TECHNICAL DATA SHEET

6 Lake Street, Lawrence, MA 01841
1-800-446-1158 / (978) 620-2600 / Fax: (978) 689-0803
Website: http://www.microsemi.com

Gort Road Business Park, Ennis, Co. Clare, Ireland
Tel: +353 (0) 65 6840044 Fax: +353 (0) 65 6822298

NPN SILICON DUAL TRANSISTOR

Qualified per MIL-PRF-19500 /495

DEVICES

2N5793
2N5794 2N5794U 2N5794UC

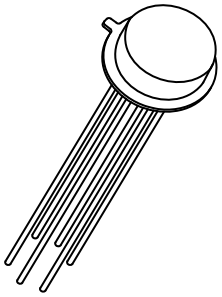
LEVELS

JAN
JANTX
JANTV
JANS

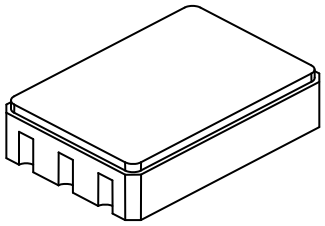
ABSOLUTE MAXIMUM RATINGS ***(T_C = +25°C unless otherwise noted)***

Parameters / Test Conditions	Symbol	Value		Unit
Collector-Emitter Voltage	V_{CEO}	40		Vdc
Collector-Base Voltage	V_{CBO}	75		Vdc
Emitter-Base Voltage	V_{EBO}	6.0		Vdc
Collector Current	I_C	600		mAdc
		One Section [1]	Total Device [2]	
Total Power Dissipation @ T_A = +25°C	P_T	0.5	0.6	W
Operating & Storage Junction Temperature Range	T_{op}, T_{stg}	-65 to +200		°C

NOTES:
1. Derate linearly 2.86 mW/°C for T_A > +25°C
2. Derate linearly 3.43 mW/°C for T_A > +25°C



TO-78



6 PIN SURFACE MOUNT

ELECTRICAL CHARACTERISTICS ***(T_A = +25°C, unless otherwise noted)***

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
OFF CHARACTERTICS				
Collector-Emitter Breakdown Current I_C = 10mAdc	$V_{(BR)CEO}$	40		Vdc
Collector-Base Cutoff Current V_{CB} = 75Vdc V_{CB} = 50Vdc	I_{CBO}		10 10	µAdc ηAdc
Emitter-Base Cutoff Current V_{EB} = 6.0Vdc V_{EB} = 4.0Vdc	I_{EBO}		10 10	µAdc ηAdc

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ELECTRICAL CHARACTERISTICS (con't)

Parameters / Test Conditions		Symbol	Min.	Max.	Unit
ON CHARACTERTICS					
Forward-Current Transfer Ratio					
I_C = 100µAdc, V_{CE} = 10Vdc	2N5793	h_{FE}	20		
I_C = 1.0mAdc, V_{CE} = 10Vdc			25		
I_C = 10mAdc, V_{CE} = 10Vdc			35		
I_C = 150mAdc, V_{CE} = 10Vdc			40	120	
I_C = 300mAdc, V_{CE} = 10Vdc			25		
I_C = 150mAdc, V_{CE} = 1.0Vdc			20		
I_C = 100µAdc, V_{CE} = 10Vdc	2N5794, 2N5794U, 2N5794UC	h_{FE}	35		
I_C = 1.0mAdc, V_{CE} = 10Vdc			50		
I_C = 10mAdc, V_{CE} = 10Vdc			75		
I_C = 150mAdc, V_{CE} = 10Vdc			100	300	
I_C = 300mAdc, V_{CE} = 10Vdc			40		
I_C = 150mAdc, V_{CE} = 1.0Vdc			50		
Collector-Emitter Saturation Voltage					
I_C = 150mAdc, I_B = 15mAdc		$V_{CE(sat)}$		0.3	Vdc
I_C = 300mAdc, I_B = 30mAdc				0.9	
Base-Emitter Saturation Voltage					
I_C = 150mAdc, I_B = 15mAdc		$V_{BE(sat)}$	0.6	1.2	Vdc
I_C = 300mAdc, I_B = 30mAdc				1.8	

DYNAMIC CHARACTERISTICS

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
Forward Current Transfer Ratio, Magnitude I_C = 20mAdc, V_{CE} = 20Vdc, f = 100MHz	$\|h_{fe}\|$	2.0	10	
Output Capacitance V_{CB} = 10Vdc, I_E = 0, 100kHz ≤ f ≤ 1.0MHz	C_{obo}		8.0	pF
Input Capacitance V_{EB} = 0.5Vdc, I_C = 0, 100kHz ≤ f ≤ 1.0MHz	C_{ibo}		33	pF

SWITCHING CHARACTERISTICS

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
Turn-On Time V_{CC} = 30Vdc, I_C = 150mAdc, I_{B1} = 15mAdc, $V_{BE(off)}$ = 0.5Vdc	t_{on}		45	ηs
Turn-Off Time V_{CC} = 30Vdc, I_C = 150mAdc, I_{B1} = I_{B2} =15mAdc	t_{off}		310	ηs

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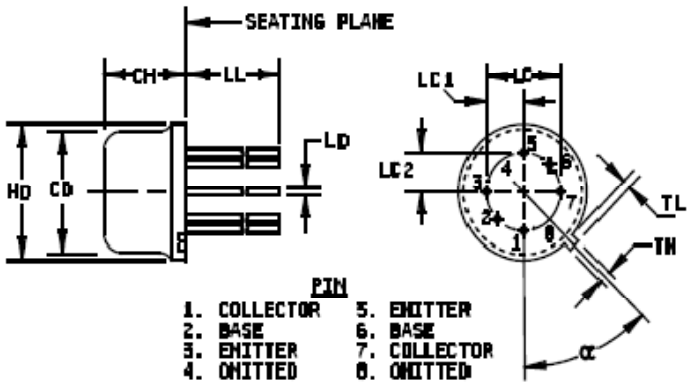
PACKAGE DIMENSIONS



Symbol	Inches		Millimeters		Note
	Min	Max	Min	Max	
CD	.305	.335	7.75	8.51	
CH	.150	.185	3.81	4.70	
H	.335	.370	8.51	9.40	
L	.016	.021	0.41	0.53	
L	.500		12.7		
LC	.200 BSC		5.08 BSC		4
LC	.100 BSC		2.54 BSC		
LC	.100 BSC		2.54 BSC		
T	.029	.045	0.74	1.14	3
T	.028	.034	0.71	0.86	
α	45° TP		45° TP		6

NOTES:

1. Dimensions are in inches.
2. Millimeters are given for general information only.
3. Measured from maximum diameter of the product.
4. Leads having maximum diameter .019 inch (.483 mm) measured in gaging plan .054 inch (1.37 mm) + .001 inch (.025 mm) - .000 inch (.000 mm) below the seating plane of the product shall be within .007 inch (.178 mm) of their true position relative to a maximum width tab.
5. The product may be measured by direct methods or by gauge.
6. Tab centerline.
7. In accordance with ASME Y14.5M, diameters are equivalent to ϕx symbology.

FIGURE 1. Physical dimensions (2N5793 and 2N5797) (similar to TO-99)

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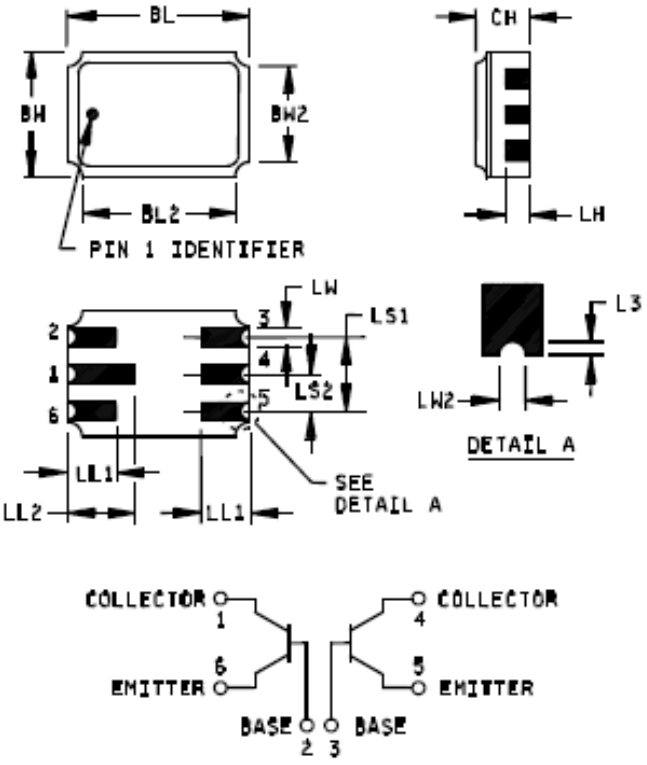

Symbol	Dimensions			
	Inches		Millimeters	
	Min	Max	Min	Max
BL	.240	.250	6.10	6.35
BL2		.250		6.35
BW	.165	.175	4.19	4.45
BW2		.175		4.45
CH	.058	.100	1.47	2.54
L3	.003	.007	0.08	0.18
LH	.026	.039	0.66	0.99

Symbol	Dimensions			
	Inches		Millimeters	
	Min	Max	Min	Max
LL1	.060	.070	1.52	1.78
LL2	.082	.098	2.08	2.49
LS1	.095	.105	2.41	2.67
LS2	.045	.055	1.14	1.40
LW	.022	.028	0.56	0.71
LW2	.006	.022	0.15	0.56

NOTES:

1. Dimensions are in inches.
2. Millimeters are given for general information only.
3. Dimension "CH" controls the overall package thickness.
4. The corner shape (square, notch, radius, etc.) may vary at the manufacturer's option from that shown on the drawing.
5. Dimensions "LW2" minimum and "L3" minimum and the appropriate castellation length define an unobstructed three-dimensional space traversing all of the ceramic layers in which a castellation was designed. (Castellations are required on bottom two layers, optional on top ceramic layer.) Dimension "LW2" maximum and "L3" maximum define the maximum width and depth of the castellation at any point on its surface. Measurement of these dimensions may be made prior to solder dipping.
6. Lead 4 = collector.
7. In accordance with ASME Y14.5M, diameters are equivalent to ϕx symbology.

FIGURE 2. Physical dimensions, 2N5794U.

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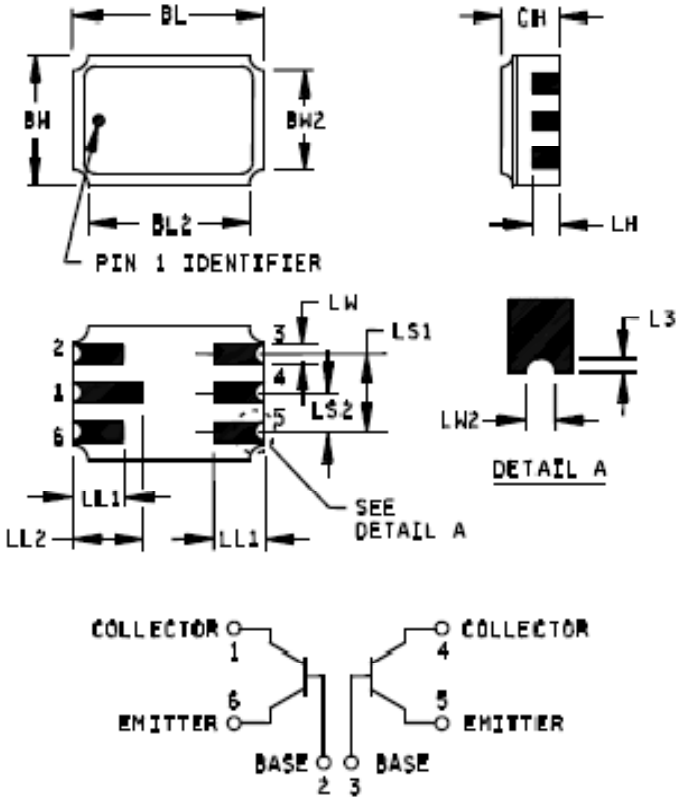

Symbol	Dimensions			
	Inches		Millimeters	
	Min	Max	Min	Max
BL	.240	.250	6.10	6.35
BL2		.250		6.35
BW	.165	.175	4.19	4.45
BW2		.175		4.45
CH	.058	.115	1.47	2.92
L3	.003	.007	0.08	0.18
LH	.026	.039	0.66	0.99

Symbol	Dimensions			
	Inches		Millimeters	
	Min	Max	Min	Max
LL1	.060	.070	1.52	1.78
LL2	.082	.098	2.08	2.49
LS1	.095	.105	2.41	2.67
LS2	.045	.055	1.14	1.40
LW	.022	.028	0.56	0.71
LW2	.006	.022	0.15	0.56

NOTES:

1. Dimensions are in inches.
2. Millimeters are given for general information only.
3. Dimension "CH" controls the overall package thickness and is ceramic.
4. The corner shape (square, notch, radius, etc.) may vary at the manufacturer's option from that shown on the drawing.
5. Dimensions "LW2" minimum and "L3" minimum and the appropriate castellation length define an unobstructed three-dimensional space traversing all of the ceramic layers in which a castellation was designed. (Castellations are required on bottom two layers, optional on top ceramic layer.) Dimension "LW2" maximum and "L3" maximum define the maximum width and depth of the castellation at any point on its surface. Measurement of these dimensions may be made prior to solder dipping.
6. Lead 4 = Collector.
7. In accordance with ASME Y14.5M, diameters are equivalent to ϕx symbology.

FIGURE 3. Physical dimensions, 2N5794UC.