Micro Commercial Components

Mi cro Commercial Components
20736 Marilla Street Chatsworth
CA 91311
Phone: (818) 701-4933
Fax: (818) 701-4939

2N2219A

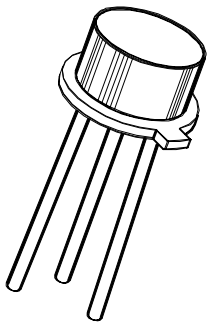
Features

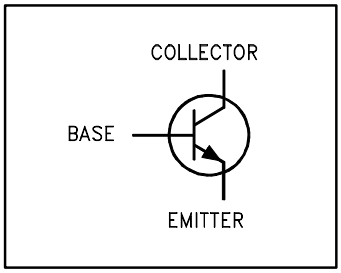
- Collector - Base Voltage 75 V
- Collector - Current 800 mA
- Medium Current, Bipolar Transistor
- Marking: Type number
- Lead Free Finish/RoHS Compliant(Note 1) ("P" Suffix designates RoHS Compliant. See ordering information)

SWITCHING TRANSISTOR

SMALL SIGNAL BIPOLAR *NPN* SILICON

TO-39





ABSOLUTE MAXIMUM RATINGS

Collector - Emitter Voltage	V_{CEO}	50	Vdc
Collector - Base Voltage	V_{CBO}	75	Vdc
Emitter - Base Voltage	V_{EBO}	6	Vdc
Collector Current - Continuous	I_C	800	mAdc
Total Device Dissipation @ T_A = 25 °C	P_D	0.8	WATTS
Derate above 25 °C		4.6	mW/°C
Total Device Dissipation @ T_C = 25 °C	P_D	1.0	WATTS
Derate above 25 °C		17.0	mW/°C
Operating Junction&Storage Temperature Range	T_J, T_{stg}	- 55 to +200	°C

Thermal Characteristics

CHARACTERISTIC	SYMBOL	MAX	UNIT
Thermal Resistance, Junction to Ambient	Rθ JA	217	°C/W
Thermal Resistance, Junction to Case	Rθ JC	59	°C/W

Notes:1.High Temperature Solder Exemption Applied, see EU Directive Annex 7.

Electrical Characteristics (T_A = 25°C unless otherwise noted)

OFF CHARACTERISTIC	SYMBOL	MIN	MAX	UNIT
Collector - Emitter Breakdown Voltage (1)	$V(BR)_{CEO}$			
(I_C = 10 mA dc, I_B = 0)		50		Vdc
Collector - Base Breakdown Voltage	$V(BR)_{CBO}$			
(I_C = 10 µAdc, I_E = 0)		75		Vdc
Emitter - Base Breakdown Voltage	$V(BR)_{EBO}$			
(I_E = 10 µAdc, I_C = 0)		6		Vdc
Collector - Emitter Cutoff Current	I_{CES}			
(V_{CE} = 50 Vdc)			10	nAdc
Collector - Base Cutoff Current	I_{CBO}			
(V_{CB} = 60 Vdc, I_E = 0)			10	nAdc
(V_{CB} = 60 Vdc, I_E = 0, T_A = 150 °C)			10	µAdc
Emitter - Base Cutoff Current	I_{EBO}			
(V_{EB} = 4 Vdc)			10	nAdc
(V_{EB} = 6 Vdc)			10	µAdc

ON CHARACTERISTIC	SYMBOL	MIN	MAX	UNIT
DC Current Gain	h_{FE}			
(I_C = 0.1 mA dc, V_{CE} = 10 Vdc) (1)		50		
(I_C = 1 mA dc, V_{CE} = 10 Vdc) (1)		75	325	
(I_C = 10 mA dc, V_{CE} = 10 Vdc) (1)		100		
(I_C = 150 mA dc, V_{CE} = 10 Vdc) (1)		100	300	
(I_C = 500 mA dc, V_{CE} = 10 Vdc) (1)		30		
(I_C = 10 mA dc, V_{CE} = 10 Vdc, T_J = -55°C) (1)		35		
Collector - Emitter Saturation Voltage	$V_{CE(sat)}$			
(I_C = 150 mAdc, I_B = 15 mAdc) (1)			0.3	Vdc
(I_C = 500 mAdc, I_B = 50 mAdc) (1)			1.0	Vdc
Base - Emitter Saturation Voltage	$V_{BE(sat)}$			
(I_C = 150 mAdc, I_B = 15 mAdc) (1)		0.6	1.2	Vdc
(I_C = 500 mAdc, I_B = 50 mAdc) (1)			2.0	Vdc

1. Pulse Test: Pulse Width ≤ 300 µs, Duty Cycle ≤.2%

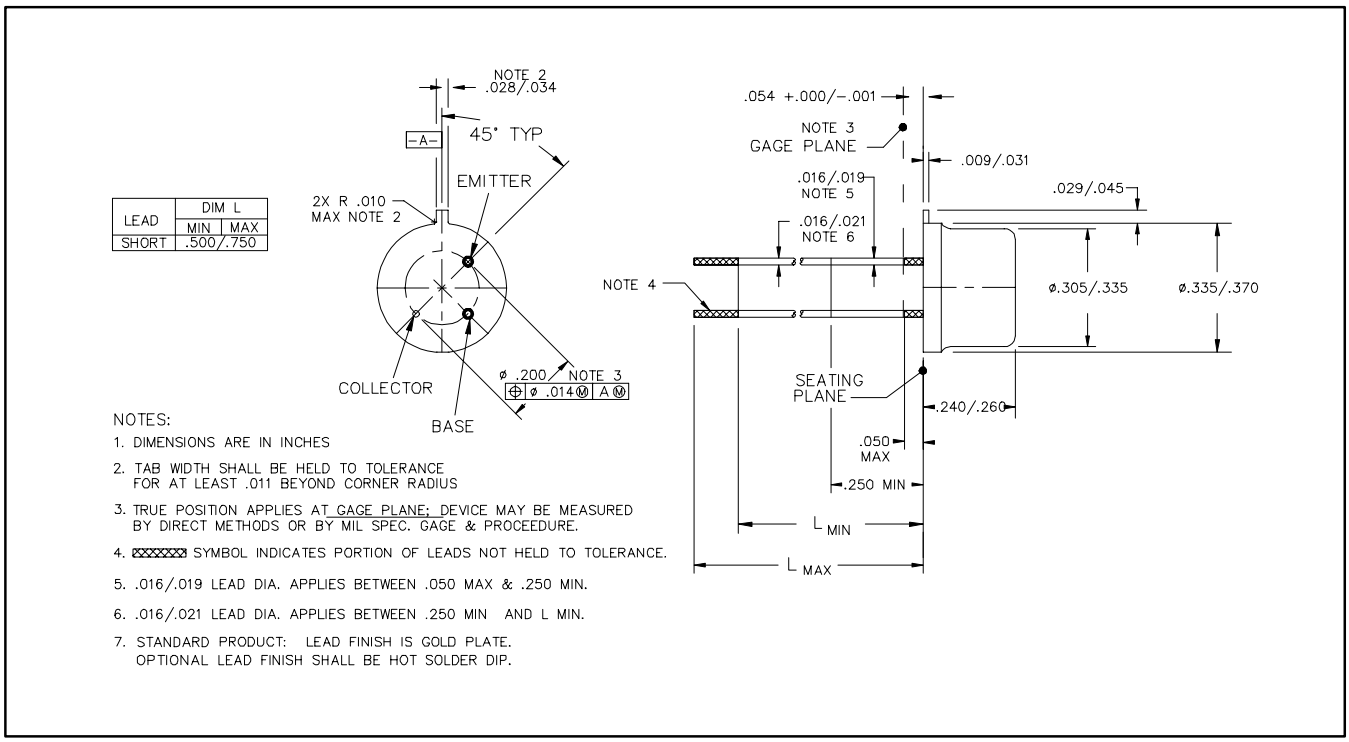
Electrical Characteristics (T_A = 25°C unless otherwise noted)

SMALL - SIGNAL CHARACTERISTICS	SYMBOL	MIN	MAX	UNIT
Output Capacitance	C_{obo}			
(V_{CB} = 10 Vdc, I_E = 0, 100kHz ≤ f ≤ 1 MHz)			8.0	pF
Input Capacitance	C_{ibo}			
(V_{EB} = 0.5 Vdc, I_C = 0, 100kHz ≤ f ≤ 1 MHz)			25	pF

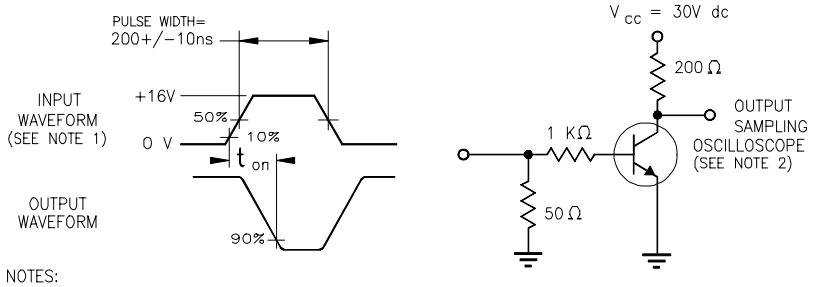
SWITCHING CHARACTERISTICS	SYMBOL	MIN	MAX	UNIT
Turn - On Time	t_{on}			
(V_{CC} = 30 Vdc, I_C = 150 mAdc,				
I_{B1} =15 mAdc) (See FIGURE 1)			35	ns
Turn - Off Time	t_{off}			
(V_{CC} = 30 Vdc, I_C = 150 mAdc,				
I_{B1} = - I_{B2} = 15 mAdc) (See FIGURE 2)			300	ns

Small - Signal AC Characteristics (T_A = 25°C)

LOW FREQUENCY	SYMBOL	MIN	MAX	UNIT
Common - Emitter Forward Current Transfer Ratio	h_{fe}			
(I_C = 1 mA, V_{CE} = 10 V, f = 1kHz)		75		
HIGH FREQUENCY				
Common - Emitter Forward Current Transfer Ratio	$\|h_{fe}\|$			
(I_C = 20 mA, V_{CE} = 20 V, f = 100 MHz)		2.5	12	



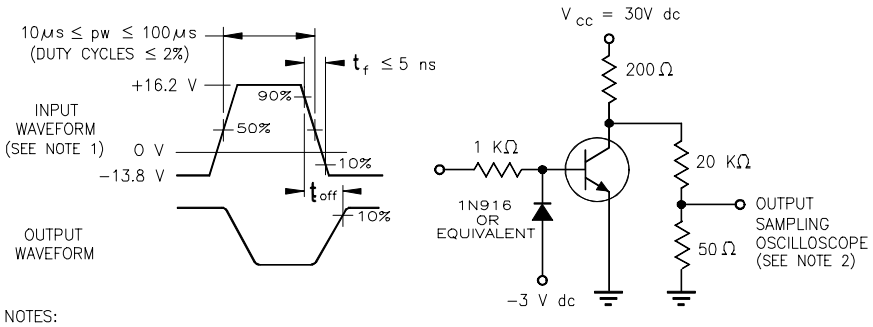
TO-39 CASE OUTLINE



NOTES:

1. The rise time (t_r) of the applied pulse shall be ≤ 2.0 ns, duty cycle ≤ 2 percent, and the generator source impedance shall be 50 ohms.
2. Sampling oscilloscope: Z_{in} ≤ 100 K ohms, C_{in} ≤ 12 pF, rise time ≤ 5 ns.

FIGURE 1 Saturated Turn-on Time Test Circuit



NOTES:

1. The rise time (t_r) of the applied pulse shall be ≤ 2.0 ns, duty cycle ≤ 2 percent, and the generator source impedance shall be 50 ohms.
2. Sampling oscilloscope: Z_{in} ≤ 100 K ohms, C_{in} ≤ 12 pF, rise time ≤ 5 ns.

FIGURE 2 Saturated Turn-off Time Test Circuit

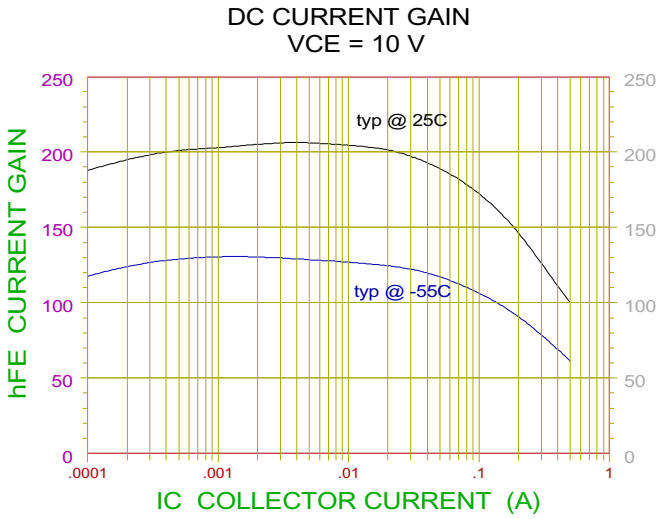


FIGURE 3

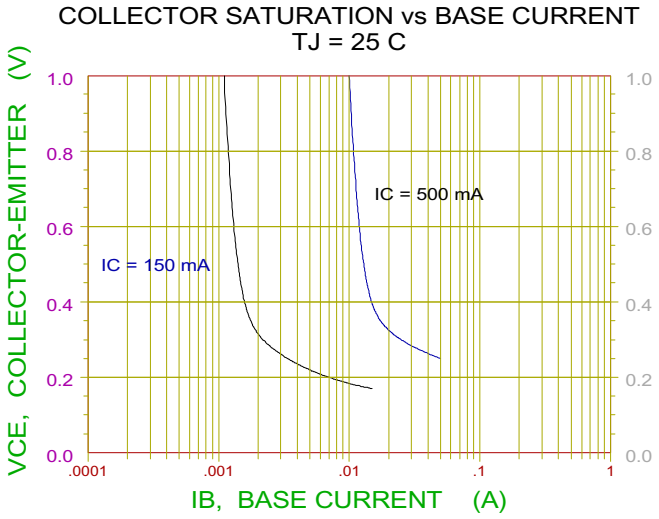


FIGURE 4

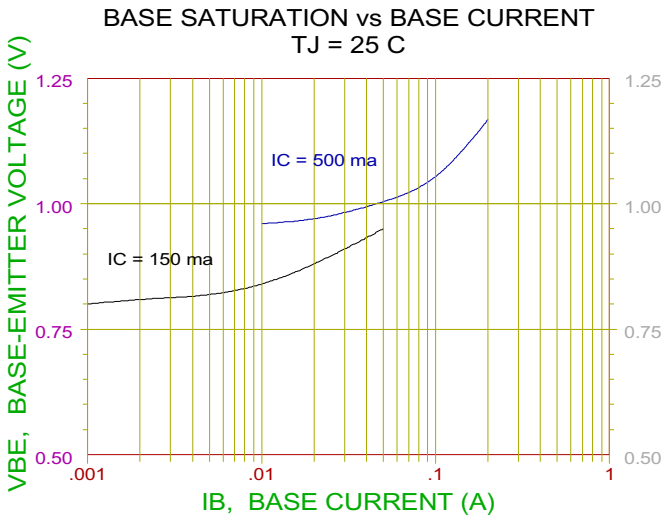


FIGURE 5

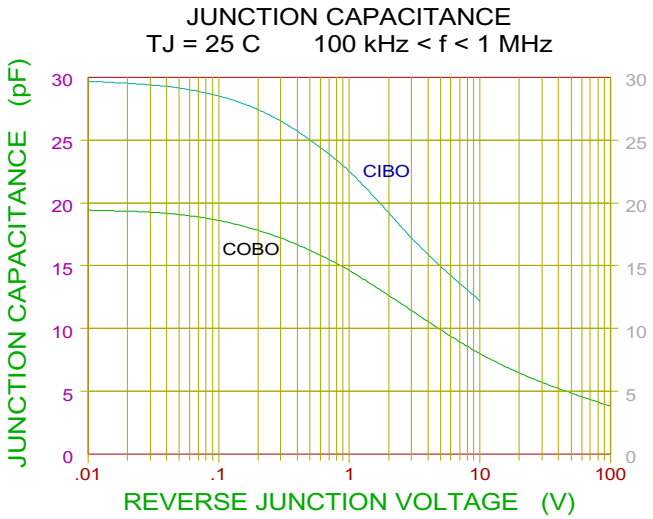


FIGURE 6

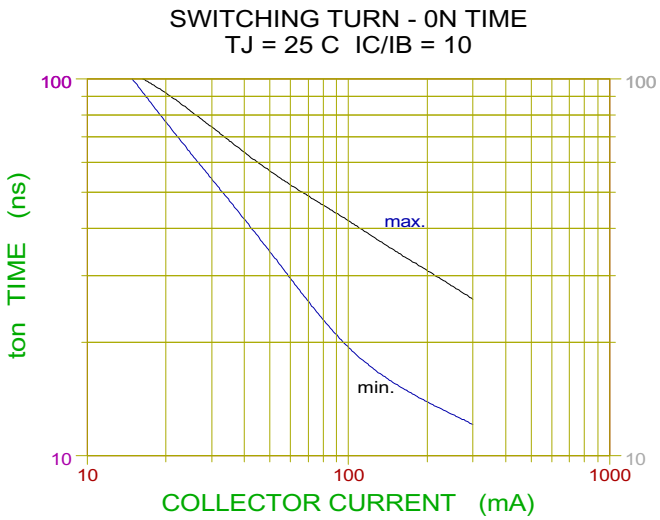


FIGURE 7

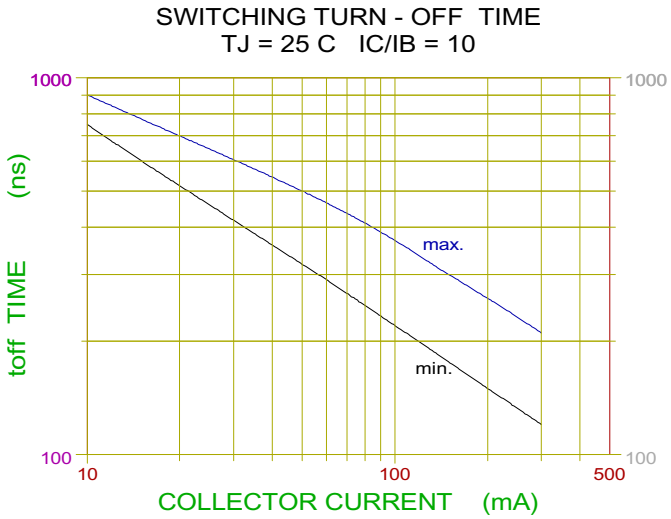


FIGURE 8

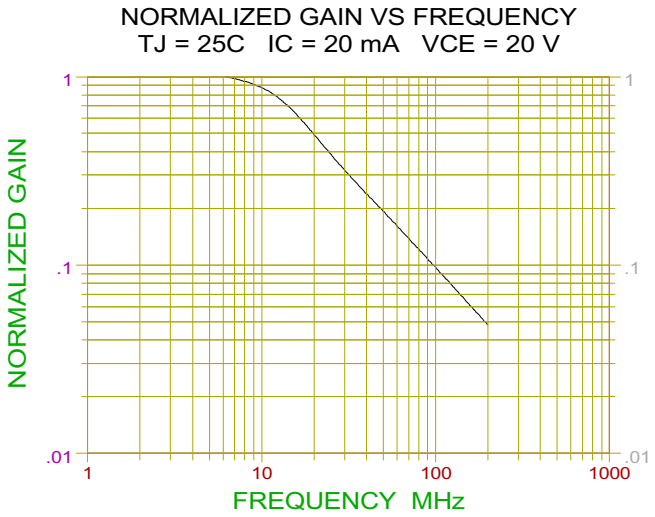

NORMALIZED GAIN VS FREQUENCY
TJ = 25C IC = 20 mA VCE = 20 V
NORMALIZED GAIN
1
.1
.01
1
10
100
1000
FREQUENCY MHz

FIGURE 9

Ordering Information

Device	Packing
(Part Number)-BP	Bulk;50pcs/Box

*****IMPORTANT NOTICE*****

Micro Commercial Components Corp. reserves the right to make changes without further notice to any product herein to make corrections, modifications , enhancements , improvements , or other changes . *Micro Commercial Components Corp*. does not assume any liability arising out of the application or use of any product described herein; neither does it convey any license under its patent rights ,nor the rights of others . The user of products in such applications shall assume all risks of such use and will agree to hold *Micro Commercial Components Corp*. and all the companies whose products are represented on our website, harmless against all damages.

*****APPLICATIONS DISCLAIMER*****

Products offer by *Micro Commercial Components Corp*. are not intended for use in Medical, Aerospace or Military Applications.