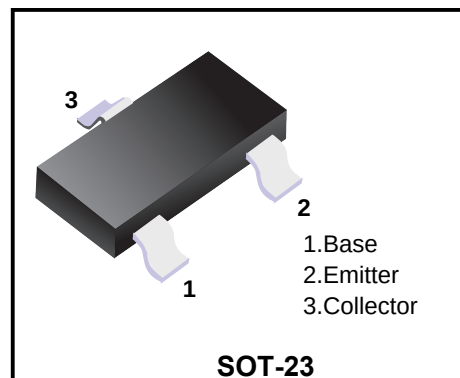


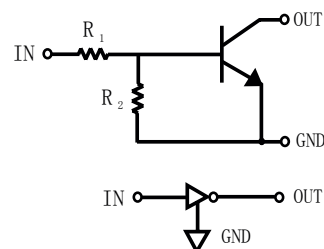
NPN Digital Transistors - DTC (R1 = R2 Series)ECA

Features

- Epitaxial Planar Die Construction
- Built-In Biasing Resistors, R1 = R2
- Complementary PNP Types Available



P/N	R1, R2 (NOM)
DTC123ECA	2.2K Ω
DTC143ECA	4.7K Ω
DTC114ECA	10K Ω
DTC124ECA	22K Ω
DTC144ECA	47K Ω
DTC115ECA	100K Ω



Absolute Maximum Ratings (Ta=25°C)

Parameter		Symbol	Rating	Unit
Supply Voltage		V _{CC}	50	
Input Voltage	DTC123ECA	V _{IN}	-10 to 20	V
	DTC143ECA		-10 to 30	
	DTC114ECA		-10 to 40	
	DTC124ECA		-10 to 40	
	DTC144ECA		-10 to 40	
	DTC115ECA		-10 to 40	
Output Current	DTC123ECA	I _O	100	mA
	DTC143ECA		100	
	DTC114ECA		50	
	DTC124ECA		30	
	DTC144ECA		100	
	DTC115ECA		20	
Output Current All		I _{C(Max)}	100	
Collector Power Dissipation		P _C	200	mW
Thermal Resistance, Junction to Ambient		R _{θJA}	625	°C/W
Junction Temperature		T _J	150	°C
Storage Temperature Range		T _{stg}	-55 to 150	

Electrical Characteristics (Ta=25℃ unless otherwise specified.)

Parameter		Symbol	Test Conditions	Min	Typ	Max	Unit
Input Voltage		$V_{I(off)}$	$V_{CC}= 5V, I_o= 100\mu A$	0.5	1.1		V
Input Voltage	DTC123ECA	$V_{I(on)}$	$V_o= 300mV, I_o= 20mA$		1.9	3	
	DTC143ECA		$V_o= 300mV, I_o= 20mA$				
	DTC114ECA		$V_o= 300mV, I_o= 10mA$				
	DTC124ECA		$V_o= 300mV, I_o= 5mA$				
	DTC144ECA		$V_o= 300mV, I_o= 2mA$				
	DTC115ECA		$V_o= 300mV, I_o= 1mA$				
Output Voltage	DTC123ECA	$V_{O(on)}$	$I_o=10mA, I_i=0.5mA$		0.1	0.3	
	DTC143ECA		$I_o=10mA, I_i=0.5mA$				
	DTC114ECA		$I_o=10mA, I_i=0.5mA$				
	DTC124ECA		$I_o=10mA, I_i=0.5mA$				
	DTC144ECA		$I_o=10mA, I_i=0.5mA$				
	DTC115ECA		$I_o=10mA, I_i=0.25mA$				
Input Current	DTC123ECA	I_i	$V_i= 5\text{ V}$			3.8	mA
	DTC143ECA					1.8	
	DTC114ECA					0.88	
	DTC124ECA					0.36	
	DTC144ECA					0.18	
	DTC115ECA					0.15	
Output Current		$I_{O(off)}$	$V_{CC}= 50\text{ V} , V_i= 0$			0.5	μA
DC Current Gain	DTC123ECA	G_i	$V_o= 5V , I_o=20mA$	20			
	DTC143ECA		$V_o= 5V , I_o=10mA$	20			
	DTC114ECA		$V_o= 5V , I_o=5mA$	30			
	DTC124ECA		$V_o= 5V , I_o=5mA$	56			
	DTC144ECA		$V_o= 5V , I_o=5mA$	68			
	DTC115ECA		$V_o= 5V , I_o=5mA$	82			
Input Resistor (R1) Tolerance		$\triangle R_1$		-30		30	%
Resistance Ratio		R_2 / R_1		0.8		1.2	
Transition frequency		f_T	$V_{CE}= 10V, I_E= -5mA, f=100MHz$		250		MHz

Typical Characteristics

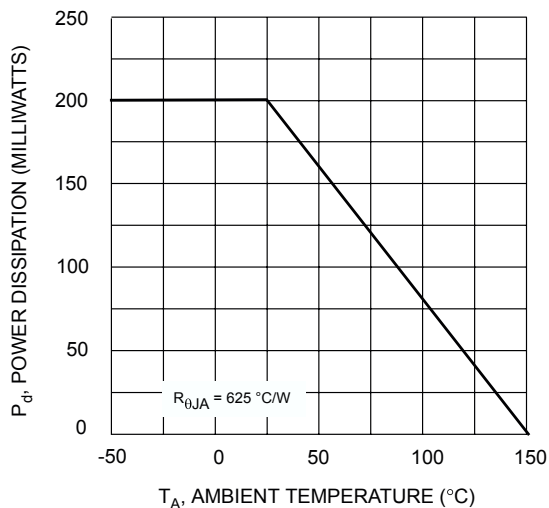


Fig. 1 Derating Curve

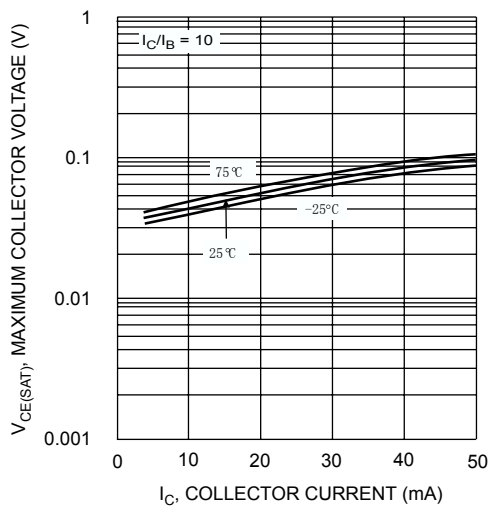


Fig. 2 $V_{CE(SAT)}$ vs. I_C

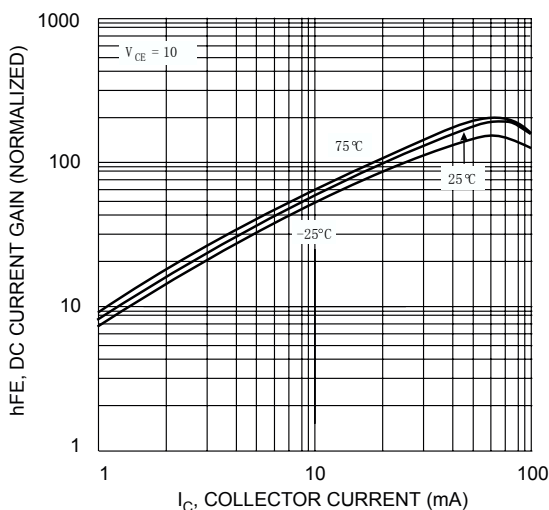


Fig. 3 DC CURRENT GAIN

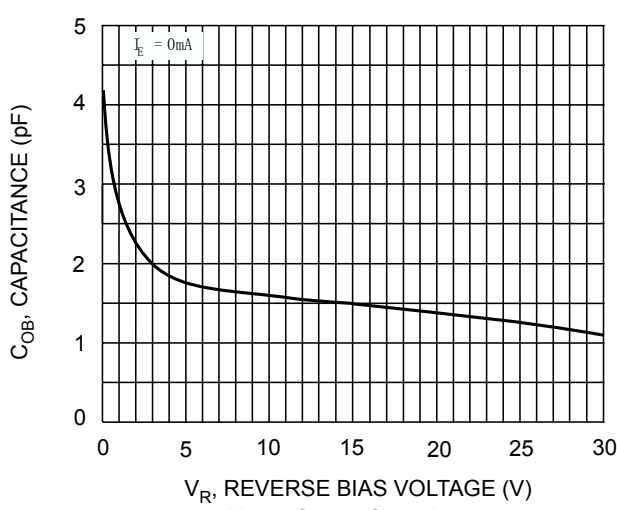


Fig. 4 Output Capacitance

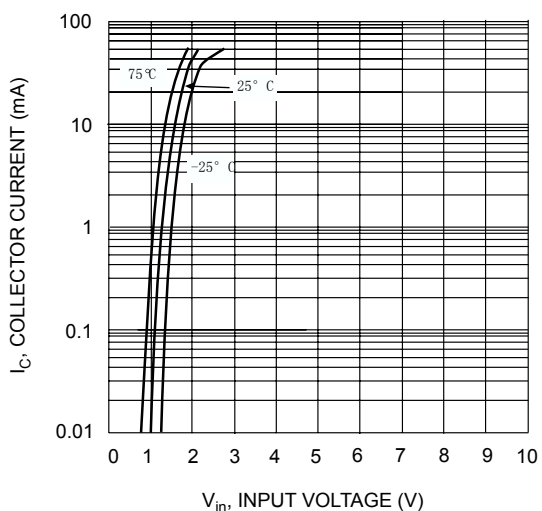


Fig. 5 Collector Current Vs. Input Voltage

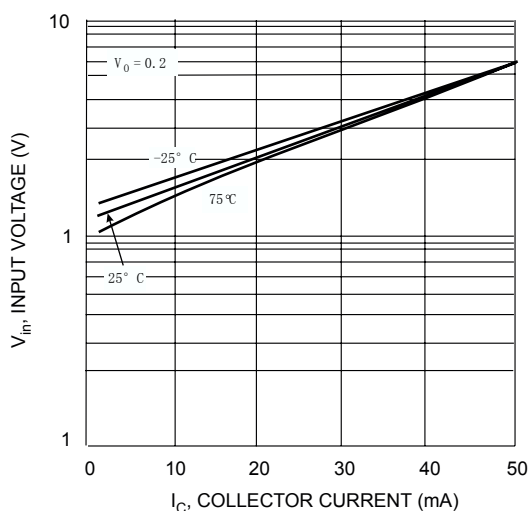


Fig. 6 Input Voltage vs. Collector Current

Ordering information

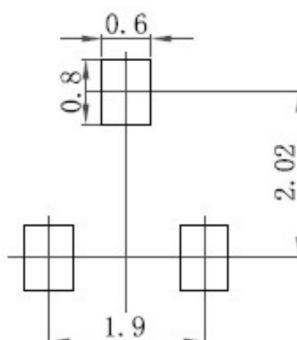
Package	Packing Description	Base Quantity	Packing Quantity
SOT-23	Tape/Reel, 7" reel	3000pcs/Reel	24000PCS/Box 120000PCS/Carton

Package Dimensions

SOT-23

Dim.	Millimeter (mm)		mil	
	Min.	Max.	Min.	Max.
A	0.9	1.15	35	45
A1	0.1		3.9	
bp	0.38	0.48	15	19
C	0.09	0.15	3.54	5.9
D	2.8	3.0	110	118
E	1.2	1.4	47	55
E	1.9		75	
E1	0.95		37	
HE	2.1	2.55	83	100
Lp	0.15	0.45	5.9	18
Q	0.45	0.55	18	22
v	0.2		7.9	
W	0.1		4	

The recommended mounting pad size



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