

# MIL-STD 1553 Interface Transformers - DBIT x 3 S



- As per MIL-STD 1553 A & B
- Meet all the electrical requirements of Manchester II serial bi-phase data transmission, 1 MHz operation
- Epoxy molding in accordance with outgassing requirements of ECSS-Q-ST-70-02C
- Applied standards: ESCC 3201 generic specification for space products
- Open-circuit impedance greater than 3kΩ (4kΩ typical value) from 75 kHz to 1 MHz
- Frequency range 75 kHz to 1 MHz
- Operating temperature range: -55°C to +125°C
- Weight: 3 to 3.5 grams

## Electrical Data (25°C)

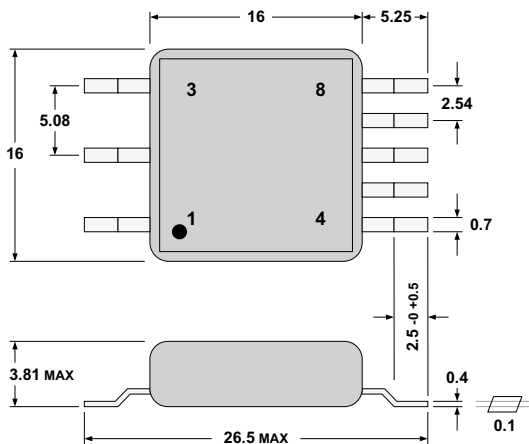
ID Code	Turn ratio 1-3 : 4-8	Turn ratio 1-3 : 5-7	DCR MAX (Ω) (1-3)	DCR MAX (Ω) (4-8)	Primary Inductance (mH) min at 75 kHz-1V
DBIT 1 3S	1.4 : 1	2 : 1	3	2.3	Lp (1-3) 7
DBIT 2 3S	1 : 1	1 : 0.707	3	3.3	Lp (1-3) 7
DBIT 3 3S	1.2 : 1	1.67 : 1	3	2.7	Lp (1-3) 7
DBIT 4 3S	1 : 2.5	1 : 1.74	1.5	3.5	Lp (4-8) 7
DBIT 5 3S	1 : 2.5	1 : 1.79	1.5	3.5	Lp (4-8) 7
DBIT 6 3S	2.3 : 1	3.2 : 1	3	1.5	Lp (1-3) 7
DBIT 7 3S	1.25 : 1	1.66 : 1	3	3.3	Lp (1-3) 7
DBIT 8 3S	1 : 2.12	1 : 1.5	1.8	3.5	Lp (4-8) 7

## To Order

DBIT	#	3	S
Range	Transceiver type	Case height 3	S SMD

DBIT # 3S

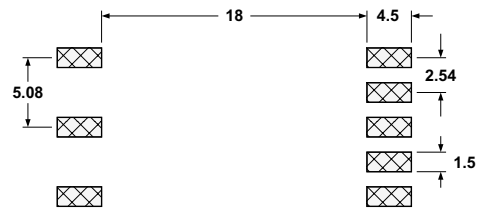
## Typical Dimensions (mm, top view)



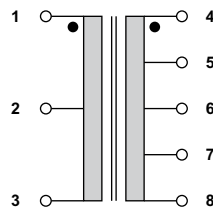
## Notes

Common mode rejection : 45 dBmin.  
 Dielectric withstanding voltage: 100 Vrms.  
 Insulation resistance: 1000 MΩmin.  
 tolerance ratio ±3%.

## PCB Layout (suggested)

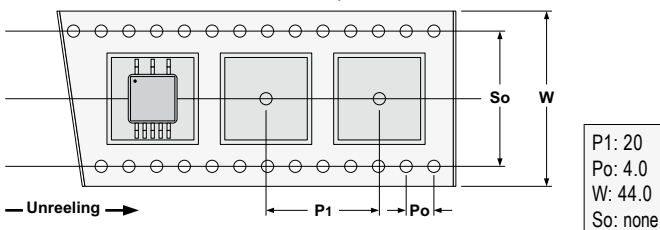


## Connections



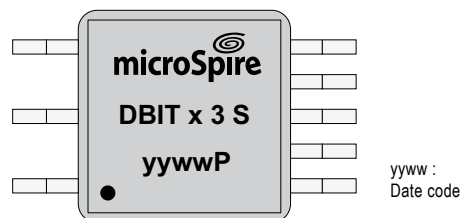
## Packaging

Individually packed: 32 parts on 2 layers.  
 Tape and Reel:  
 700 units per reel of diameter 330 mm

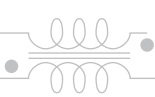


P1: 20  
 Po: 4.0  
 W: 44.0  
 So: none

## Marking



High Grade Technologies  
 RF and Data Magnetics  
 Bus Transformers



# MIL-STD 1553 Interface Transformers - DBIT xx 4S



- Miniature package, less board space
- As per MIL-STD 1553 A&B
- Meet all the electrical requirements of Manchester II serial bi-phase data transmission, 1MHz operation
- Epoxy molding in accordance with outgassing requirements of ECSS-Q-ST-70-02C
- Applied standards: ESCC 3201 generic specification for space products
- Frequency range 75KHz to 1MHz
- Operating temperature range: -55 °C to +125 °C
- Weight: 1.5grams

## Electrical Data (25°C)

ID Code	Turns ratio (±3%) P : S	Connections	DCR MAX (1-3)(Ω)	DCR MAX (4-8)(Ω)	DCR MAX (5-7)(Ω)	OUTPUT RISE TIME ns (MAX)	Impedance Ω (MIN) 75 kHz to 249 kHz	Impedance Ω (MIN) 250 kHz to 1 MHz
DBIT 91 4S	1 : 3.75	A	0.25	3.00	-	250 ns	(4-8) 4000	(4-8) 4000
DBIT 50 4S	1 : 2.50	A	1.5	3.5	-	250 ns	(4-8) 3000	(4-8) 4000
DBIT 70 4S	1.25 : 1	A	2.4	1.5	-	150 ns	(1-3) 3000	(1-3) 4000
DBIT 12 4S	1.41 : 1	A	2.7	2.2	-	150 ns	(1-3) 5000	(1-3) 7200
DBIT 90 4S	1 : 2.70	B	0.25	-	2.00	250 ns	(5-7) 2000	(5-7) 3000
DBIT 51 4S	1 : 1.79	B	1.5	-	2.5	150 ns	(5-7) 2000	(5-7) 4000
DBIT 71 4S	1.66 : 1	B	2.4	-	1.5	150 ns	(1-3) 3000	(1-3) 4000
DBIT 11 4S	2.00 : 1	B	2.6	-	1.3	150 ns	(1-3) 5000	(1-3) 7200

## To Order

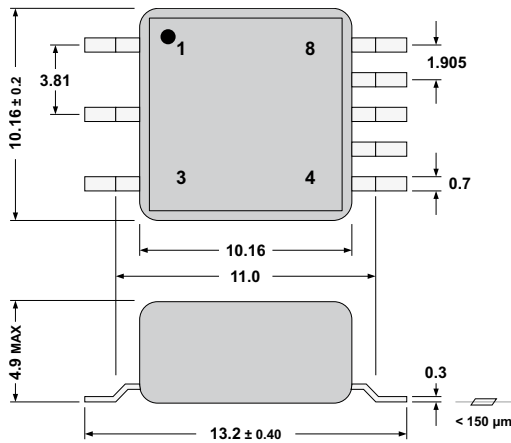
DBIT	#	4	S
Range	Code Turn Ratio	Case height 4.7	S SMD

DBIT ## 4S

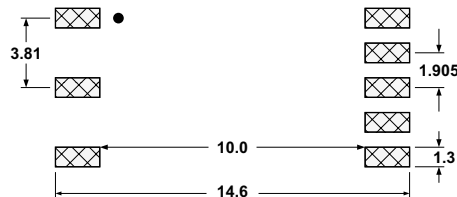
## Notes

- Common mode rejection: 45 dBmin.
- Dielectric withstanding voltage: 100 Vrms.
- Insulation resistance: 1000 MΩmin.

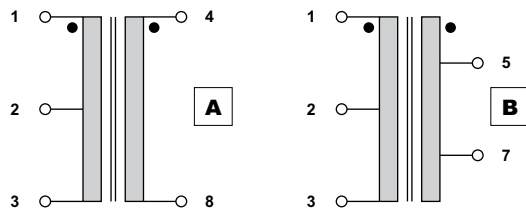
## Typical Dimensions (mm, top view)



## PCB Layout (suggested)

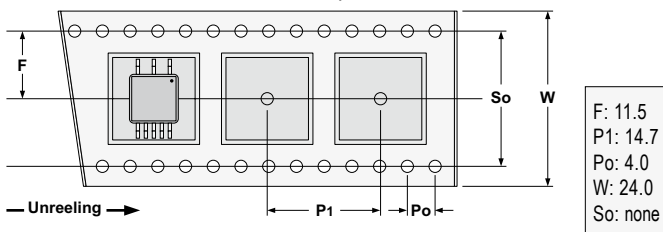


## Connections

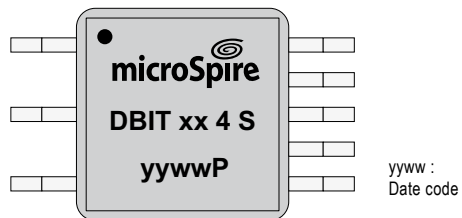


## Packaging

Individually packed: 32 parts on 2 layers.  
Tape and Reel:  
700 units per reel of diameter 330 mm



## Marking



# MIL-STD 1553 Interface Transformers - DBIT x 5 S



- As per MIL-STD 1553 A&B
- Meet all the electrical requirements of Manchester II serial bi-phase data transmission, 1 MHz operation
- Epoxy molding in accordance with outgassing requirements of ECSS-Q-ST-70-02C
- Applied standards: ESCC 3201 generic specification for space products
- Open-circuit impedance greater than 3kΩ (4kΩ typical value) from 75KHz to 1 MHz
- Frequency range 75KHz to 1 MHz
- Operating temperature range: -55°C to +125°C
- Weight: 3 to 3.5grams

## Electrical Data (25°C)

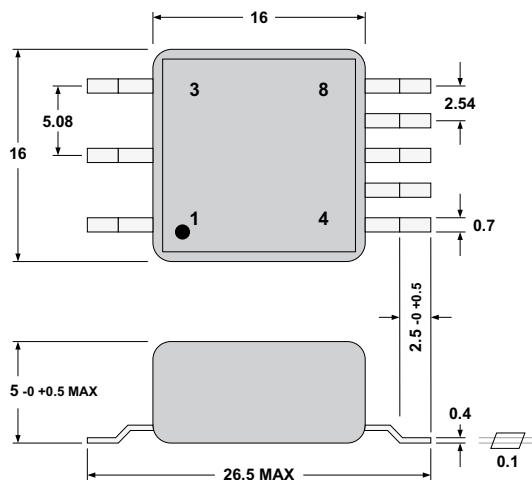
ID Code	Turn ratio 1-3 : 4-8	Turn ratio 1-3 : 5-7	DCR MAX (Ω) (1-3)	DCR MAX (Ω) (4-8)	Primary Inductance (mH) min at 75 kHz-1V
DBIT 1 5S	1.4 : 1	2 : 1	2.2	1.2	L <sub>p</sub> (1-3) 7
DBIT 2 5S	1 : 1	1 : 0.707	2.2	2.4	L <sub>p</sub> (1-3) 7
DBIT 3 5S	1.2 : 1	1.67 : 1	2.2	2	L <sub>p</sub> (1-3) 7
DBIT 4 5S	1 : 2.5	1 : 1.74	1.2	2.7	L <sub>p</sub> (4-8) 7
DBIT 5 5S	1 : 2.5	1 : 1.79	1.2	2.7	L <sub>p</sub> (4-8) 7
DBIT 6 5S	2.3 : 1	3.2 : 1	2.2	1.2	L <sub>p</sub> (1-3) 7
DBIT 7 5S	1.25 : 1	1.66 : 1	2.2	2	L <sub>p</sub> (1-3) 7
DBIT 8 5S	1 : 2.12	1 : 1.5	1.2	2.7	L <sub>p</sub> (4-8) 7

## To Order

DBIT # 5S

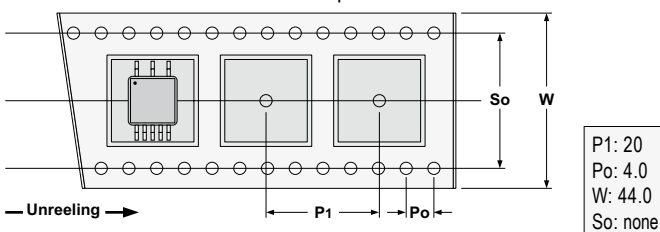
DBIT	#	5	S
Range	Part 1 to 8	Case height 5	S SMD

## Typical Dimensions (mm, top view)



## Packaging

Individually packed: 32 parts on 2 layers.  
Tape and Reel:  
200 units per reel of diameter 330 mm

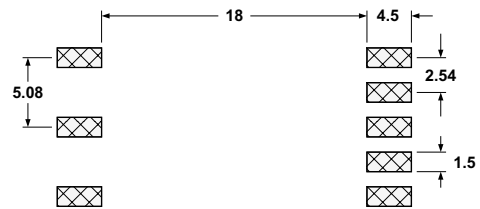


P1: 20  
Po: 4.0  
W: 44.0  
So: none

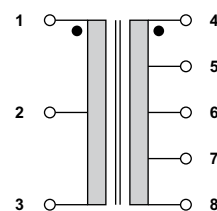
## Notes

Common mode rejection: 45 dBmin.  
Dielectric withstanding voltage: 100 Vrms.  
Insulation resistance: 1000 MΩmin.  
tolerance ratio ±3%.

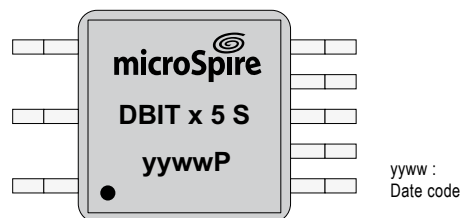
## PCB Layout (suggested)



## Connections

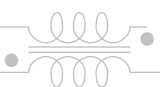


## Marking



yyww :  
Date code

High Grade Technologies...  
RF and Data Magnetics...  
Bus Transformers.



# MIL-STD 1553 Interface Transformers - DBIT x 7 P



- As per MIL-STD 1553 A & B
- Meet all the electrical requirements of Manchester II serial bi-phase data transmission, 1MHz operation
- Epoxy molding in accordance with outgassing requirements of ECSS-Q-ST-70-02C
- Applied standards: ESCC 3201 generic specification for space products
- Open-circuit impedance greater than  $3k\Omega$  ( $4k\Omega$  typical value) from 75KHz to 1 MHz
- Frequency range 75KHz to 1 MHz
- Operating temperature range:  $-55^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$
- Weight: <5grams

## Electrical Data (25°C)

ID Code	Turn ratio 1-3 : 4-8	Turn ratio 1-3 : 5-7	DCR MAX ( $\Omega$ ) (1-3)	DCR MAX ( $\Omega$ ) (4-8)	Primary Inductance (mH) min at 75 kHz-1V
DBIT 17 P	1.4 : 1	2 : 1	2	1.6	$L_p$ (1-3) 7
DBIT 27 P	1 : 1	1 : 0707	2	2.2	$L_p$ (1-3) 7
DBIT 37 P	1.2 : 1	1.67 : 1	2	2	$L_p$ (1-3) 7
DBIT 47 P	1 : 2.5	1 : 1.74	1	2.2	$L_p$ (4-8) 7
DBIT 57 P	1 : 2.5	1 : 1.79	1	2.2	$L_p$ (4-8) 7
DBIT 67 P	2.3 : 1	3.2 : 1	2	1	$L_p$ (1-3) 7
DBIT 77 P	1.25 : 1	1.66 : 1	2	2	$L_p$ (1-3) 7
DBIT 87 P	1 : 2.12	1 : 1.5	1	2.2	$L_p$ (4-8) 7

## Notes

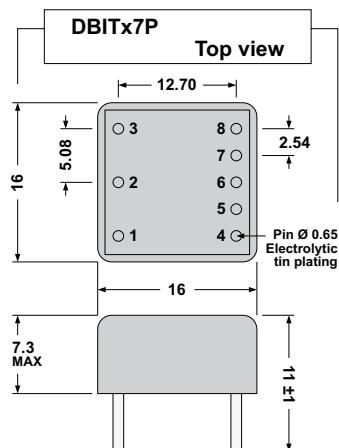
Common mode rejection: 45 dBmin.  
 Dielectric withstanding voltage: 100 Vrms.  
 Insulation resistance: 1000 M $\Omega$ min.  
 tolerance ratio  $\pm 3\%$ .

## To Order

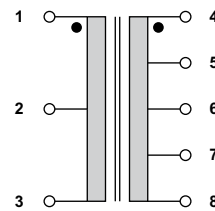
DBIT # 7P

DBIT	#	7	P
Range	Part 1 to 8	Case height 7	x = P Pins

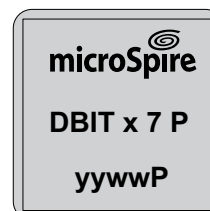
## Typical Dimensions (mm)



## Connections



## Marking



yyww :  
Date code

# MIL-STD 1553 Interface Transformers - DBIT x 7 P10



- As per MIL-STD 1553 A & B
- Meet all the electrical requirements of Manchester II serial bi-phase data transmission, 1 MHz operation
- Epoxy molding in accordance with outgassing requirements of ECSS-Q-ST-70-02C
- Applied standards: ESCC 3201 generic specification for space products
- Open-circuit impedance greater than 3k $\Omega$  (4k $\Omega$  typical value) from 75KHz to 1 MHz
- Frequency range 75KHz to 1 MHz
- Operating temperature range: -55 $^{\circ}$ C to +125 $^{\circ}$ C
- Weight: <5grams

## Electrical Data (25 $^{\circ}$ C)

ID Code	Turn ratio 1-3 : 4-8	Turn ratio 1-3 : 5-7	DCR MAX ( $\Omega$ ) (1-3)	DCR MAX ( $\Omega$ ) (4-8)	Primary Inductance (mH) min at 75 kHz-1V
DBIT 1 7 P10	1.4 : 1	2 : 1	2	1.6	L <sub>p</sub> (1-3) 7
DBIT 2 7 P10	1 : 1	1 : 0.707	2	2.2	L <sub>p</sub> (1-3) 7
DBIT 3 7 P10	1.2 : 1	1.67 : 1	2	2	L <sub>p</sub> (1-3) 7
DBIT 4 7 P10	1 : 2.5	1 : 1.74	1	2	L <sub>p</sub> (4-8) 7
DBIT 5 7 P10	1 : 2.5	1 : 1.79	1	2.2	L <sub>p</sub> (4-8) 7
DBIT 6 7 P10	2.3 : 1	3.2 : 1	2	1	L <sub>p</sub> (1-3) 7
DBIT 7 7 P10	1.25 : 1	1.66 : 1	2	2	L <sub>p</sub> (1-3) 7
DBIT 8 7 P10	1 : 2.12	1 : 1.5	1	2.2	L <sub>p</sub> (4-8) 7
DBIT 9 7 P10	1 : 2.38	1 : 1.666	1	2.2	L <sub>p</sub> (1-3) 7
DBIT 10 7P10	1 : 3.0	1 : 2.14	1	2.5	L <sub>p</sub> (4-8) 7

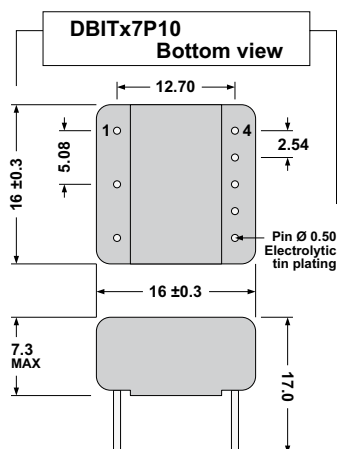
## To Order

DBIT		#	7	DBIT # 7 P10
Range	Part 1 to 10	Case height 7	x = P10 Pins (10 mm)	

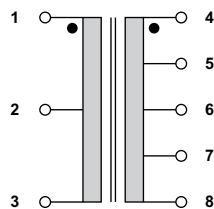
## Notes

Common mode rejection: 45dBmin.  
 Dielectric withstanding voltage: 100 Vrms.  
 Insulation resistance: 1000 M $\Omega$ min.  
 tolerance ratio  $\pm$ 3%.

## Typical Dimensions (mm)



## Connections



## Marking



yyww :  
Date code

High Grade Technologies...  
RF and Data Magnetics...  
Bus Transformers...



# MIL-STD 1553 Interface Transformers - DBIT x 7 S



- As per MIL-STD 1553 A & B
- Meet all the electrical requirements of Manchester II serial bi-phase data transmission, 1MHz operation
- Epoxy molding in accordance with outgassing requirements of ECSS-Q-ST-70-02C
- Applied standards: ESCC 3201 generic specification for space products
- Open-circuit impedance greater than 3kΩ (4kΩ typical value) from 75KHz to 1 MHz
- Frequency range 75KHz to 1 MHz
- Operating temperature range: -55°C to +125°C
- Weight: <5grams

## Electrical Data (25°C)

ID Code	Turn ratio 1-3 : 4-8	Turn ratio 1-3 : 5-7	DCR MAX (Ω) (1-3)	DCR MAX (Ω) (4-8)	Primary Inductance (mH) min at 75 kHz-1V
DBIT 17 S	1.4 : 1	2 : 1	2	1.6	L <sub>p</sub> (1-3) 7
DBIT 27 S	1 : 1	1 : 0707	2	2.2	L <sub>p</sub> (1-3) 7
DBIT 37 S	1.2 : 1	1.67 : 1	2	2	L <sub>p</sub> (1-3) 7
DBIT 47 S	1 : 2.5	1.67 : 1	2	2	L <sub>p</sub> (1-3) 7
DBIT 57 S	1 : 2.5	1 : 1.74	1	2	L <sub>p</sub> (4-8) 7
DBIT 67 S	2.3 : 1	3.2 : 1	2	1	L <sub>p</sub> (1-3) 7
DBIT 77 S	1.25 : 1	1.66 : 1	2	2	L <sub>p</sub> (1-3) 7
DBIT 87 S	1 : 2.12	1 : 1.5	1	2.2	L <sub>p</sub> (4-8) 7

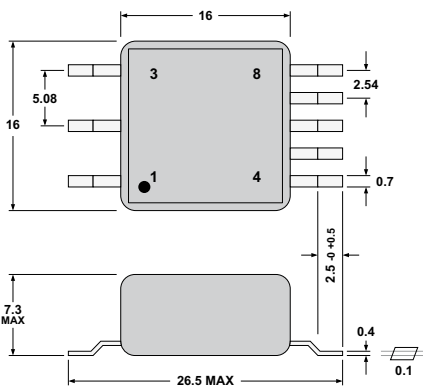
## Notes

Common mode rejection: 45 dBmin.  
 Dielectric withstanding voltage: 100 Vrms.  
 Insulation resistance: 1000 MΩmin.  
 tolerance ratio ±3%.

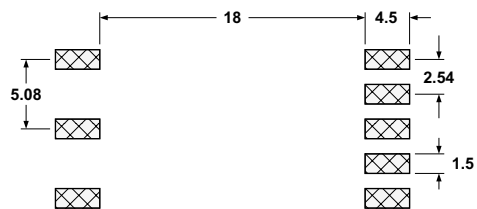
## To Order

DBIT	#	7	DBIT # 7 S
Range	Part 1 to 8	Case height 7	x = S SMD

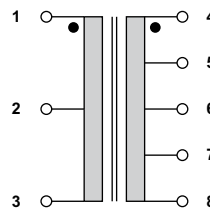
## Typical Dimensions (mm)



## PCB Layout (suggested, DBIT x 7 S)

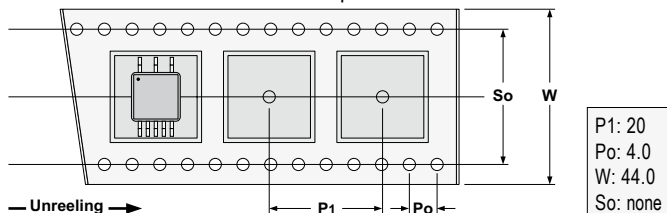


## Connections

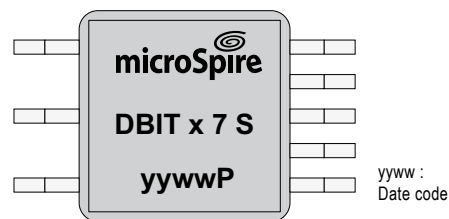


## Packaging

Individually packed: 32 parts on 2 layers.  
 Tape and Reel (DBIT x 7S):  
 300 units per reel of diameter 330 mm



## Marking



High Grade Technologies...  
RF and Data magnetics...  
Bus Transformers...



# MIL-STD 1553 Interface Transformers-DBIT 5 7 x400



- As per MIL-STD 1553 A&B
- Meet all the electrical requirements of Manchester II serial bi-phase data transmission, 1MHz operation
- Waveform integrity:  
27V<sub>ptop</sub> level at 250KHz - droop <20% into the lowest turn's wdg
- Encapsulated in accordance with MIL-T-21038 (DAP box)
- Applied standards: ESCC 3201 generic specification for space products
- Open-circuit impedance greater than 4kΩ from 75KHz to 1MHz
- Operating temperature range: -40°C to +125°C
- Weight: 3 to 3.5grams

## Electrical Data (25°C)

ID Code	Turn ratio 1-3 : 4-8	Turn ratio 1-3 : 5-7	DCR MAX (Ω) (1-3)	DCR MAX (Ω) (4-8)	Primary Inductance (mH) min at 75 kHz-1V
DBIT 5 7x400	1 : 2.5	1 : 1.79	1	3.5	L <sub>p(4-8)</sub> 8.5

## Notes

Common mode rejection: 45dBmin.

Dielectric withstanding voltage: 100 Vrms.

Insulation resistance: 1000 MΩmin - 500 VDC

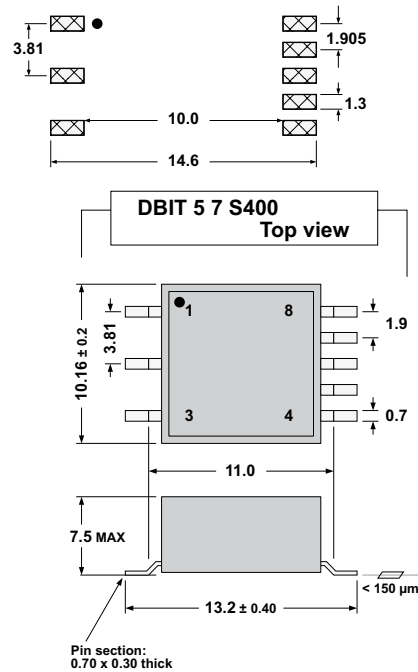
tolerance ratio ±2%.

## To Order

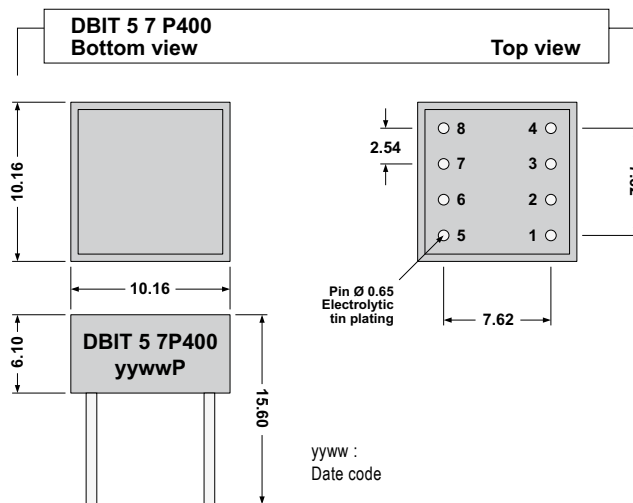
			DBIT 5 7x400
DBIT	5	7	P400
Range	Code turn ratio	Case height 7	x = P for Pin through hole x = S for SMD

## PCB Layout

(suggested, DBIT 5 7 S400)

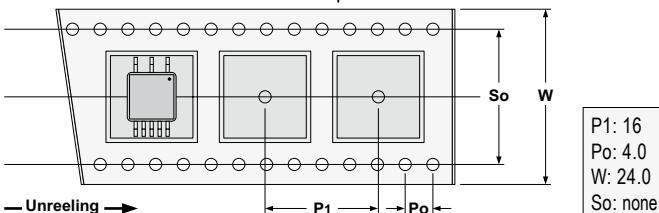


## Typical Dimensions (mm)



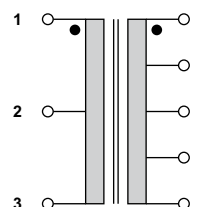
## Packaging

Individually packed: 32 parts on 2 layers.  
Tape and Reel (DBIT 5 7 S400):  
400 units per reel of diameter 330mm

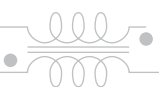


P1: 16  
Po: 4.0  
W: 24.0  
So: none

## Connections



High Grade Technologies  
RF and Data Magnetics  
Bus Transformers



# Dual staked MIL-STD 1553 Interface Transformers - SBIT x 7.5S



- As per MIL-STD 1553 B
- Meet all the electrical requirements of Manchester II serial bi-phase data transmission, 1 MHz operation
- Epoxy molding in accordance with outgassing requirements of ECSS-Q-ST-70-02C
- Applied standards: ESCC 3201 generic specification for space products
- Open-circuit impedance greater than 3k $\Omega$  (4k $\Omega$  typical value) from 75KHz to 1 MHz
- Frequency range 75KHz to 1 MHz
- Operating temperature range: -55 °C to +125 °C
- Weight: <5grams

## Electrical Data (25°C)

Parameter	Unit	SBIT 1 7.5S	SBIT 2 7.5S	SBIT 3 7.5S	SBIT 4 7.5S	SBIT 5 7.5S	SBIT 6 7.5S	SBIT 7 7.5S	SBIT 8 7.5S
<b>Frequency Response</b>									
Operating Range	kHz	75 to 1000	75 to 1000	75 to 1000	75 to 1000	75 to 1000	75 to 1000	75 to 1000	75 to 1000
<b>Common-Mode Rejection (min)</b>									
	dB	45	45	45	45	45	45	45	45
<b>Electrical Requirements</b>									
Terminal Winding Resistance Rdc									
• 1-3 / (11-13) (max)	$\Omega$	3.5	3	1.9	1	1	1.2	3.2	1
• 4-8 / (14-18) (max)	$\Omega$	3	3	1.9	3	3	3	3	3
Interwinding Capacitance (max)	pF	70	30	70	45	45	70	70	70
Winding Inductance									
• LM (min)	mH	7.5	7.5	7.5	6.0	6.0	8.0	8.0	6.0
• LL (max)	$\mu$ H	6.0	6.0	6.0	8.0	6.0	8.0	6.0	7.0
<b>Peak-to-Peak Voltage (max)</b>									
Terminals 1-3 primary	Vpp	60	60	60	38	38	39	60	44
<b>Droop (max)</b>									
3 ms Pulse Duration									
140 $\Omega$ Load Across Terminals 4-8	%	10	10	10	10	10	10	10	10
<b>Decay Time (max)</b>									
140 $\Omega$ Load Across Terminals 4-8									
	ns	25	25	25	25	25	25	25	25
<b>Backswing</b>									
140 $\Omega$ Load Across Terminals 4-8									
	%	none	none	none	none	none	none	none	none
<b>Turns Ratios</b>									
Terminals									
• 1-3 : 4-8 / 11-13 : 14-18		1.4 : 1	1 : 1	1.20 : 1	1 : 2.5	1 : 2.5	1 : 3.2	1.25 : 1	1 : 2.12
• 1-3 : 5-7 / 11-13 : 15-13		2 : 1	1 : 0.707	1.67 : 1	1 : 1.75	1 : 1.79	1 : 2.3	1.66 : 1	1 : 1.5

## To Order

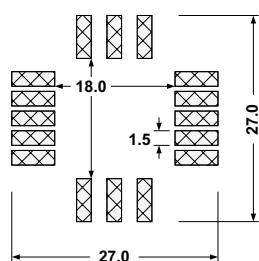
SBIT	#	7.5	S
Range	Part 1 to 8	Case height 7.5	S SMD

SBIT # 7.5S

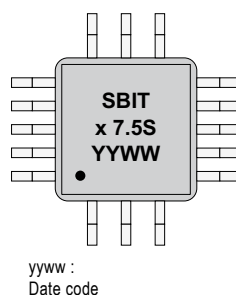
## Notes

Interwinding insulation : 500Vrms-500Hz.  
Flammability compliance : UL94V0.

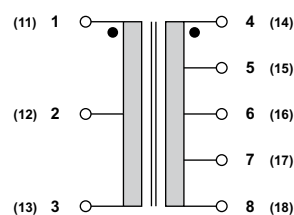
## PCB Layout (suggested)



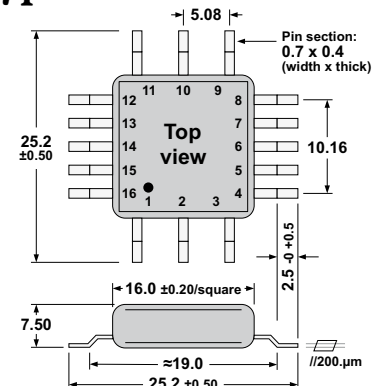
## Marking



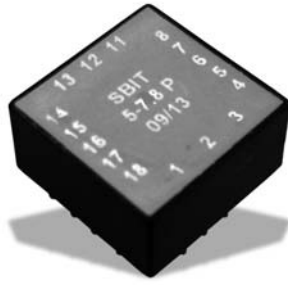
## Connections



## Typical Dimensions (mm)



# Dual staked MIL-STD 1553 Interface Transformers - SBIT x 7.8P



- As per MIL-STD 1553 B
- Meet all the electrical requirements of Manchester II serial bi-phase data transmission, 1 MHz operation
- Epoxy molding in accordance with outgassing requirements of ECSS-Q-70-02, MILT 21038
- Open-circuit impedance greater than  $3k\Omega$  ( $4k\Omega$  typical value) from 75 KHz to 1 MHz
- Frequency range 75 KHz to 1 MHz
- Operating temperature range:  $-55^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$
- Weight:  $<5$  grams

## Electrical Data ( $25^{\circ}\text{C}$ )

Parameter	Unit	SBIT 1 7.8P	SBIT 2 7.8P	SBIT 3 7.8P	SBIT 5 7.8P	SBIT 7 7.8P	SBIT 8 7.8P
Frequency Response							
Operating Range	kHz	75 to 1000	75 to 1000	75 to 1000	75 to 1000	75 to 1000	75 to 1000
Common-Mode Rejection (min)	dB	45	45	45	45	45	45
<b>Electrical Requirements</b>							
Terminal Winding Resistance Rdc							
• 1-3 (max)	$\Omega$	2.8	2.8	2.8	2	2.8	2.2
• 4-8 (max)	$\Omega$	3	3.5	3	3.5	3	3.5
Interwinding Capacitance (max)	pF	50	50	50	50	50	50
Winding Inductance							
• LM (min) <sup>(1-3)</sup>	mH	7.0	7.0	7.0	7.0 <sup>(4-8)</sup>	8.0	7.0 <sup>(4-8)</sup>
• LL (max)	$\mu\text{H}$	6.0	6.0	6.0	6.0	6.0	6.0
<b>Turns Ratios</b>							
Terminals							
• 1-3 : 4-8		1.4 : 1	1 : 1	1.20 : 1	1 : 2.5	1.25 : 1	1 : 2.12
• 1-3 : 5-7		2 : 1	1 : 0.707	1.67 : 1	1 : 1.79	1.66 : 1	1 : 1.5

## To Order

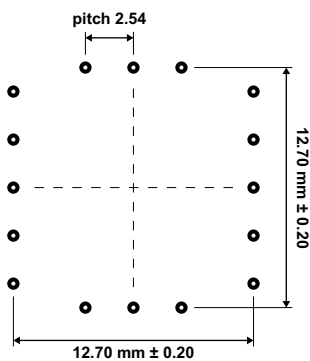
### SBIT # 7.8P

SBIT	#	7.8	P
Range	Part 1 to 8 except 4 and 6	Case height 7.8	P pins through hole

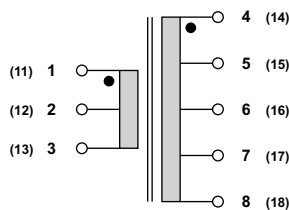
## Notes

Interwinding insulation: 500 Vrms-500 Hz.  
Flammability compliance: UL94V0

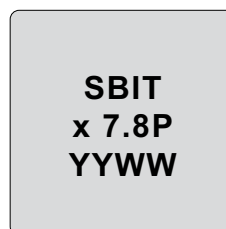
## PCB Layout (suggested)



## Connections



## Marking



yyww :  
Date code

## Typical Dimensions (mm)

