2.5	.413/.413/.248	M121
PL9115	31.4	2.4	75	39	2.4	.413/.413/.248	M121
PL9116	38.4	2.2	100	47	2.2	.413/.413/.248	M121
PL9117	48.3	1.9	110	56	1.9	.413/.413/.248	M121
PL9118	55.9	1.8	120	68.0	1.8	.413/.413/.248	M121
PL9119	67.6	1.7	178	82.0	1.7	.413/.413/.248	M121
PL9120	86.1	1.4	230	100.0	1.4	.413/.413/.248	M121
PL9121	103	1.3	253	120.0	1.3	.413/.413/.248	M121
PL9122	121	1.2	280	150.0	1.2	.413/.413/.248	M121
PL9123	149	1.1	310	180.0	1.1	.413/.413/.248	M121
PL9124	186	1.0	400	220.0	1.0	.413/.413/.248	M121
PL9125	224	0.91	460	270	0.91	.413/.413/.248	M121
PL9126	279	0.82	690	330	0.82	.413/.413/.248	M121
PL9127	335	0.72	760	390	0.72	.413/.413/.248	M121
PL9128	398	0.68	850	470	0.68	.413/.413/.248	M121
PL9129	464	0.63	1060	560	0.63	.413/.413/.248	M121
PL9130	563	0.57	1200	680	0.57	.413/.413/.248	M121
PL9131	681	0.52	1550	820	0.52	.413/.413/.248	M121
PL9132	879	0.46	1750	1000	0.46	.413/.413/.248	M121
PL9201	0.95	8.7	5.7	1.0 <sup>1</sup>	11	.413/.413/.201	M122
PL9202	1.55	7.4	7.9	1.6 <sup>1</sup>	8.8	.413/.413/.201	M122
PL9203	2.32	6.6	10.0	2.7 <sup>1</sup>	7.3	.413/.413/.201	M122
PL9204	3.24	5.5	14.5	3.6 <sup>1</sup>	6.3	.413/.413/.201	M122

1. The rated current as listed is either the saturation current or the heating current depending on which value is lower.

2. Inductance at 0A<sub>DC</sub> tolerance is ±30%. The tolerance is ±20% on all other parts.

Optional Tape & Reel packaging can be ordered by adding a "T" suffix to the end of the part number.

continued on the next page

# MILITARY/AEROSPACE PRODUCTS

## OFF-THE-SHELF POWER INDUCTORS & TRANSFORMERS (continued)

### SMT Power Inductors: Shielded Drum Core (continued)

Part Number	Inductance @IRATED (μH TYP)	IRATED <sup>1</sup> (A)	DCR (mΩ MAX)	Inductance @0A <sub>DC</sub> <sup>2</sup> (μH)	Saturation Current @25°C	Package* L/W/H (in.)	Data Sheet	Part Number	Inductance @IRATED (μH TYP)	IRATED <sup>1</sup> (A)	DCR (mΩ MAX)	Inductance @0A <sub>DC</sub> <sup>2</sup> (μH)	Saturation Current @25°C	Package* L/W/H (in.)	Data Sheet
PL9205	4.26	5.1	16.5	4.5 <sup>2</sup>	5.5	.413/.413/.201	M122	PL9401	0.67	8.50	4.4	0.68 ±25%	8.50	.410/.410/.132	M123
PL9206	5.64	4.4	22	6.0 <sup>2</sup>	4.9	.413/.413/.201	M122	PL9402	1.3	6.10	6.4	1.5 ±25%	6.10	.410/.410/.132	M123
PL9207	7.17	4.2	25	7.6 <sup>2</sup>	4.4	.413/.413/.201	M122	PL9403	2.1	5.70	10.4	2.2 ±25%	5.70	.410/.410/.132	M123
PL9208	9.3	3.6	35	10	4.0	.413/.413/.201	M122	PL9404	3.1	4.80	15.6	3.3 ±25%	4.80	.410/.410/.132	M123
PL9209	10.8	3.3	37	12	3.7	.413/.413/.201	M122	PL9405	4.5	4.10	21.2	4.7 ±25%	4.10	.410/.410/.132	M123
PL9210	13.4	3.0	47	15	3.4	.413/.413/.201	M122	PL9406	5.8	3.60	25.2	6.2 ±25%	3.60	.410/.410/.132	M123
PL9211	17.5	2.7	58	18	2.9	.413/.413/.201	M122	PL9407	7.0	3.30	27.8	6.8 ±25%	3.30	.410/.410/.132	M123
PL9212	19.4	2.6	67	22	2.8	.413/.413/.201	M122	PL9408	9.4	3.00	39.5	8.2 ±30%	3.00	.410/.410/.132	M123
PL9213	24.2	2.2	79	27	2.4	.413/.413/.201	M122	PL9409	11	2.70	42.9	10 ±20%	2.70	.410/.410/.132	M123
PL9214	30.6	2.1	94	33	2.2	.413/.413/.201	M122	PL9410	12	2.40	50.0	12 ±20%	2.40	.410/.410/.132	M123
PL9215	38.5	1.8	126	39	2.0	.413/.413/.201	M122	PL9411	15	2.25	65.2	15 ±20%	2.25	.410/.410/.132	M123
PL9216	46.1	1.7	140	47	1.8	.413/.413/.201	M122	PL9412	24	1.85	86.1	22 ±25%	1.85	.410/.410/.132	M123
PL9217	53.2	1.6	157	56	1.7	.413/.413/.201	M122	PL9413	35	1.40	125.6	33 ±20%	1.40	.410/.410/.132	M123
PL9218	63.1	1.45	202	68.0	1.6	.413/.413/.201	M122	PL9414	48	1.25	187.7	47 ±20%	1.25	.410/.410/.132	M123
PL9219	76.6	1.36	232	82.0	1.4	.413/.413/.201	M122	PL9415	55	1.15	207.9	56 ±20%	1.15	.410/.410/.132	M123
PL9220	88	1.29	270	100.0	1.3	.413/.413/.201	M122	PL9416	64	1.05	279.5	68 ±20%	1.05	.410/.410/.132	M123
PL9221	112	1.07	316	120.0	1.2	.413/.413/.201	M122	PL9417	88	0.94	317.3	82 ±20%	0.94	.410/.410/.132	M123
PL9222	135	1.02	456	150.0	1.05	.413/.413/.201	M122	PL9418	106	0.88	357.8	100 ±20%	0.88	.410/.410/.132	M123
PL9223	132	0.87	497	180.0	0.96	.413/.413/.201	M122	PL9419	129	0.80	477.9	120 ±20%	0.80	.410/.410/.132	M123
PL9224	198	0.82	681	220.0	0.86	.413/.413/.201	M122	PL9420	157	0.70	545.4	150 ±20%	0.70	.410/.410/.132	M123
PL9225	237	0.78	775	270	0.79	.413/.413/.201	M122	PL9421	238	0.58	837.0	220 ±20%	0.58	.410/.410/.132	M123
PL9226	296	0.66	955	330	0.71	.413/.413/.201	M122	PL9422	325	0.45	1198.8	330 ±20%	0.45	.410/.410/.132	M123
PL9227	355	0.58	1087	390	0.66	.413/.413/.201	M122	PL9501	2.15	2.60	17.6	2.5	2.6	.256/.256/.122	M124
PL9228	445	0.54	1403	470	0.59	.413/.413/.201	M122	PL9502	2.58	2.30	20.3	3.3	2.3	.256/.256/.122	M124
PL9229	495	0.53	1623	560	0.54	.413/.413/.201	M122	PL9503	3.43	2.10	27.0	4	2.1	.256/.256/.122	M124
PL9230	610	0.49	1824	680	0.49	.413/.413/.201	M122	PL9504	4.63	1.85	31.1	5	1.85	.256/.256/.122	M124
PL9231	702	0.43	2355	820	0.45	.413/.413/.201	M122	PL9505	5.22	1.70	41.9	6	1.7	.256/.256/.122	M124
PL9232	890	0.40	2850	1000	0.41	.413/.413/.201	M122	PL9506	6.57	1.50	49.9	8	1.5	.256/.256/.122	M124
PL9301	0.62	7.60	5.5	0.68 ±25%	10	.410/.410/.157	M120	PL9507	8.65	1.30	54.0	10	1.3	.256/.256/.122	M124
PL9302	1.2	7.10	7.3	1.3 ±25%	8	.410/.410/.157	M120	PL9508	9.78	1.20	72.0	12	1.2	.256/.256/.122	M124
PL9303	1.9	5.80	10.9	2.2 ±25%	6.15	.410/.410/.157	M120	PL9509	12.13	1.10	82.0	15	1.1	.256/.256/.122	M124
PL9304	2.8	5.20	13.3	3.3 ±25%	5.8	.410/.410/.157	M120	PL9510	15.23	1.05	102.0	18	1.05	.256/.256/.122	M124
PL9305	4.0	4.70	19.6	4.7 ±25%	5.4	.410/.410/.157	M120	PL9511	18.7	0.95	119.0	22	0.95	.256/.256/.122	M124
PL9306	5.4	3.70	27.0	6.0 ±25%	4.5	.410/.410/.157	M120	PL9512	21.54	0.85	146.0	27	0.85	.256/.256/.122	M124
PL9307	6.9	3.50	30.8	7.6 ±25%	4	.410/.410/.157	M120	PL9513	27.71	0.76	183.0	33	0.76	.256/.256/.122	M124
PL9308	8.0	3.40	33.2	10 ±20%	3.8	.410/.410/.157	M120	PL9514	33.57	0.68	210.0	39	0.68	.256/.256/.122	M124
PL9309	11	3.00	45.2	12 ±20%	3.4	.410/.410/.157	M120	PL9515	40.15	0.60	230.0	47	0.6	.256/.256/.122	M124
PL9310	12	2.80	49.4	15 ±20%	3.1	.410/.410/.157	M120	PL9516	49.68	0.55	305.0	56	0.55	.256/.256/.122	M124
PL9311	19	2.30	77.2	22 ±20%	2.8	.410/.410/.157	M120	PL9517	60.66	0.48	351.0	68	0.48	.256/.256/.122	M124
PL9312	25	2.10	89.1	27 ±20%	2.3	.410/.410/.157	M120	PL9518	74.71	0.45	419.0	82	0.45	.256/.256/.122	M124
PL9313	38	1.65	141.9	47 ±20%	2.1	.410/.410/.157	M120	PL9519	85.39	0.40	520.0	100	0.4	.256/.256/.122	M124
PL9314	55	1.32	212.0	68 ±20%	1.5	.410/.410/.157	M120								
PL9315	83	1.10	327.9	100 ±20%	1.35	.410/.410/.157	M120								
PL9316	123	0.88	499.9	150 ±20%	1.15	.410/.410/.157	M120								
PL9317	178	0.73	738.6	220 ±20%	0.92	.410/.410/.157	M120								
PL9318	278	0.60	1132.8	330 ±20%	0.7	.410/.410/.157	M120								

1. The rated current as listed is either the saturation current or the heating current depending on which value is lower.

2. Inductance at 0A<sub>DC</sub> tolerance is ±30%. The tolerance is ±20% on all other parts.

Optional Tape and Reel packaging can be ordered by adding a "T" suffix to the end of the part number.

### SMT CURRENT SENSE TRANSFORMER

Part Number	Turns Ratio	Current Rating (A)	Secondary Inductance (μH MIN)	DCR Primary (1,3-2,4) (Ω MAX)	DCR Secondary (5-6) (Ω MAX)	Hipot	Package L/W/H	Datasheet
PL1961	1:1:200	15.00	59.200	2.3	4200	500	.575 / .575 / .280	M150

### SMT GATE DRIVE TRANSFORMER

Part Number	Turns Ratio	Pri-Sec Insulation (Vdc)	MAX (v* usec)	Primary Inductance (μH MAX)	Leakage Inductance (μH MAX)	DCR Primary	DCR Secondary	Package L/W/H	Datasheet
PL1960	1:1	1500.00	9.7	785.0	.46	.60	.60	.265 / .340 / .140	M149

\*SM = Surface Mount



# MILITARY/AEROSPACE PRODUCTS

## PLANARS

Height: 7.4mm Max

Footprint: 19.8mm x 19.6mm Max

Inductance Range: .405µH to 6.2µH

### Electrical Specifications @ 25°C - Operating Temperature -40°C to +130°C

Part Number	Inductance @ Irated (µH ±15%)	Irated (ADC)	DCR (mW)		Inductance @ 0 A <sub>DC</sub> (µH ±15%)	Saturation Current		Heating Current (A)	Data Sheet
			TYP	MAX		25°C	100°C		
<b>2-Turn (Low Loss)</b>									
PL10100	0.45	73	0.38	0.48	0.45	95	80	73	M194
PL10101	0.63	54	0.38	0.48	0.65	63	53	73	M194
PL10102	0.85	39	0.38	0.48	0.91	46	37	73	M194
PL10103	1.05	30	0.38	0.48	1.1	35	30	73	M194
PL10104	1.25	25	0.38	0.48	1.3	29	26	73	M194
PL10105	1.45	21	0.38	0.48	1.5	24	22	73	M194
<b>2-Turn Series</b>									
PL10106	0.45	52	0.78	0.98	0.45	95	80	52	M194
PL10107	0.63	52	0.78	0.98	0.65	63	53	52	M194
PL10108	0.85	39	0.78	0.98	0.91	46	37	52	M194
PL10109	1.05	30	0.78	0.98	1.1	35	30	52	M19
PL10110	1.25	25	0.78	0.98	1.3	29	26	52	M194
PL10111	1.45	21	0.78	0.98	1.5	24	22	52	M194

3-Turn and 4-Turn Series also available.

## CUSTOM CAPABILITIES

### Space Development/Testing/Validation Capabilities

- Mil-STD-981
- NASA EEE-INST-002
- NASA-STD 8739.3
- IPC-STD-001DS
- MIL-PRF-21038
- MIL-PRF-27
- MIL-STD-202
- ECSS-Q-ST-70-38C
- AEC-Q200
- MIL-STD-883
- Custom Magnetic Power
- Signal Design/Build

### Program Participation

ISS      Orion      World View III      MagICE      HPCA      James Webb Telescope

### Manufacturing Capabilities

Bobbin Winding      Toroid Winding      AS9100B Certified      ITAR Free Products

# MILITARY/AEROSPACE PRODUCTS

## CUSTOM CAPABILITIES *(continued)*

Product Capability	PACKAGING	MAXIMUM POWER	MAXIMUM CURRENT	FREQUENCY
SINGLE INDUCTORS/ SPLIT DIFFERENTIAL	Lamination, Toroidal, Tape Wound	4KVA		15- 2MHz
COMMON MODE CHOKES 1/3 Phase	Lamination, Toroidal, Tape Wound		500A	15 - 2400Hz
CHOKES 3 PHASE (LINE FILTERING)	Lamination, Tape Wound		500A	15 - 2400Hz
POWER TRANSFORMERS 1 Phase	Lamination, Toroidal, Tape Wound	4KVA		15 - 1200Hz
TRANSFORMERS Laminated 3 Phase	Lamination, Toroidal, Tape Wound	10KVA		15 - 1200Hz
TRANSFORMERS - Switchmode	Planar, Bobbin Wound, Toroidal	1KVA		20K- 1MHz
INDUCTORS - Switchmode Buck/Boost	Toroidal, Bobbin Wound	500VA		20K- 1MHz
TRANSFORMERS - Current Sense	Toroidal, Bobbin Wound	4KVA (burden)		15- 1MHz
TRANSFORMER MODULES -Current Sense 1/3 PHASE	Toroidal, Bobbin Wound	4KVA (burden)		15- 1MHz
TRANSFORMERS Gate Drive	Toroidal, Bobbin Wound			20KHz- 1MHz
HALL EFFECT SENSORS	Lamination, Toroidal, Tape Wound	10KVA		15 - 1200Hz

## Testing Services

Testing capabilities for product qualification and design validation

### ELECTRICAL

- Inductance with or without DC
- Turns Ratio
- HI-POT - Vac up to 5kv, Vdc up to 6kV
- Insulation Resistance
- Distortion
- Pulse Testing
- Thermal Rise
- Impedance
- Q (up to 1 Mhz)
- DCR
- SRF (up to 3Ghz)
- Leakage Inductance
- Voltage Ratio
- Insertion Loss

### ENVIRONMENTAL

- Mechanical Shock
- Mechanical Vibration
- Solderability
- Resistance to Soldering
- Tin whisker analysis

### MECHANICAL

- Humidity (to 90% RH)
- Moisture Resistance
- Thermal Shock
- Thermal Cycling
- High/Low Temperature Storage
- Steam Aging

### ANALYTICAL

- X-Ray Imaging
- Real Time X-ray
- Plating composition analysis
- Detailed Inspection Plans
- First Article Inspection to AS9102

**Note:** Magnetics for high temp requirement at +200°C