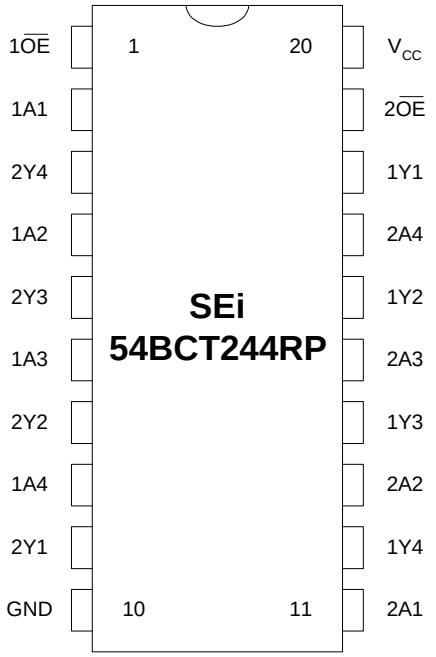
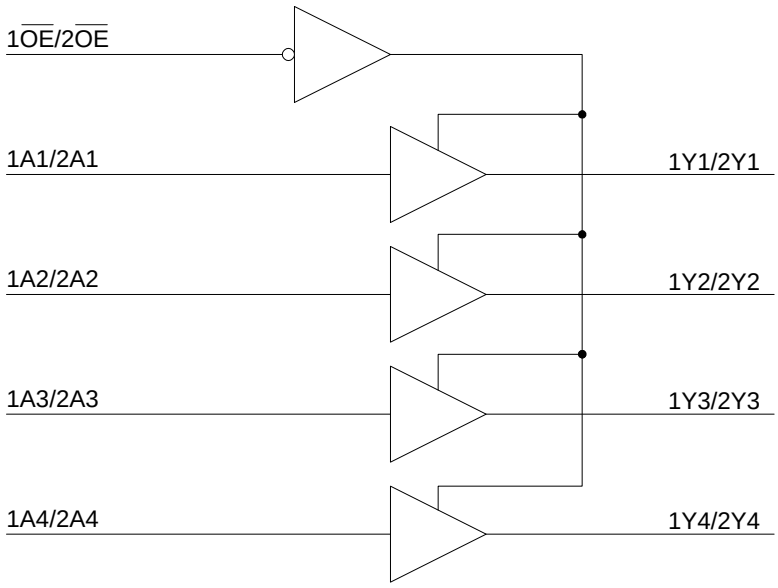




FEATURES:

- 3-state outputs drive bus lines or buffer memory address registers
- RAD-PAK® radiation-hardened against natural space radiation
- Total dose hardness: 100 krad (Si) typical; dependent upon orbit
- Package:
  - 20-pin RAD-PAK® flat package
- Operating temperature range:
  -55 °C to 125 °C
- P-N-P inputs reduce DC loading
- Typical V_{OLP} (output ground bounce)
  - < 0.8 V at V_{CC}=3.3 V, T_A=25 °C
- ESD protection exceeds 2000 V

DESCRIPTION:

Space Electronics' 54BCT244RP (RP for RAD-PAK®) octal buffers and line drivers features a typical 100 kilorad (Si) total dose tolerance; dependent upon orbit. The 54BCT244RP is organized as two 4-bit drivers with separate output enable ($\overline{OE}$) inputs. When $\overline{OE}$ is low, the device passes data from the A inputs to the Y outputs. When $\overline{OE}$ is high, the outputs are in the high impedance state. Capable of surviving in the space environment, the 54BCT244RP is ideal for satellite, spacecraft and space probe missions. It is available with packaging and screening up to Class S.

(858) 452-4167 - Fax: (858) 452-5499 - www.spaceelectronics.com

TABLE 1. 54BCT244RP ABSOLUTE MAXIMUM RATINGS [1]

PARAMETER	SYMBOL	MIN	MAX	UNIT
Supply Voltage Range	V_{CC}	-0.5	7.0	V
Input Voltage Range	V_I	-0.5	7.0	V
Voltage Range Applied to any Output in the Disable or Power-Off State	V_O	-0.5	5.5	V
Voltage Range Applied to any Output in High State	V_O	-0.5	V_{CC}	V
Current Into Any Output in the Low State	I_O	--	96	mA
Total Power Dissipation @ T_A = +55 ºC [2]	P_D	--	651	mW

1. Stresses above the absolute maximum rating may cause permanent damage to the device. Extended operation at the maximum levels may degrade performance and affect reliability.
2. Must be able to withstand the additional P_D due to short circuit test, e.g. I_{DS}. The P_D number is based upon dc values.

TABLE 2. 54BCT244RP RECOMMENDED OPERATING CONDITIONS

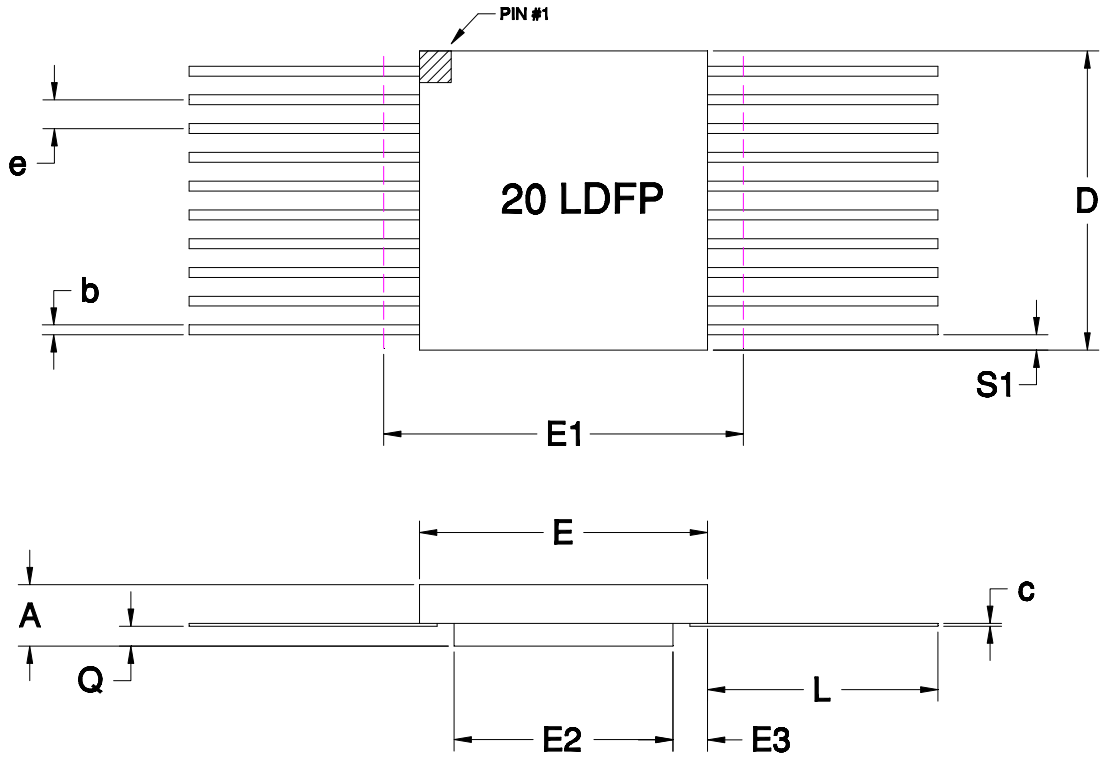
PARAMETER	SYMBOL	MIN	MAX	UNIT
Supply Voltage	V_{CC}	4.5	5.5	V
High-Level Input Voltage	V_{IH}	2.0	--	V
Low-Level Input Voltage	V_{IL}	--	0.8	V
High-Level Output Current	I_{OH}	--	-12	mA
Low-Level Output Current	I_{OL}	--	48	mA
Input Clamp Current	I_{IK}	--	-18	mA
Operating Free-Air Temperature	T_A	-55	125	ºC

TABLE 3. 54BCT244RP DC ELECTRICAL CHARACTERISTICS

(T_A = -55 °C TO 125 °C, UNLESS OTHERWISE SPECIFIED)

PARAMETER	SYMBOL	TEST CONDITIONS		MIN	TYP [1]	MAX	UNIT
High-Level Output Voltage	V_{OH}	V_{CC} = 4.5 V	I_{OH} = -3 mA	2.4	3.3	--	V
			I_{OH} = -12 mA	2	3.2	--	
Low-Level Output Voltage	V_{OL}	V_{CC} = 4.5 V, I_{OL} = 48 mA		--	0.38	0.55	V
Input Clamp Voltage	V_{IK}	V_{CC} = 4.5 V, I_I = -18.0 mA		--	--	-1.2	
Off-State Output Current High-Level Voltage Applied	I_{OZH}	V_{CC} = 5.5 V, V_I = 2.7 V		--	--	50	µA
High Level Input Current	I_{IH1}	V_{CC} = 5.5 V, V_{IN} = 7 V		--	--	0.1	mA
	I_{IH2}	V_{CC} = 5.5 V, V_I = 2.7 V		--	--	20	
Low Level Input Current	I_{IL}	V_{CC} = 5.5 V, V_{IN} = 0.5 V		--	--	-1.0	mA
Short-circuit Output Current [2]	I_{OS}	V_{CC} = 5.5 V, V_O = 0.0 V		-100	--	-225	mA
Supply Current, Outputs High	I_{CCH}	V_{CC} = 5.5 V, Outputs Open		--	23	40	mA
Supply Current, Outputs Low	I_{CCL}	V_{CC} = 5.5 V, Outputs Open		--	53	80	mA
Supply Current, Outputs Disabled to High Impedance State	I_{CCZ}	V_{CC} = 5.5 V, Outputs Open		--	4	10	mA
Propagation Delay Time, from An to Yn	t_{PLH}	V_{CC} = 4.5 to 5.5 V C_L = 50 pF R_1 = 500 Ω R_2 = 500 Ω		--	--	5.3	ns
	t_{PHL}	T_A = -55 to +125 °C		--	--	6	
	t_{PLH}	V_{CC} = 5.0 V C_L = 50 pF R_1 = 500 Ω R_2 = 500 Ω		--	2.5	4.4	
	t_{PHL}	T_A = +25 °C		--	3.2	5	
Output Enable Time,from Gn to Yn	t_{PZH}	V_{CC} = 4.5 to 5.5 V C_L = 50 pF R_1 = 500 Ω R_2 = 500 Ω		--	--	9	ns
	t_{PZL}	T_A = -55 to +125 °C		--	--	9.4	
	t_{PZH}	V_{CC} = 5.0 V C_L = 50 pF R_1 = 500 Ω R_2 = 500 Ω		--	5.7	7.8	
	t_{PZL}	T_A = +25 °C		--	5.9	8.1	
Output Disable Time	t_{PHZ}	V_{CC} = 4.5 to 5.5 V C_L = 50 pF R_1 = 500 Ω R_2 = 500 Ω		--	--	8	ns
	t_{PLZ}	T_A = -55 to +125 °C		--	--	9.8	
	t_{PHZ}	V_{CC} = 5.0 V C_L = 50 pF R_1 = 500 Ω R_2 = 500 Ω		--	5.4	6.7	
	t_{PLZ}	T_A = +25 °C		--	6.1	7.6	

1. All typical value are at V_{CC} = 5 V.
2. Not more than one output should be shorted at one time and the duration of test shall not exceed one second.



20 PIN FLAT PACKAGE

SYMBOL	DIMENSION		
	MIN	NOM	MAX
A	0.128	0.141	0.154
b	0.015	0.017	0.022
c	0.003	0.005	0.009
D	0.470	0.480	0.490
E	0.287	0.295	0.303
E1	--	--	0.333
E2	0.155	0.160	--
E3	0.030	0.068	--
e		0.050BSC	
L	0.370	0.380	0.390
Q	0.035	0.039	0.042
S1	0.005	0.007	--
N		20	

F20-01
Note: All dimensions in inches

Important Notice:
These data sheets are created using the chip manufacturers published specifications. Space Electronics verifies functionality by testing key parameters either by 100% testing, sample testing or characterization.

The specifications presented within these data sheets represent the latest and most accurate information available to date. However, these specifications are subject to change without notice and Space Electronics assumes no responsibility for the use of this information.

Space Electronics' products are not authorized for use as critical components in life support devices or systems without express written approval from Space Electronics.

Any claim against Space Electronics Inc. must be made within 90 days from the date of shipment from Space Electronics. Space Electronics' liability shall be limited to replacement of defective parts.