

# V54FCT645 V74FCT645

## OCTAL BUS TRANSCEIVERS WITH 3-STATE OUTPUTS

### FEATURES

- Direct CMOS Replacement for FAST™
- Speed Equivalent to FAST
- Output Drive Equivalent to FAST
- CMOS Low Power (5µW typ. static)
- Outputs Compatible with both CMOS and TTL
- JEDEC Standard Pinouts
- Patented Low Noise Output Driver

### FUNCTIONAL DESCRIPTION

These 8-bit bus transceivers allow asynchronous two-way communication between data buses A and B. The DIR signal controls the direction of data flow. When DIR is high, data flows from A to B. When DIR is low, data flows from B to A. The  $\bar{G}$  signal enables the transceiver.

These parts are designed to interface with 3-state buses and I/O parts.

### SWITCHING CHARACTERISTICS OVER OPERATING RANGE

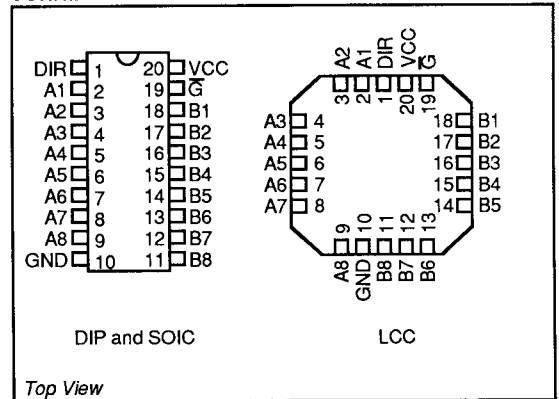
Symbol	Parameter	Condition	Typ	Comm		Mil	
				Min	Max	Min	Max
$t_{PLH}$ $t_{PHL}$	Propagation Delay A to B or B to A	$C_L = 50\text{pf}$ $R_L = 500\Omega$	6.0	1	9.5	1	11.0
$t_{PZH}$ $t_{PZL}$	Output Enable Time		9.0	1	11.0	1	12.0
$t_{PHZ}$ $t_{PLZ}$	Output Disable Time		6.0	1	12.0	1	13.0
$t_{DLH}$ $t_{DHL}$	Propagation Delay DIR to A or B*		6.0	—	—	—	—

\*Guaranteed by design

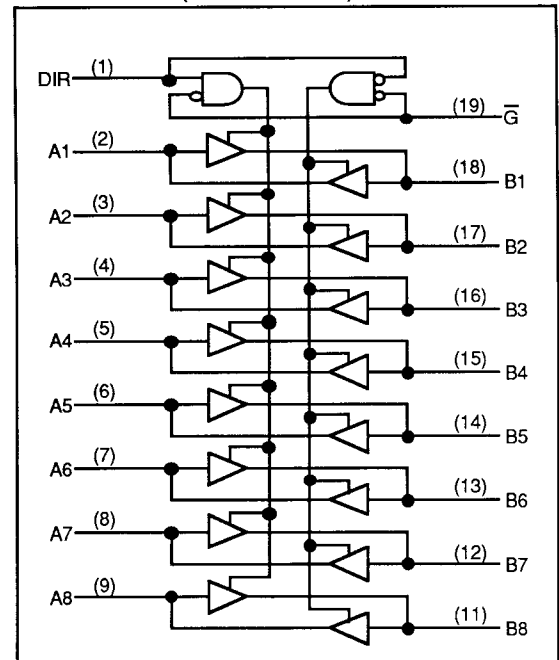
### FUNCTION TABLE

ENABLE	DIRECTION CONTROL	OPERATION
$\bar{G}$	DIR	
L	L	B data to A bus
L	H	A data to B bus
H	X	Isolation

### CONNECTION DIAGRAMS



### LOGIC DIAGRAM (POSITIVE LOGIC)



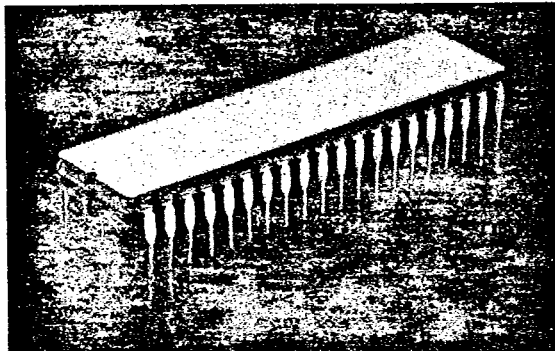
PACKAGING

T-90-20

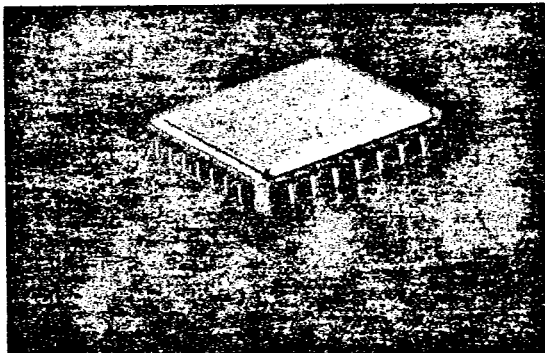
VTC offers a wide variety of industry-standard packages for its products. These include plastic and ceramic dual in-line, side brazed ceramic, plastic small outline, plastic leaded chip carrier, ceramic leadless chip carrier, surface mount plastic, ceramic flatpacks and pin grid array packages.

Pin counts to 172 pins are used in volume manufacturing and pin counts up to 300 are in development.

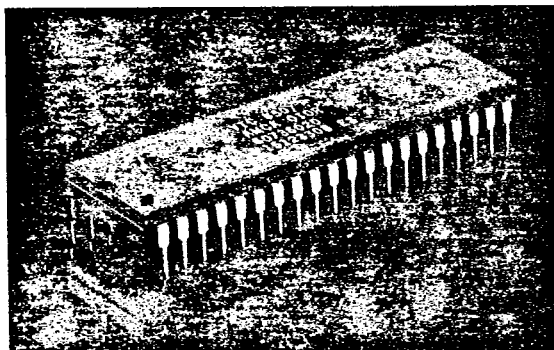
The packages dimensions given in this section are offered for VTC's advanced CMOS logic products. The ACL products are available compliant to MIL-STD-883.



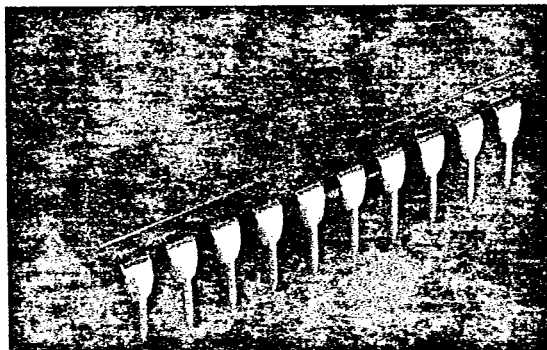
Ceramic DIP (Cerdip)



Ceramic Leadless Chip Carrier (LCC)



Plastic DIP



Plastic Slimline DIP

PACKAGING AND ORDERING

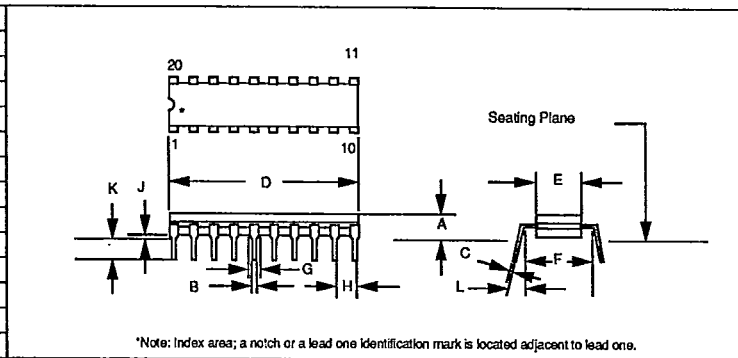


Plastic SOIC

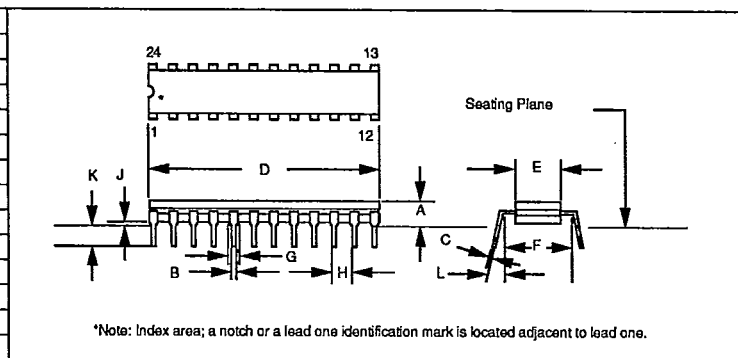
CERAMIC DIP (CERDIP)

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20 PIN CERAMIC DIP				
SYMBOL	INCHES		MILLIMETERS	
	MIN.	MAX.	MIN.	MAX.
A	0.155	0.200	3.94	5.08
B	0.014	0.023	0.36	0.58
C	0.008	0.015	0.20	0.38
D	0.940	0.960	23.87	24.39
E	0.220	0.300	5.59	7.62
F	0.300 BSC		7.62 BSC	
G	0.030	0.070	0.76	1.78
H	0.100 BSC		2.54 BSC	
J	0.015	0.060	0.38	1.52
K	0.125	0.200	3.18	5.08
L	0°	15°	0°	15°



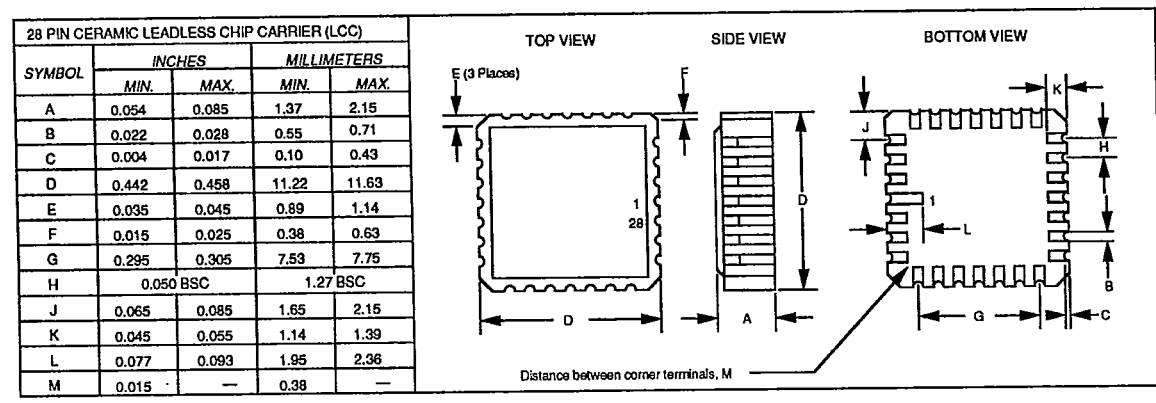
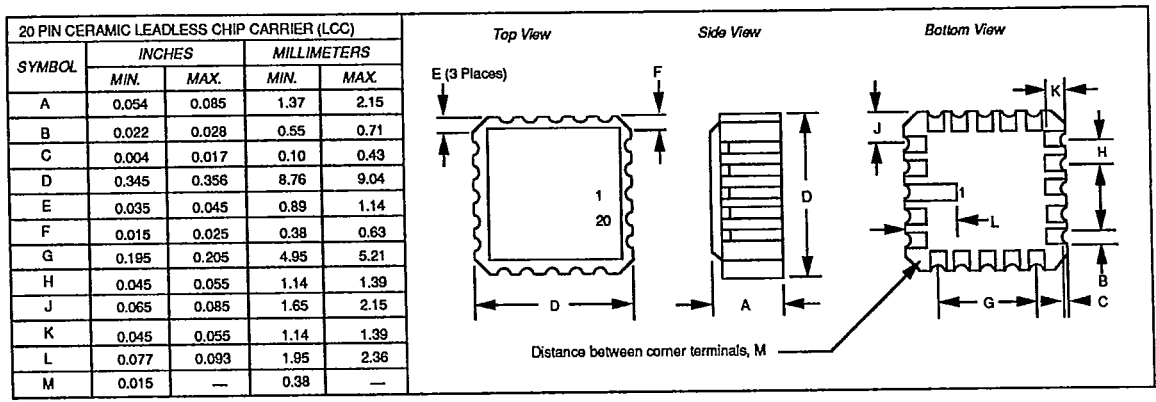
24 PIN CERAMIC DIP				
SYMBOL	INCHES		MILLIMETERS	
	MIN.	MAX.	MIN.	MAX.
A	0.155	0.200	3.94	5.08
B	0.014	0.023	0.36	0.58
C	0.008	0.015	0.20	0.38
D	1.150	1.350	29.21	34.29
E	0.220	0.300	5.59	7.62
F	0.300 BSC		7.62 BSC	
G	0.030	0.070	0.76	1.78
H	0.100 BSC		2.54 BSC	
J	0.015	0.060	0.38	1.52
K	0.125	0.200	3.18	5.08
L	0°	15°	0°	15°



PACKAGING AND ORDERING

CERAMIC LEADLESS CHIP CARRIER (LCC)

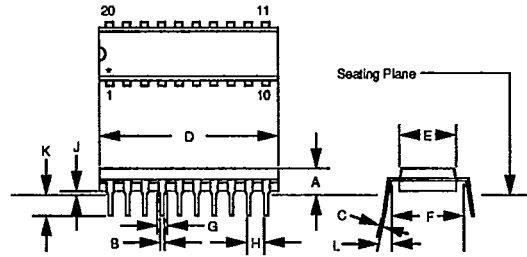
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PACKAGING AND ORDERING

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20 PIN PLASTIC DIP				
SYMBOL	INCHES		MILLIMETERS	
	MIN.	MAX.	MIN.	MAX.
A	—	0.210	—	5.33
B	0.014	0.022	0.356	0.558
C	0.008	0.015	0.204	0.381
D	0.925	1.060	23.5	26.9
E	0.240	0.280	6.10	7.11
F	0.300	0.325	7.62	8.25
G	0.045	0.070	1.15	1.77
H	0.100 BSC		2.54 BSC	
J	0.015	—	0.39	—
K	0.115	0.160	2.93	4.06
L	Ø	15°	Ø	15°



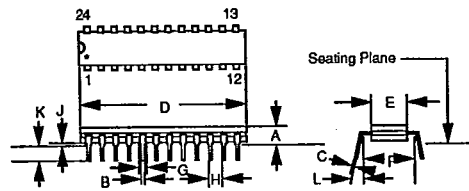
\*Note: Index area; a notch or a lead one identification mark is located adjacent to lead one.

PACKAGING  
AND ORDERING

PLASTIC SLIMLINE DIP

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24 PIN 'SLIMLINE' PLASTIC DIP				
SYMBOL	INCHES		MILLIMETERS	
	MIN.	MAX.	MIN.	MAX.
A	—	0.210	—	5.33
B	0.014	0.022	0.356	0.558
C	0.008	0.015	0.204	0.381
D	1.125	1.275	29.3	32.3
E	0.240	0.280	6.10	7.11
F	0.300 BSC		7.62 BSC	
G	0.045	0.070	1.15	1.77
H	0.100 BSC		2.54 BSC	
J	0.015	—	0.39	—
K	0.115	0.160	2.93	4.06
L	0°	15°	0°	15°

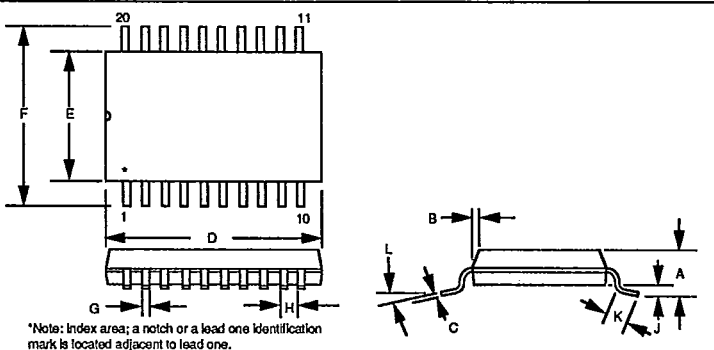


\*Note: Index area; a notch or a lead one identification mark is located adjacent to lead one.

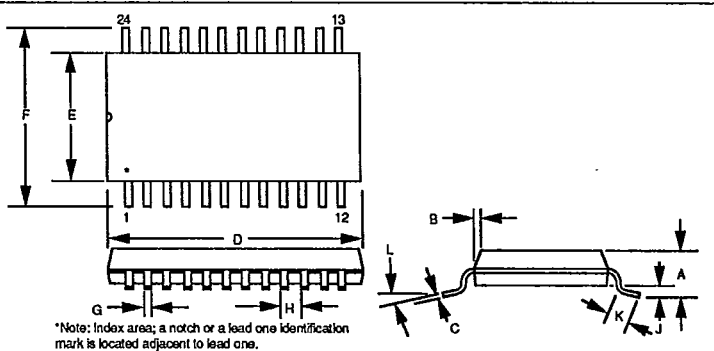
PACKAGING AND ORDERING

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20 PIN SOIC				
SYMBOL	INCHES		MILLIMETERS	
	MIN.	MAX.	MIN.	MAX.
A	0.092	0.110	2.35	2.75
B	0.009	0.030	0.25	0.75
C	0.007	0.013	0.18	0.32
D	0.496	0.512	12.60	13.00
E	0.291	0.300	7.40	7.60
F	0.393	0.420	10.00	10.65
G	0.013	0.020	0.35	0.49
H	0.050 BSC		1.27 BSC	
J	0.003	0.012	0.10	0.30
K	0.015	0.050	0.40	1.27
L	Ø	Ø	Ø	Ø



24 PIN SOIC				
SYMBOL	INCHES		MILLIMETERS	
	MIN.	MAX.	MIN.	MAX.
A	0.092	0.110	2.35	2.75
B	0.009	0.030	0.25	0.75
C	0.007	0.013	0.18	0.32
D	0.598	0.615	15.20	15.62
E	0.291	0.300	7.40	7.60
F	0.393	0.420	10.00	10.65
G	0.013	0.020	0.35	0.49
H	0.050 BSC		1.27 BSC	
J	0.003	0.012	0.10	0.30
K	0.015	0.050	0.40	1.27
L	Ø	Ø	Ø	Ø



PACKAGING  
AND ORDERING