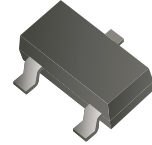


## DTAxxxxCA-HF Series

RoHS Device  
Halogen Free



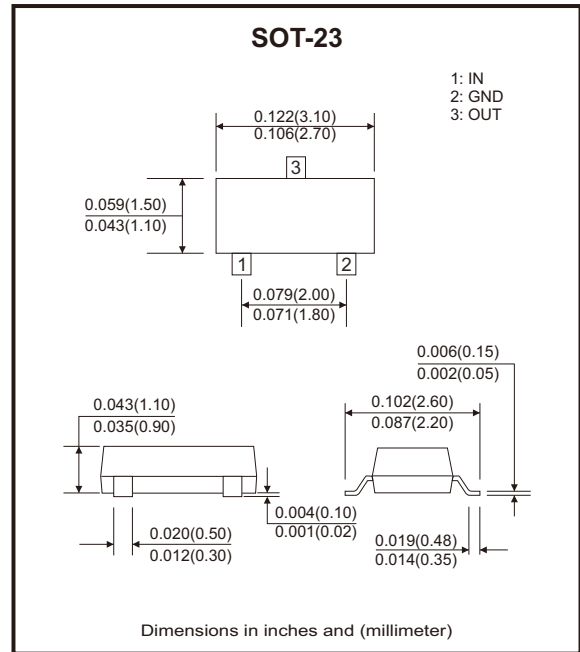
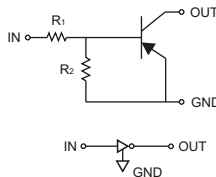
### Features

- Epitaxial planar die construction.
- Built-in biasing resistors,  $R_1 \neq R_2$ .

### Mechanical data

- Case: SOT-23, molded plastic.

### Circuit Diagram



### Maximum Ratings (at Ta=25°C unless otherwise noted)

Parameter	Symbol	Value	Units
Supply voltage	$V_{CC}$	-50	V
Input voltage	$V_{IN}$	DTA113ZCA-HF +5 to -10 DTA114YCA-HF +6 to -40 DTA123JCA-HF +5 to -12 DTA123YCA-HF +5 to -12 DTA143XCA-HF +7 to -20 DTA143ZCA-HF +5 to -30	V
Output current	$I_o$	DTA113ZCA-HF -100 DTA114YCA-HF -70 DTA123JCA-HF -100 DTA123YCA-HF -100 DTA143XCA-HF -100 DTA143ZCA-HF -100	mA
Output current	$I_c$ (Max.)	-100	mA
Power dissipation	$P_b$	200	mW
Thermal resistance, junction to ambient air	$R_{\theta JA}$	625	°C/W
Operating and storage and temperature range	$T_j, T_{STG}$	-55 to +150	°C

## Electrical Characteristics (at Ta=25°C unless otherwise noted)

Parameter	Symbol	Test conditions	Min	Typ	Max	Units
Input voltage	DTA113ZCA-HF DTA114YCA-HF DTA123JCA-HF DTA123YCA-HF DTA143XCA-HF DTA143ZCA-HF	$V_{I(off)}$ $V_{CC} = -5V, I_o = -100\mu A$	-0.3			V
			-0.3			
			-0.5			
			-0.3			
			-0.3			
			-0.5			
Input voltage	DTA113ZCA-HF DTA114YCA-HF DTA123JCA-HF DTA123YCA-HF DTA143XCA-HF DTA143ZCA-HF	$V_{I(on)}$ $V_o = -0.3V, I_o = -20mA$ $V_o = -0.3V, I_o = -1mA$ $V_o = -0.3V, I_o = -5mA$ $V_o = -0.3V, I_o = -20mA$ $V_o = -0.3V, I_o = -20mA$ $V_o = -0.3V, I_o = -5mA$			-3.0	V
					-1.4	
					-1.1	
					-3.0	
					-2.5	
					-1.3	
Output voltage	DTA123JCA-HF DTA143ZCA-HF DTA114YCA-HF All others	$V_{O(on)}$ $I_o / I_i = -5mA / -0.25mA$			-0.1	V
					-0.3	
Input current	DTA113ZCA-HF DTA114YCA-HF DTA123JCA-HF DTA123YCA-HF DTA143XCA-HF DTA143ZCA-HF	$I_i$ $V_i = -5V$			-7.2	mA
					-0.88	
					-3.6	
					-3.8	
					-1.8	
					-1.8	
Output current	$I_{O(off)}$	$V_{CC} = -50V, V_i = 0V$			-0.5	$\mu A$
DC current gain	DTA113ZCA-HF DTA114YCA-HF DTA123JCA-HF DTA123YCA-HF DTA143XCA-HF DTA143ZCA-HF	$G_I$ $V_o = -5V, I_o = -10mA$	33			
			68			
			80			
			33			
			30			
			80			
Input resistor	DTC113ZCA-HF DTC114YCA-HF DTC123JCA-HF DTC123YCA-HF DTC143XCA-HF DTC143ZCA-HF	$R_1(R_2)$	0.7	1(10)	1.3	k $\Omega$
			7	10(47)	13	
			1.54	2.2(47)	2.86	
			1.54	2.2(10)	2.86	
			3.29	4.7(10)	6.11	
			3.29	4.7(47)	6.11	
Input resistor ( $R_1$ ) tolerance	$\Delta R_1$		-30		+30	%
Resistance ratio tolerance	$\Delta R_2/R_1$		-20		+20	%
Gain-bandwidth product	$f_r$	$V_{CE} = -10V, I_E = 5mA, f = 100MHz$		250		MHz

## Rating and Characteristic Curves (DTAxxxxCA-HF Series)

Fig.1 - Derating Curve

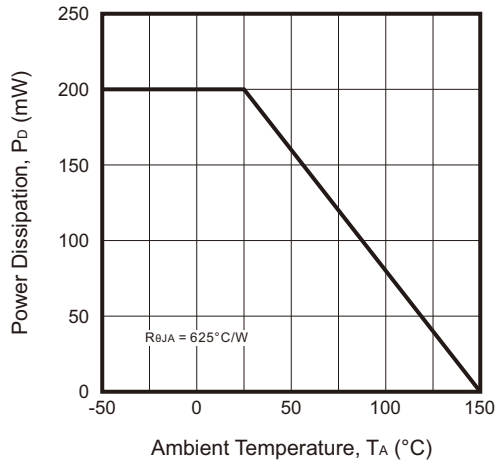


Fig.2 -  $V_{CE(SAT)}$  vs.  $I_C$

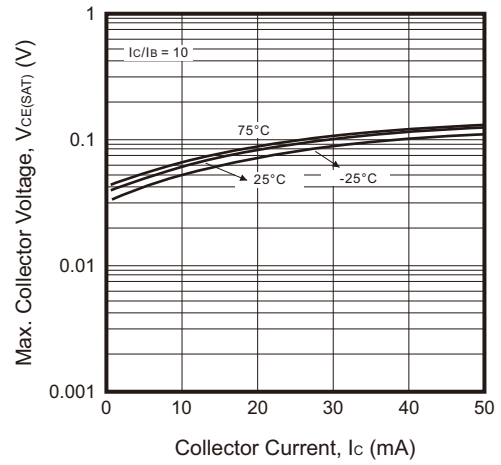


Fig.3 - DC Current Gain

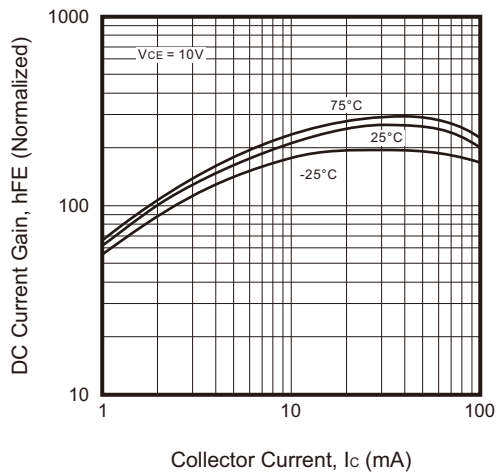


Fig.4 - Output Capacitance

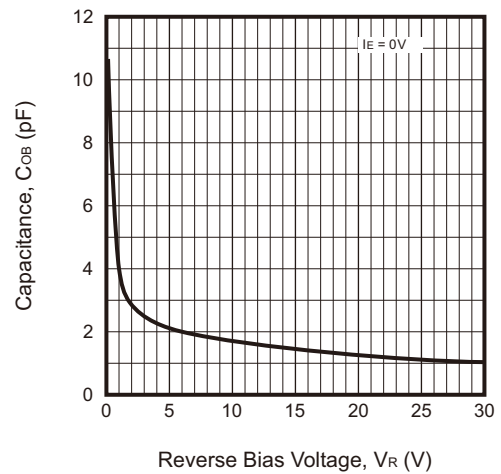


Fig.5 - Collector Current vs. Input Voltage

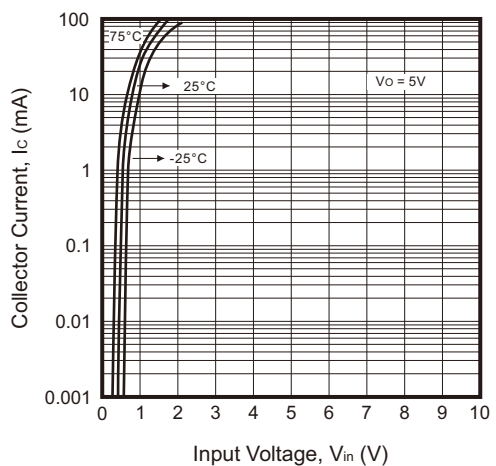
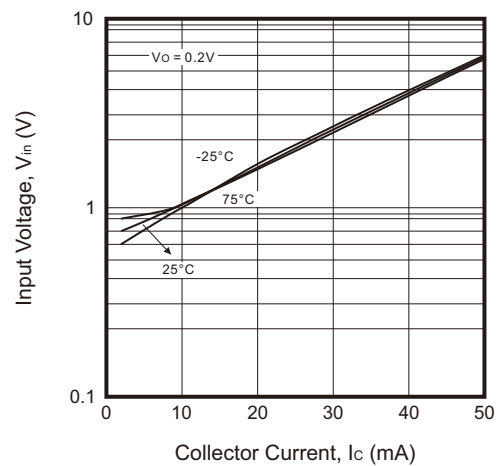
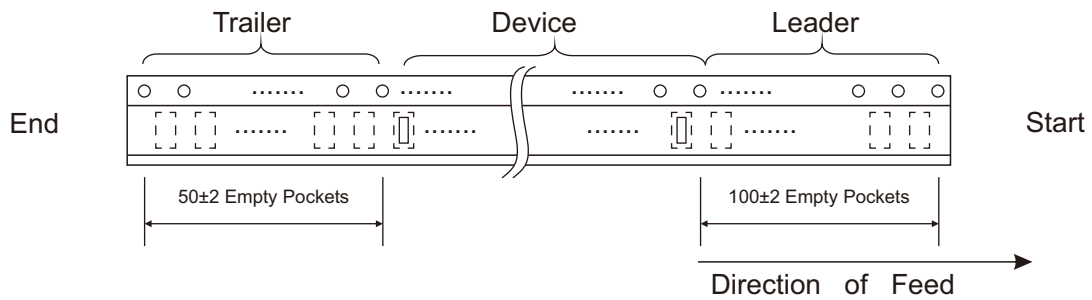
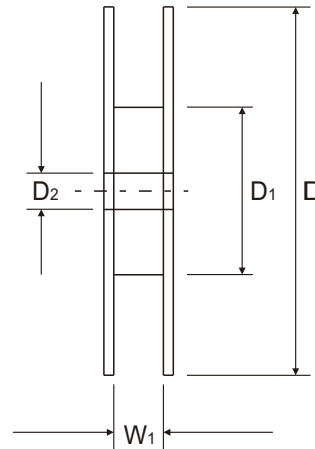
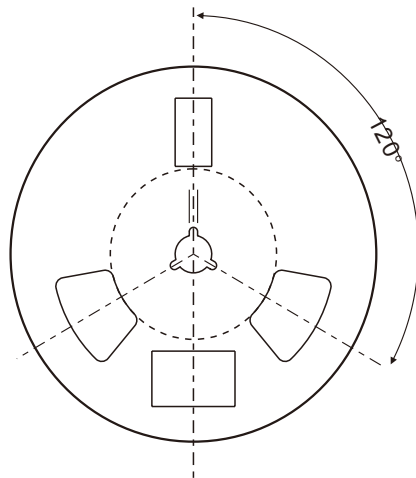
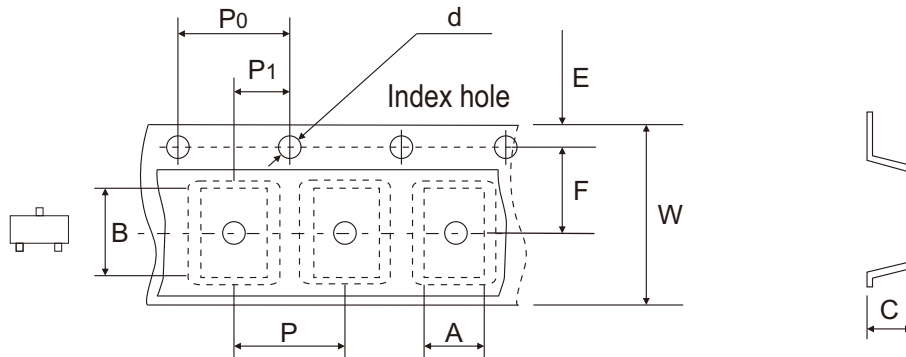


Fig.6 - Input Voltage vs. Collector Current



Company reserves the right to improve product design, functions and reliability without notice.

## Reel Taping Specification



SOT-23	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	3.15 ± 0.10	2.77 ± 0.10	1.22 ± 0.10	1.50 ± 0.10	178.00 ± 1.00	54.00 ± 0.50	13.00 ± 0.50
	(inch)	0.124 ± 0.004	0.109 ± 0.004	0.048 ± 0.004	0.059 ± 0.004	7.008 ± 0.039	2.126 ± 0.020	0.512 ± 0.020

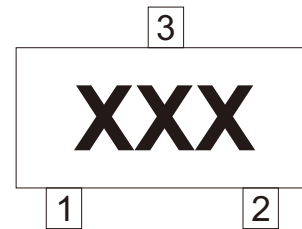
SOT-23	SYMBOL	E	F	P	P0	P1	W	W1
	(mm)	1.75 ± 0.10	3.50 ± 0.05	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	8.00 + 0.30 - 0.10	9.50 ± 1.00
	(inch)	0.069 ± 0.004	0.138 ± 0.002	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	0.315 + 0.012 - 0.004	0.374 ± 0.039

Company reserves the right to improve product design, functions and reliability without notice.

REV:A

## Marking Code

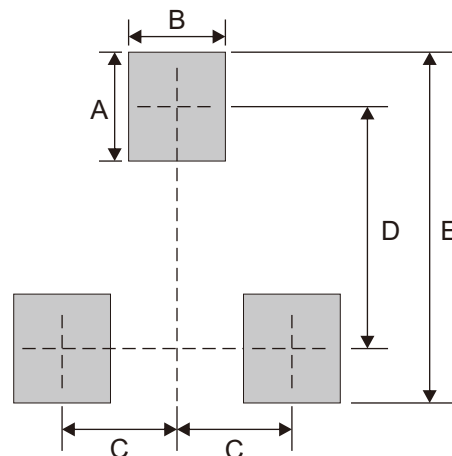
Part Number	Marking Code
DTA113ZCA-HF	E11
DTA114YCA-HF	54
DTA123JCA-HF	E32
DTA123YCA-HF	52
DTA143XCA-HF	33
DTA143ZCA-HF	E13



xx/xxx = Product type marking code

## Suggested P.C.B. PAD Layout

SIZE	SOT-23	
	(mm)	(inch)
A	0.90	0.035
B	0.80	0.031
C	0.95	0.037
D	2.00	0.079
E	2.90	0.114



Note: 1. The pad layout is for reference purposes only.

## Standard Packaging

Case Type	REEL PACK	
	REEL (pcs)	Reel Size (inch)
SOT-23	3,000	7

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