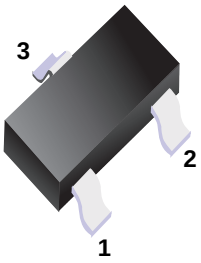
■ NPN Transistor



1.Base
2.Emitter
3.Collector

■ **Simplified outline(SOT-323)**

■ Features

- Low Cob. Cob=2.0pF (Typ.)
- Complementary to 2SA1576A

■ Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V_{CBO}	60	V
Collector - Emitter Voltage	V_{CEO}	50	
Emitter - Base Voltage	V_{EBO}	7	
Collector Current - Continuous	I_C	150	mA
Collector Power Dissipation	P_C	200	mW
Junction Temperature	T_J	150	℃
Storage Temperature Range	T_{stg}	-55 to 150	

■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	V_{CBO}	I_C= 100 uA， I_E= 0	60			V
Collector- emitter breakdown voltage	V_{CEO}	I_C= 1 mA， I_B= 0	50			
Emitter - base breakdown voltage	V_{EBO}	I_E= 100μA， I_C= 0	7			
Collector-base cut-off current	I_{CBO}	V_{CB}= 60V , I_E= 0			0.1	uA
Emitter cut-off current	I_{EBO}	V_{EB}= 7V , I_C=0			0.1	
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=50 mA, I_B=5mA			0.4	V
Base - emitter saturation voltage	$V_{BE(sat)}$	I_C=50 mA, I_B=5mA			1.2	
DC current gain	h_{FE}	V_{CE}= 6V, I_C= 1mA	120		560	
Collector output capacitance	C_{ob}	V_{CE}= 12V, I_E=0,f=1MHz		2	3.5	pF
Transition frequency	f_T	V_{CE}= 12V, I_E=-2mA,f=100 MHz		180		MHz

■ Classification of h_{fe}

Type	2SC4081-Q	2SC4081-R	2SC4081-S
Range	120-270	180-390	270-560
Marking	BQ	BR	BS

■ Typical Characterisitics

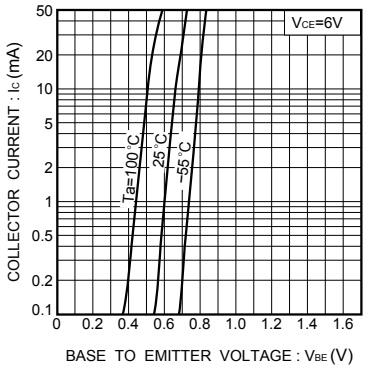


Fig.1 Grounded emitter propagation characteristics

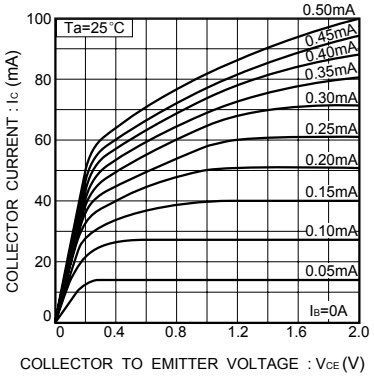


Fig.2 Grounded emitter output characteristics (Ⅰ)

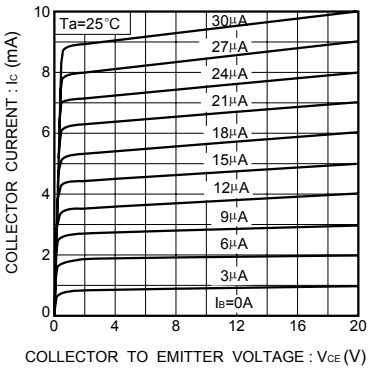


Fig.3 Grounded emitter output characteristics (Ⅰ)Ⅰ

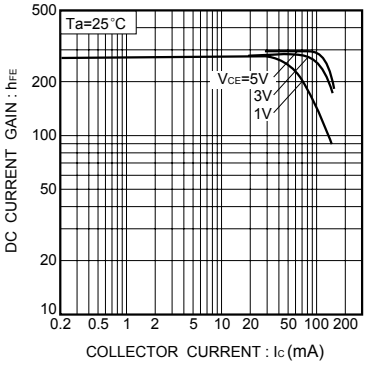


Fig.4 DC current gain vs. collector current (Ⅰ)

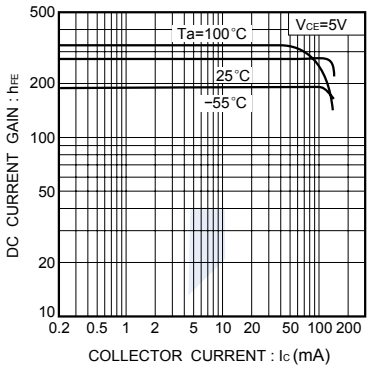


Fig.5 DC current gain vs. collector current (Ⅰ)Ⅰ

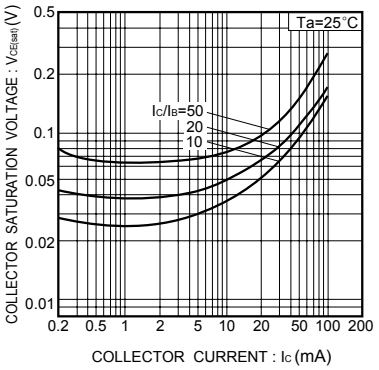


Fig. 6 Collector-emitter saturation voltage vs. collector current

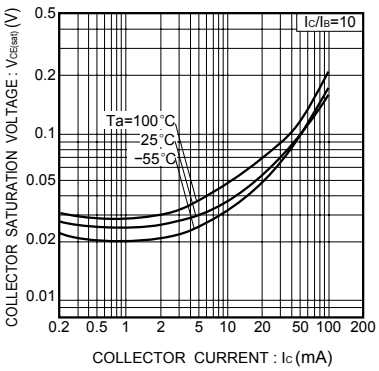


Fig.7 Collector-emitter saturation voltage vs. collector current (Ⅰ)

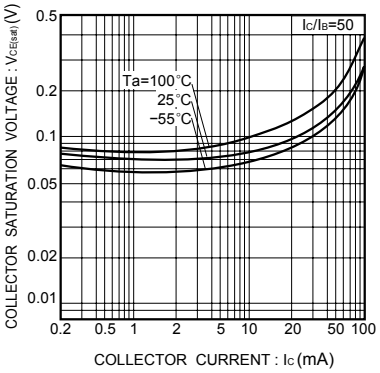


Fig.8 Collector-emitter saturation voltage vs. collector current (Ⅰ) Ⅰ

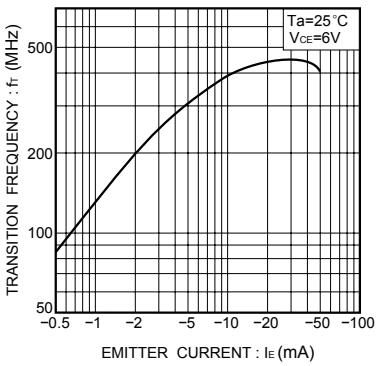


Fig.9 Gain bandwidth product vs. emitter current

■ Typical Characterisitics

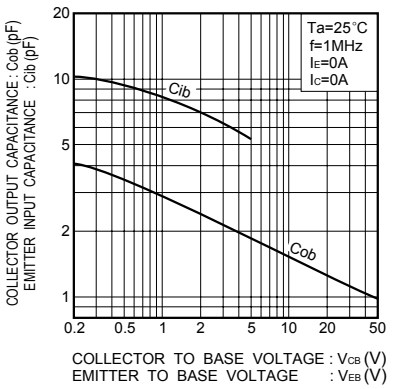


Fig.10 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

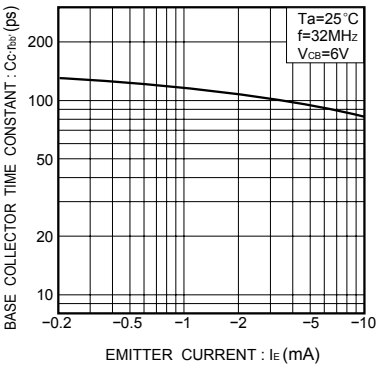
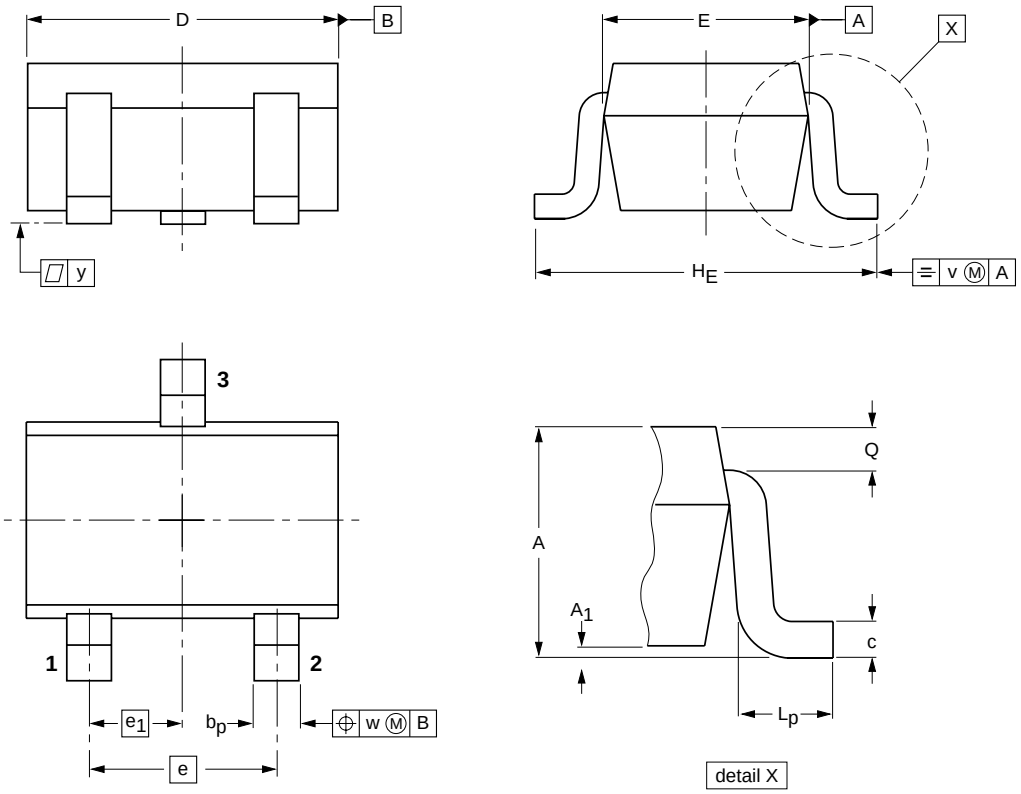


Fig.11 Base-collector time constant vs. emitter current

Package Outline SOT-323



DIMENSIONS (mm are the original dimensions)

UNIT	A	A_1 max	b_p	c	D	E	e	e_1	H_E	L_p	Q	v	w
mm	1.1 0.8	0.1	0.4 0.3	0.25 0.10	2.2 1.8	1.35 1.15	1.3	0.65	2.2 2.0	0.45 0.15	0.23 0.13	0.2	0.2

Summary of Packing Options

Package	Package Description	Packing Quantity	Industry Standard
SOT-323	Tape/Reel,7"reel	3000	EIA-481-1