

**TO-92 Plastic-Encapsulate Transistors****2SA719/2SA720**

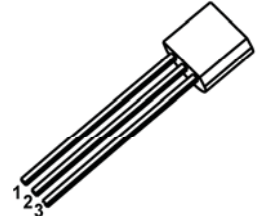
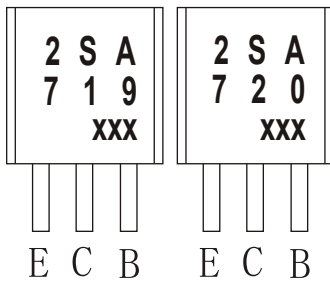
TRANSISTOR (PNP)

FEATURES

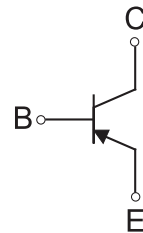
- For Low-Frequency Power Amplification and Driver Amplification

TO-92

1. EMITTER
2. COLLECTOR
3. BASE

**MARKING**

2SA719 & 2SA720 = Device code
XXX=Code
GXX=Green molding compound device
CXX=Normal molding compound device

Equivalent Circuit**ORDERING INFORMATION**

Part Number	Package	Packing Method	Pack Quantity
2SA719/2SA720	TO-92	Bulk	1000pcs/Bag
2SA719-TA/2SA720-TA	TO-92	Tape	2000pcs/Box

MAXIMUM RATINGS (Ta=25°C unless otherwise noted)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	2SA719 -30	V
		2SA720 -60	V
V_{CEO}	Collector-Emitter Voltage	2SA719 -25	V
		2SA720 -50	V
V_{EBO}	Emitter-Base Voltage	-5	V
I_C	Collector Current -Continuous	-0.5	A
P_D	Collector Power Dissipation	625	mW
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	200	°C /W
T_J, T_{stg}	Operation Junction and Storage Temperature Range	-55~+150	°C

ELECTRICAL CHARACTERISTICS

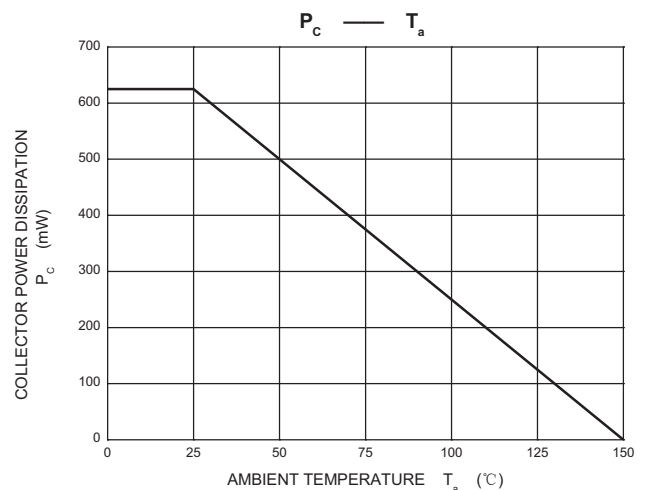
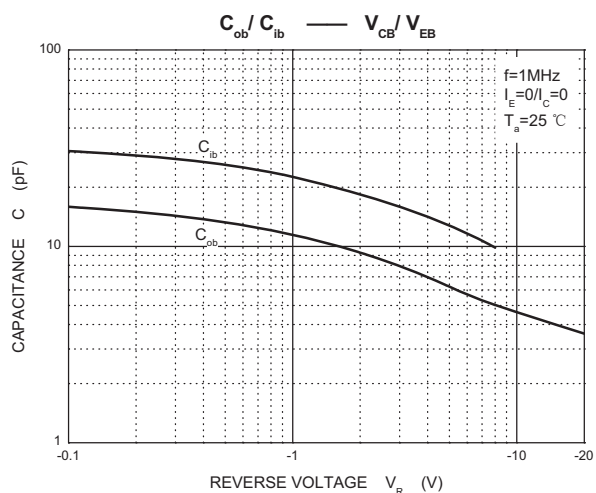
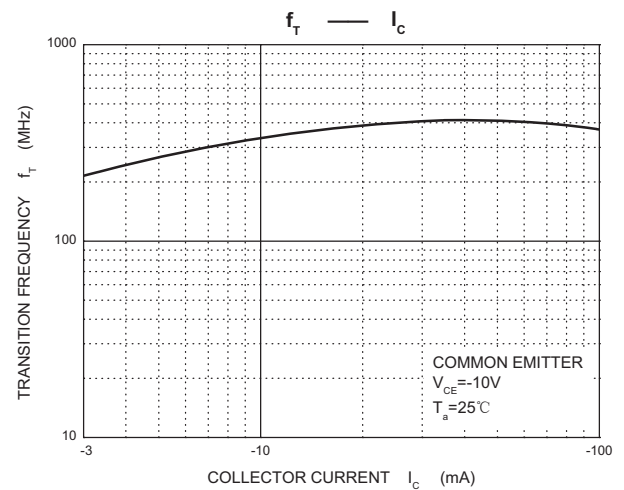
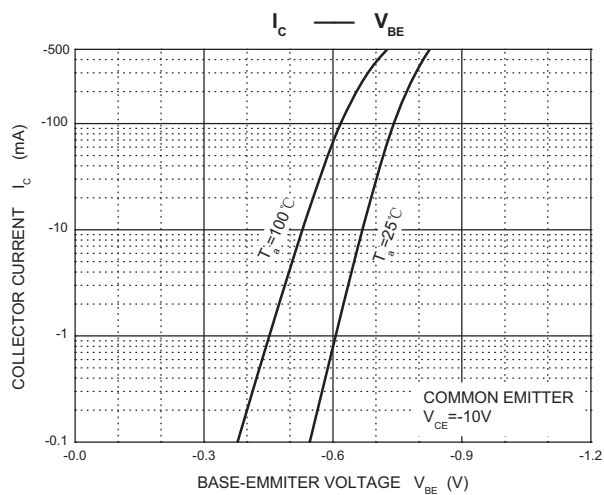
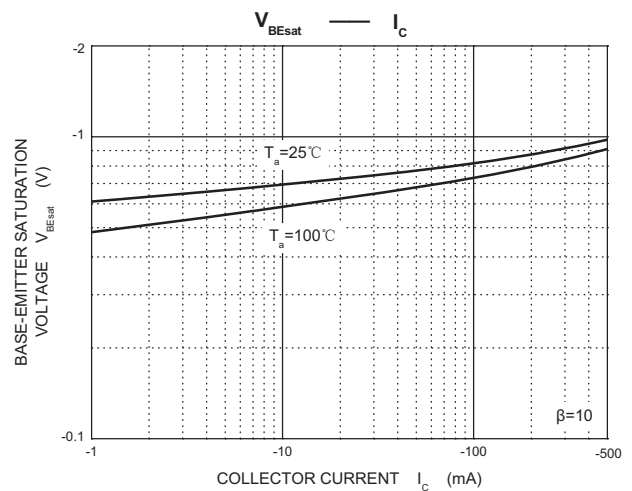
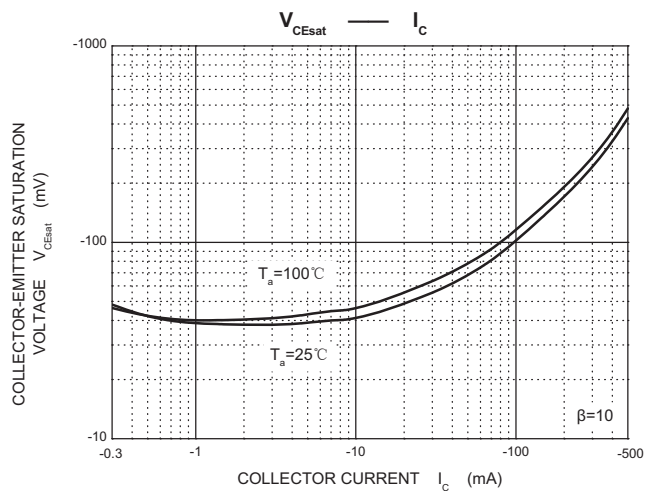
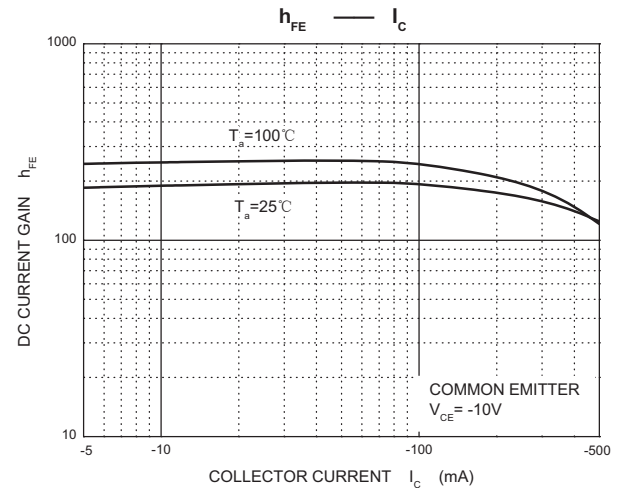
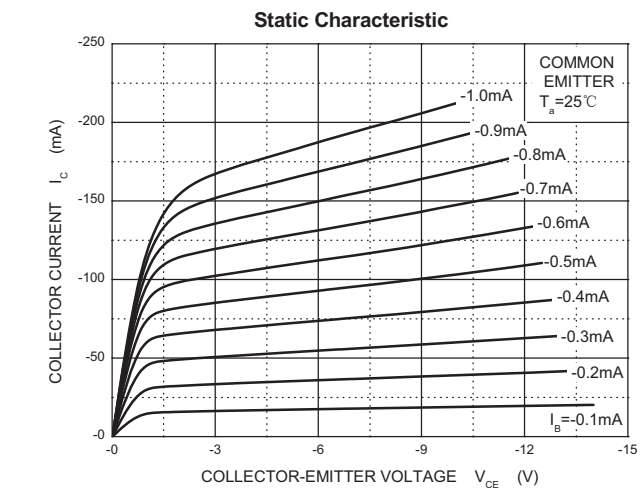
$T_a = 25^\circ\text{C}$ unless otherwise specified

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage 2SA719 2SA720	$V_{(BR)CBO}$	$I_C = -10\mu\text{A}, I_E = 0$	-30 -60			V
Collector-emitter breakdown voltage 2SA719 2SA720	$V_{(BR)CEO}$	$I_C = -10\text{mA}, I_B = 0$	-25 -50			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = -10\mu\text{A}, I_C = 0$	-5			V
Collector cut-off current	I_{CBO}	$V_{CB} = -20\text{V}, I_E = 0$			-0.1	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = -4\text{V}, I_C = 0$			-0.1	μA
DC current gain	$h_{FE(1)}$	$V_{CE} = -10\text{V}, I_C = -150\text{mA}$	85		340	
	$h_{FE(2)}$	$V_{CE} = -10\text{V}, I_C = -500\text{mA}$	40			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -300\text{mA}, I_B = -30\text{mA}$			-0.6	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = -300\text{mA}, I_B = -30\text{mA}$			-1.5	V
Transition frequency	f_T	$V_{CE} = -10\text{V}, I_C = -50\text{mA}$ $f = 200\text{MHz}$	200			MHz
Collector Output Capacitance	C_{ob}	$V_{CB} = -10\text{V}, I_E = 0, f = 1\text{MHz}$			15	pF

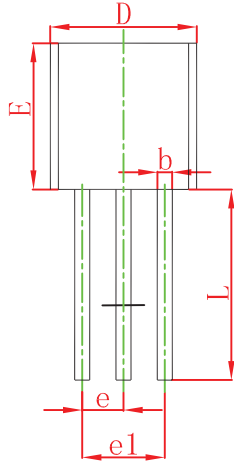
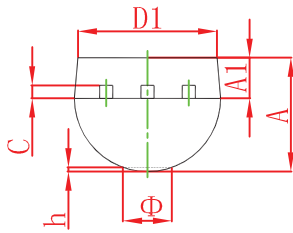
CLASSIFICATION $h_{FE(1)}$

Rank	Q	R	S
Range	85-170	120-240	170-340

Typical Characteristics

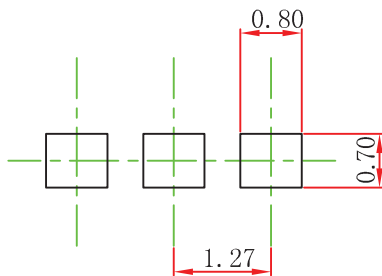


TO-92 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	3.300	3.700	0.130	0.146
A1	1.100	1.400	0.043	0.055
b	0.380	0.550	0.015	0.022
c	0.360	0.510	0.014	0.020
D	4.300	4.700	0.169	0.185
D1	3.430		0.135	
E	4.300	4.700	0.169	0.185
e	1.270 TYP		0.050 TYP	
e1	2.440	2.640	0.096	0.104
L	14.100	14.500	0.555	0.571
Φ		1.600		0.063
h	0.000	0.380	0.000	0.015

TO-92 Suggested Pad Layout

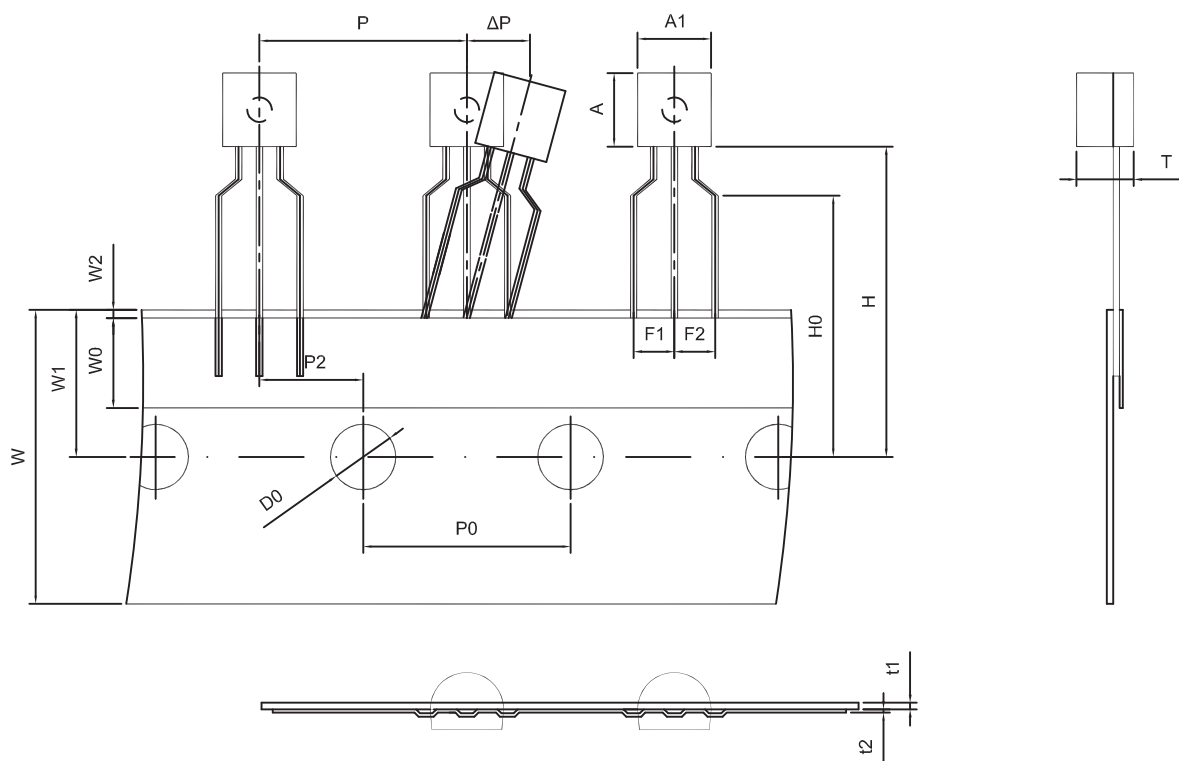


Note:

1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.

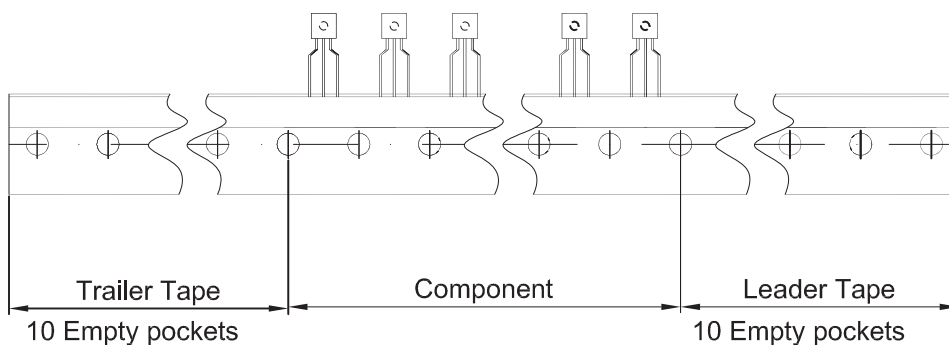
NOTICE

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Dimiensions are in millimeter

A1	A	T	P	P0	P2	F1	F2	W
4.5	4.5	3.5	12.7	12.7	6.35	2.5	2.5	18.0
W0	W1	W2	H	H0	D0	t1	t2	ΔP
6.0	9.0	1.0 MAX.	19.0	16.0	4.0	0.4	0.2	0



Package	Box	Box Size(mm)	Carton	Carton Size(mm)
TO-92	2000 pcs	333×162×43	20,000 pcs	350×340×250