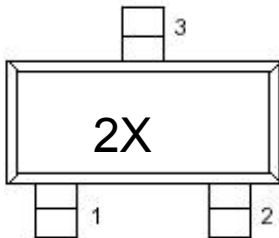


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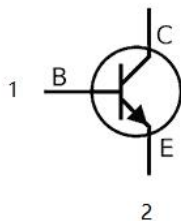
SWITCHING TRANSISTOR

Marking: 2X



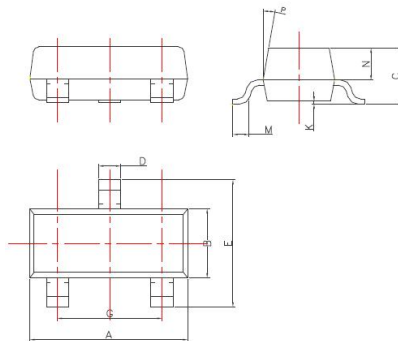
Top view

3

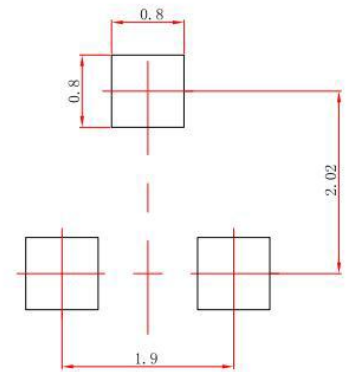


2

SOT-23 Dimension



DIM	Millimeters
A	2.85~3.04
B	1.30±0.10
C	1.00±0.10
D	0.45±0.05
E	2.25~2.55
G	1.90±0.1
K	0.00~0.10
M	0.20 min
N	0.60±0.10
P	7±2°

SOT-23
Suggested Layout

mm(±0.05mm)

MAXIMUM RATINGS (Ta=25°C)

Characteristic	Symbol	Rating	Unit
Collector-Emitter Voltage	V_{CEO}	40	Vdc
Collector-Base Voltage	V_{CBO}	60	Vdc
Emitter-Base Voltage	V_{EBO}	6	Vdc
Collector Current - Continuous	I_C	600	mAdc

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR-5 Board (1) (Ta=25°C)	P_D	225	mW
Derate above 25°C		1.8	mW/°C
Thermal Resistance Junction to Ambient	R_{JA}	556	°C/W
Total Device Dissipation Alumina Substrate, (2) Ta=25°C	P_D	300	mW
Derate above 25°C		2.4	mW/°C
Thermal Resistance Junction to Ambient	R_{JA}	417	°C/W
Junction and Storage Temperature	T_J , T_{stg}	150 , -55 to +150	°C

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ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise noted)

Characteristic	Symbol	Test Condition	Min	Type	Max	Unit
Collector Cutoff Current	I_{CEX}	VCE=35Vdc, VEB=0.4Vdc	--	--	100	nAdc
Base Cutoff Current	I_{BEX}	VCE=35Vdc, VEB=0.4Vdc	--	--	100	nAdc
Collector-Emitter Breakdown Voltage (3)	$V_{(BR)CEO}$	Ic=1.0 mAdc, IB=0	40	--	--	Vdc
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	Ic=100μAdc, IE=0	60	--	--	Vdc
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	IE=100μAdc, IC=0	6	--	--	Vdc
DC Current Gain	h_{FE}	Ic=0.1mAdc, VCE=1.0Vdc	20	--	--	--
		Ic=1.0mAdc, VCE=1.0Vdc	40	--	--	
		Ic=10mAdc, VCE=1.0Vdc	80	--	--	
		Ic=150mAdc, VCE=2.0Vdc	100	--	300	
		Ic=500mAdc, VCE=2.0Vdc	40	--	--	
Collector-Emitter Saturation Voltage (3)	$V_{CE(sat)}$	Ic=150mAdc, IB=15mAdc	--	--	0.4	Vdc
		Ic=500mAdc, IB=50mAdc	--	--	0.75	
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	Ic=150mAdc, IB=15mAdc	0.75	--	0.95	Vdc
		Ic=500mAdc, IB=50mAdc	--	--	1.2	
Current-Gain-Bandwidth Product	f_T	Ic=20mAdc, VCE=10Vdc, c, f=100MHz	250	--	--	MHz
Output Capacitance	C_{obo}	VCB=5.0Vdc, IE=0, f=1.0MHz	--	--	6.5	pF
Input Capacitance	C_{ibo}	VEB=0.5Vdc, IC=0, f=1.0MHz	--	--	30	pF
Input Impedance	h_{ie}	VCE=10Vdc, IC=1.0mAdc, c, f=1.0KHz	1.0	--	15	kΩ
Voltage Feedback Ratio	h_{re}	VCE=10Vdc, IC=1.0mAdc, c, f=1.0KHz	0.5	--	8.0	$\times 10^{-4}$
Small-Signal Current Gain	h_{fe}	VCE=10Vdc, IC=1.0mAdc, c, f=1.0KHz	100	--	500	--
Output Admittance	h_{oe}	VCE=10Vdc, IC=1.0mAdc, c, f=1.0KHz	1.0	--	100	μmhos
Delay Time	t_d	VCC=30Vdc, VBE=2.0Vdc, IC=150mAdc, IB1=15mAdc	--	--	15	nS
Rise Time	t_r		--	--	20	
Storage Time	t_s	VCC=30Vdc, IC=150mAdc, IB1=IB2=15mAdc	--	--	225	nS
Fall Time	t_f		--	--	30	

- FR-5=1.0x0.75x0.062in.
- Alumina=0.4x0.3x0.024in, 99.5% alumina.
- Pulse Width ≤300μS; Duty Cycle ≤2.0%.

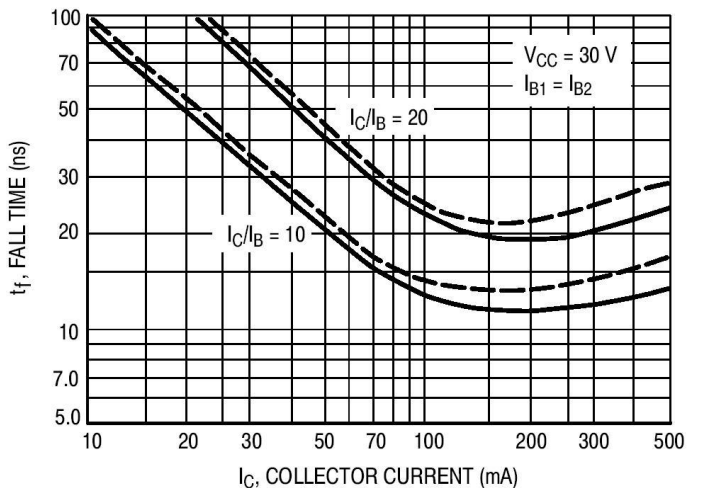
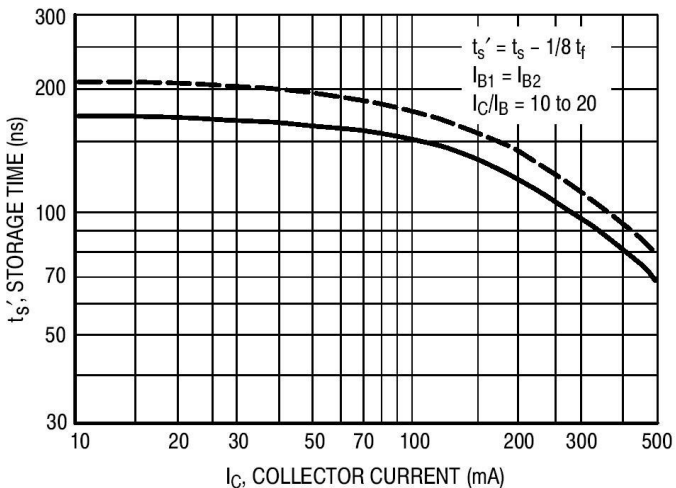
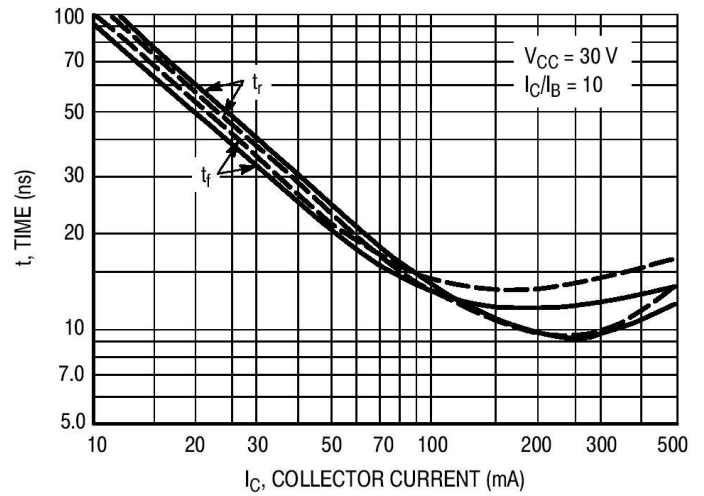
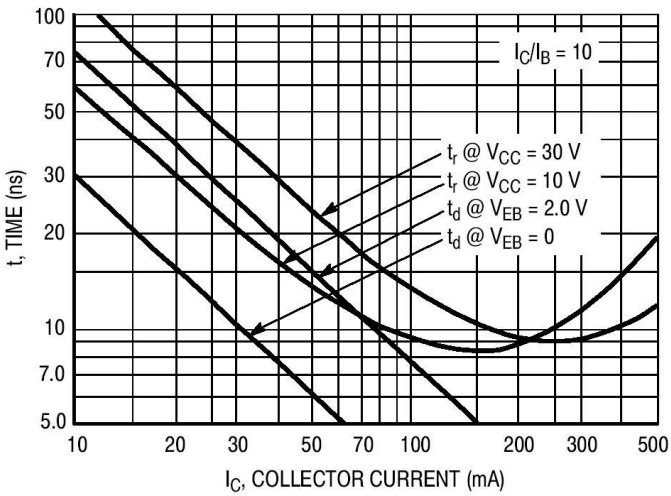
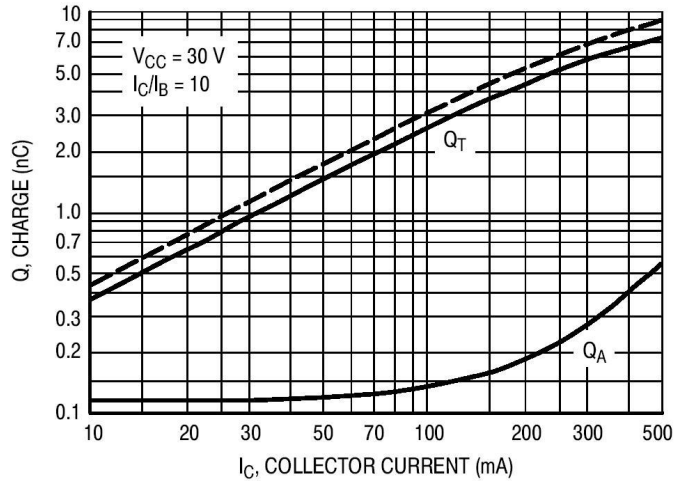
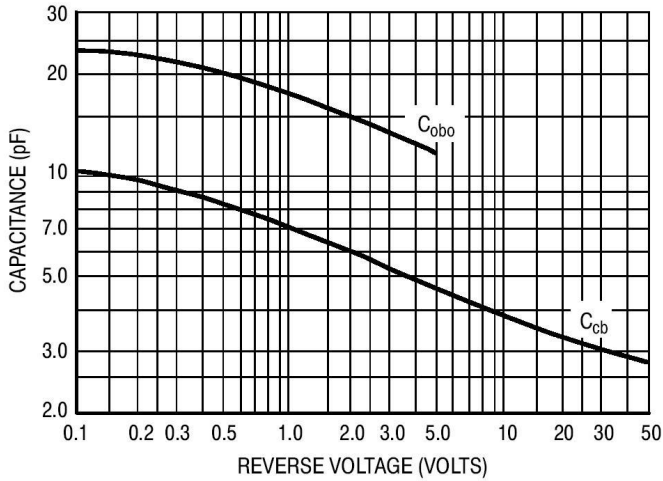
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Typical Characteristics

TRANSIENT CHARACTERISTICS

— 25°C - - - 100°C



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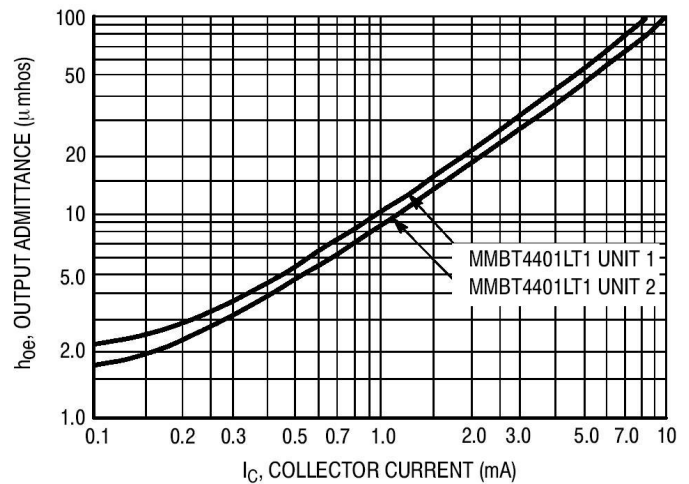
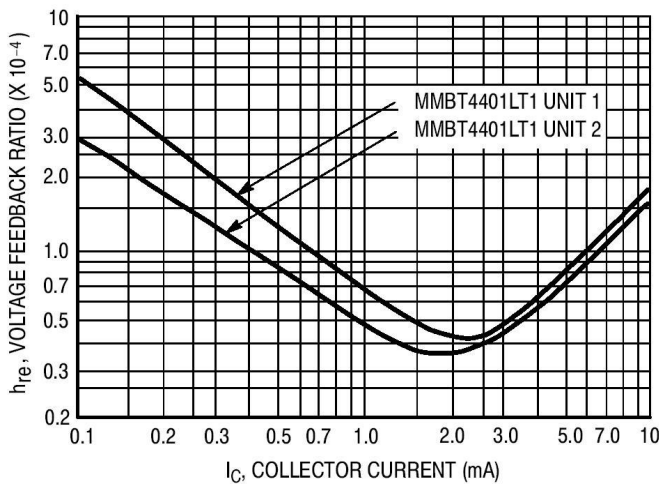
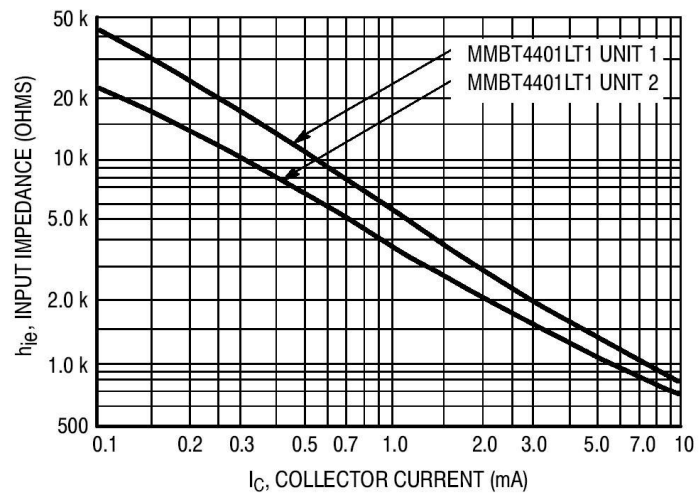
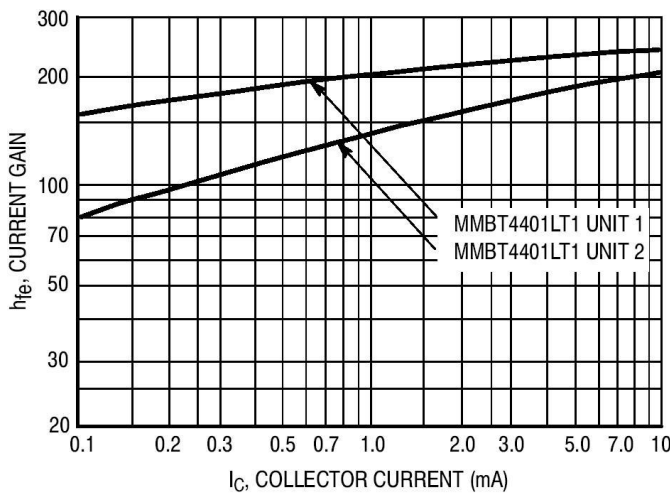
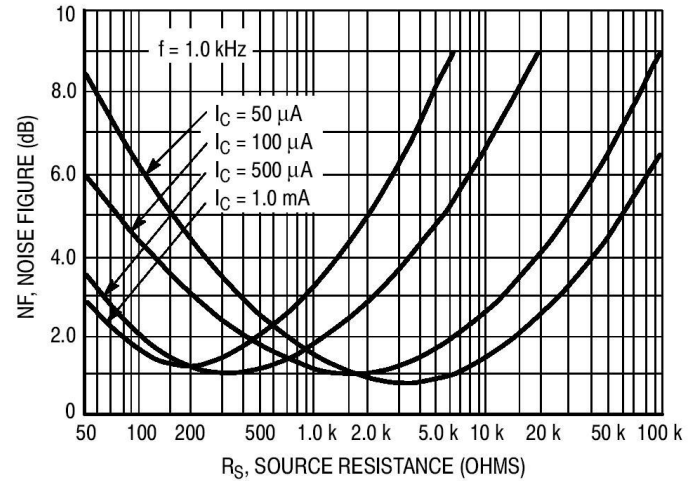
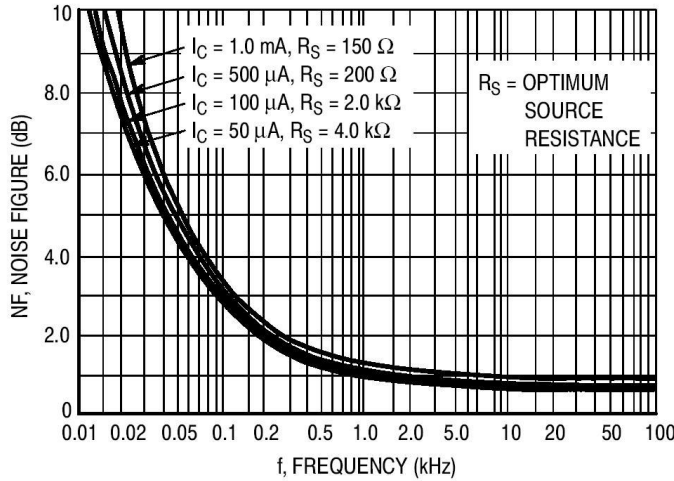
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SMALL-SIGNAL CHARACTERISTICS

NOISE FIGURE

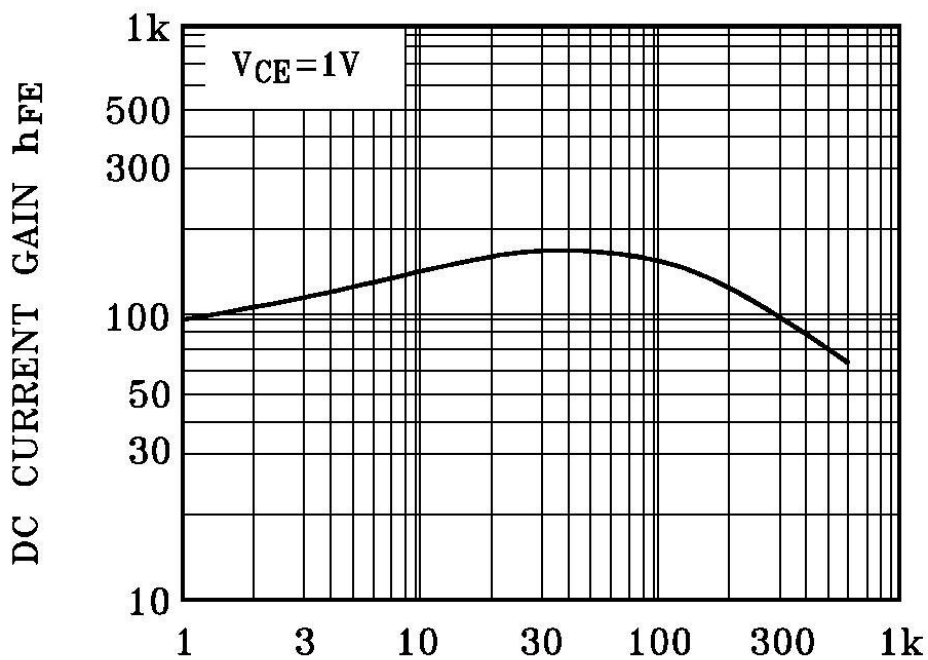
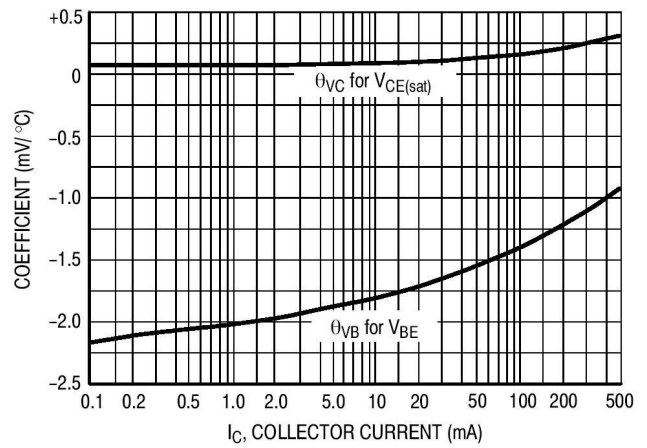
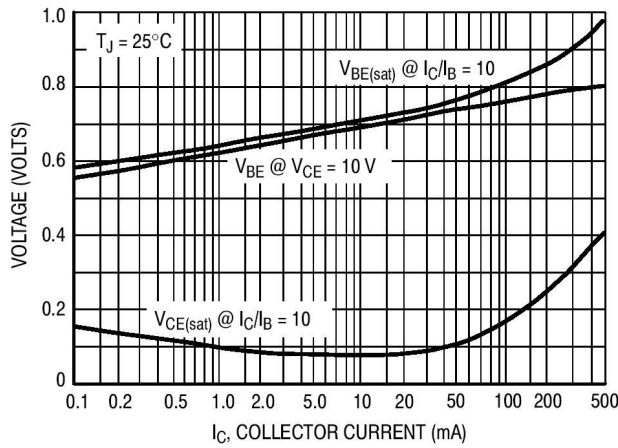
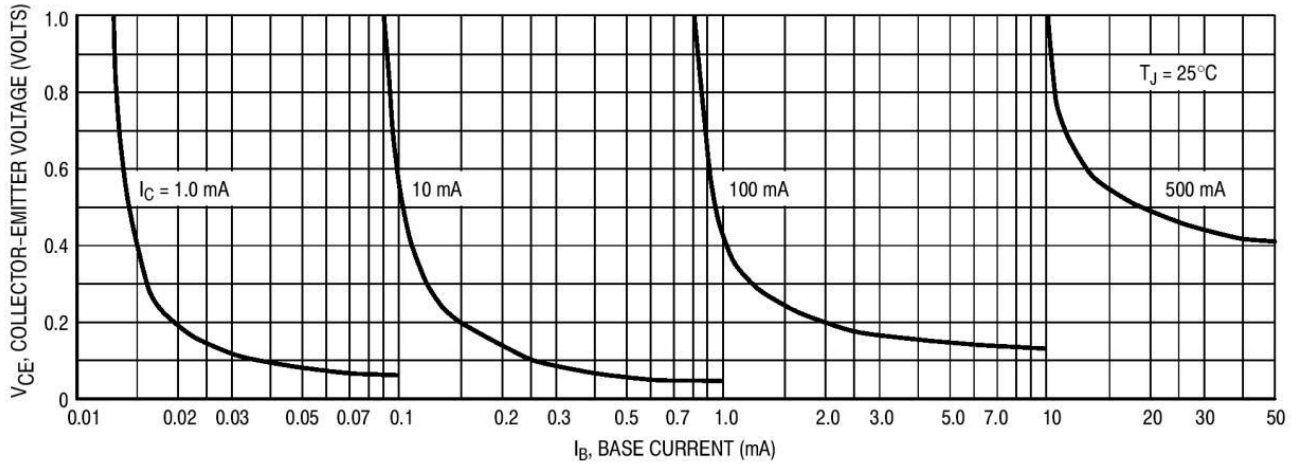
$V_{CE} = 10 \text{ Vdc}$, $T_A = 25^\circ\text{C}$

Bandwidth = 1.0 Hz



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Note: Specifications are subject to change without notice. For more detail and update, please visit our website.