

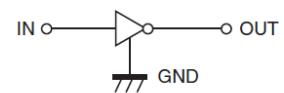
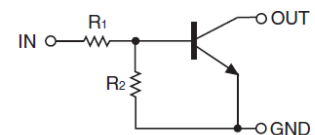


## Features

- Simplifies Circuit Design.
- Reduces Board Space and Component Count.
- The bias resistors consist of thin-film resistors with complete isolation to allow negative biasing of the input. They also have the advantage of almost completely eliminating parasitic effects.
- Only the on/off conditions need to be set for operation, making device design easy



SOT-23



## Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
HDTC143ZCAT116	SOT-23	A8K	3000

## Maxmim Ratings (Ta=25 unless otherwise noted)

Symbol	Parameter	Limits	Unit
$V_{CBO}$	Collector-Base Voltage	50	V
$V_{CEO}$	Collector-Emitter Voltage	50	V
$I_C$	Collector Current	100	mA
$P_D$	Total Power Dissipation @25 °C	200	mW
$T_J, T_{stg}$	Operation Junction and Storage Temperature Range	-55~+150	°C

## Electrcal Charcteristics (Ta=25 unless otherwise specified)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-Base Cutoff Current	$I_{CBO}$	$V_{CB} = 50\text{ V}, I_E = 0$			100	nA
Collector-Emitter Cutoff Current	$I_{CEO}$	$V_{CB} = 50\text{ V}, I_B = 0$			500	nA
Emitter-Base Cutoff Current	$I_{EBO}$	$V_{EB} = 6.0\text{ V}, I_C = 0$			180	nA
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 10\text{ }\mu\text{A}, I_E = 0$	50			V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 2\text{ mA}, I_B = 0$	50			V
DC Current Gain	$h_{FE}$	$V_{CE} = 10\text{ V}, I_C = 5.0\text{ mA}$	80	200		
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 10\text{ mA}, I_B = 0$			0.25	V
Output Voltage (on)	$V_{OL}$	$V_{CC} = 5.0\text{ V}, V_B = 2.5\text{ V}, R_L = 1.0\text{ k}\Omega$			0.2	V
Output Voltage (off)	$V_{OH}$	$V_{CC} = 5.0\text{ V}, V_B = 0.05\text{ V}, R_L = 1.0\text{ k}\Omega$	4.9			V
Input Resistor	$R_1$		3.3	4.7	6.1	V
Resistor	$R_1/R_2$		0.055	0.1	0.185	V



## Typical Characteristics

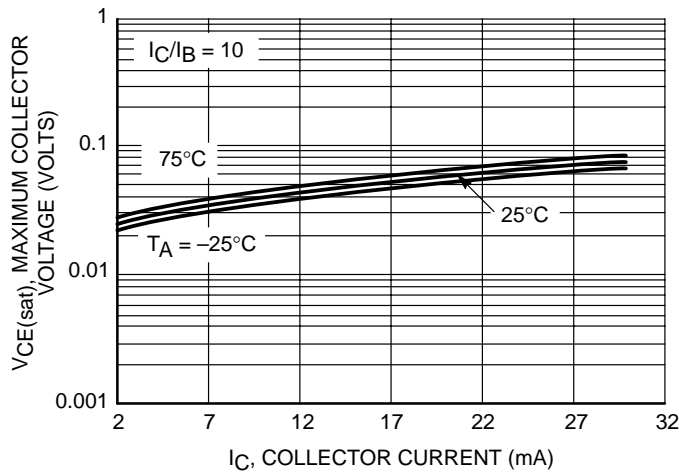


Figure 1.  $V_{CE(sat)}$  vs.  $I_C$

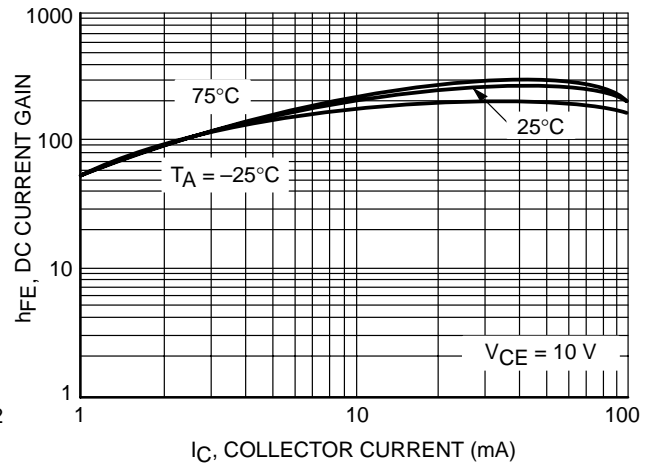


Figure 2. DC Current Gain

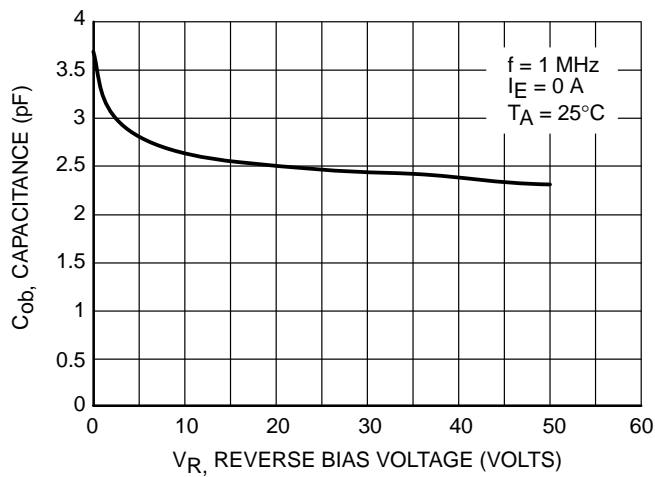


Figure 3. Output Capacitance

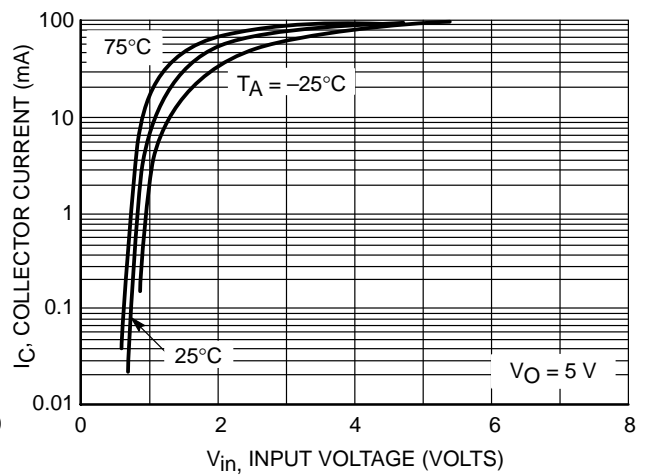


Figure 4. Output Current vs. Input Voltage

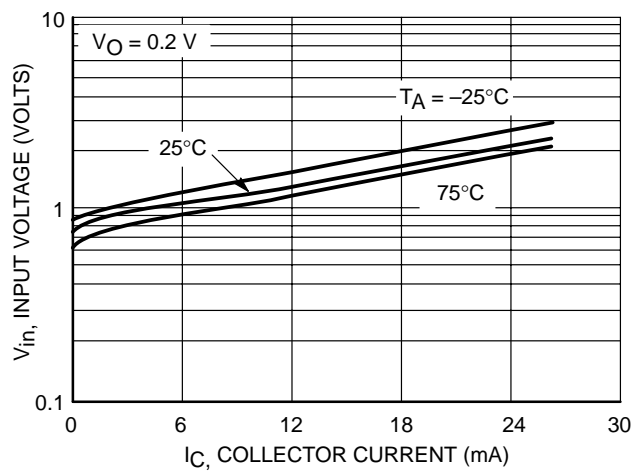
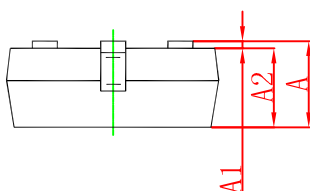
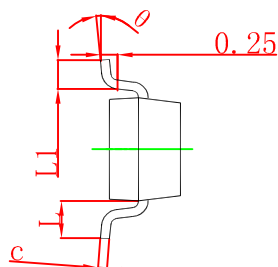
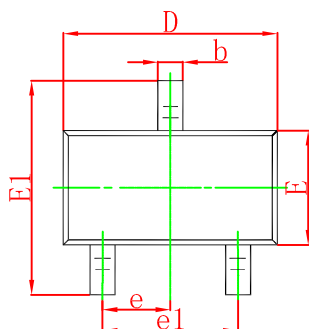


Figure 5. Input Voltage vs. Output Current

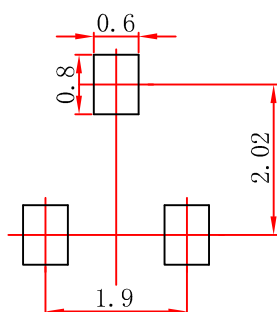


## SOT-23 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

## SOT-23 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.



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