DESCRIPTION

The 2SA812Q~2SA812S is available in SOT-23 Package

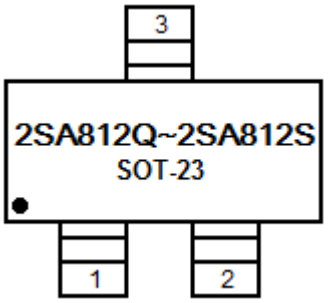
FEATURES

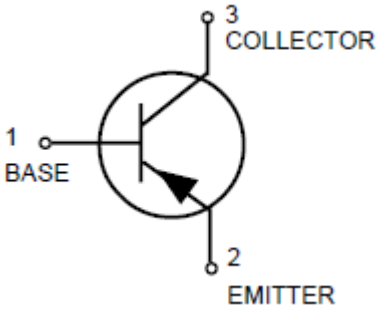
- High Voltage: V_{CEO}=-50V
- Epitaxial planar type
- NPN complement: 2SC1623
- RoHS Compliant
- Available in SOT-23 Package

ORDERING INFORMATION

Package Type	Part Number
SOT-23	2SA812Q
	2SA812R
	2SA812S
Note	3,000pcs/ Reel
AiT provides all RoHS Compliant Products	

PIN DESCRIPTION





ABSOLUTE MAXIMUM RATINGS

V_{CEO}, Collector-Emitter Voltage	-50V
V_{CBO}, Collector-Base Voltage	-60V
V_{EBO}, Emitter-Base Voltage	-6V
I_C, Collector current-continuous	-150mAdc

Stresses above may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions beyond those indicated in the Electrical Characteristics are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

THERMAL CHARATEERISTICS

Parameter	Symbol	Max.	Unit
Total Device Dissipation FR– 5 Board[NOTE1] T_A=25°C Derate above 25°C	P_D	 200 1.8	 mW mW/°C
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	556	°C/W
Total Device Dissipation Alumina Substrate[NOTE2] T_A=25°C Derate above 25°C	P_D	 200 2.4	 mW mW/°C
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	417	°C/W
Junction and Storage Temperature	T_J , T_{STG}	–55 to +150	°C

h_{EF} values are classified as follows:

*	Q	R	S
h_{EF}	120~270	180~390	270~560

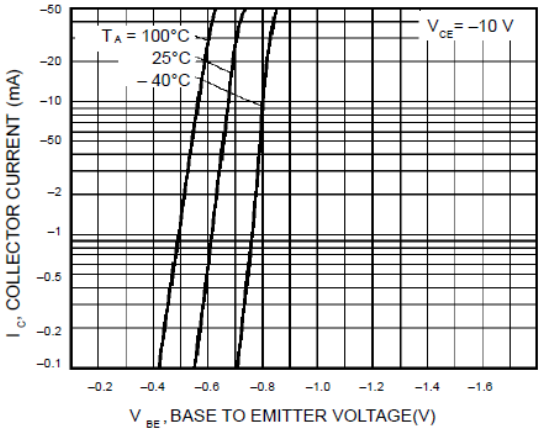
ELECTRICAL CHARACTERISTICS

T_A=25°C, unless otherwise noted

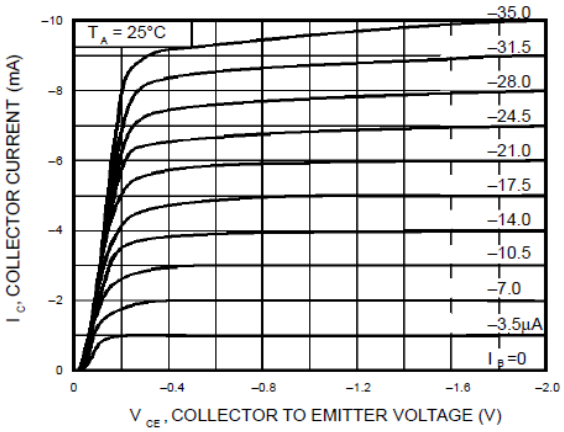
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
OFF CHARACTERISTICS						
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=-1mA	-50			V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=-50μA	-6			V
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=-50μA	-60			V
Collector Cutoff Current	I_{CBO}	V_{CB}=-50V			-0.1	μA
Emitter Cutoff Current	I_{EBO}	V_{BE}=-6V			-0.1	μA
ON CHARACTERISTICS						
DC Current Gain	h_{FE}	I_C=-1mA,V_{CE}=-6.0V	120		560	-
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	I_C=-100mA,I_B=-10mA		-0.18	-0.3	V
Base -Emitter On Voltage	V_{BE}	I_E=-1.0mA,V_{CE}=-6.0V	-0.58	-0.62	-0.68	V
SMALL-SIGNAL CHARACTERISTICS						
Current-Gain-Bandwidth Product	F_t	V_{CE}=-6.0V,I_E =-10mA		180		MHz
Output Capacitance	C_{obo}	V_{CE} = -10V, I_E=0, f=1.0MHz		4.5		pF

TYPICAL CHARACTERISTICS

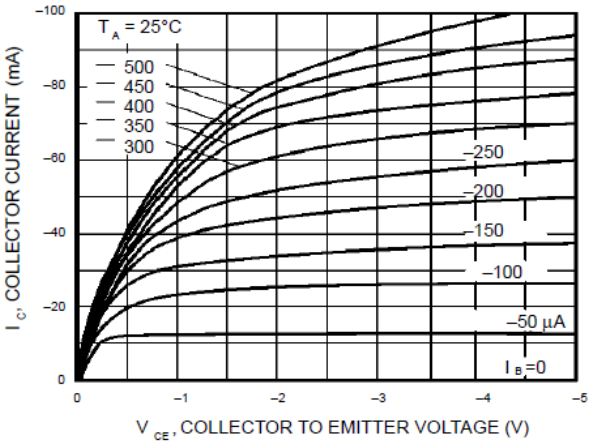
1. Grounded emitter propagation characteristics



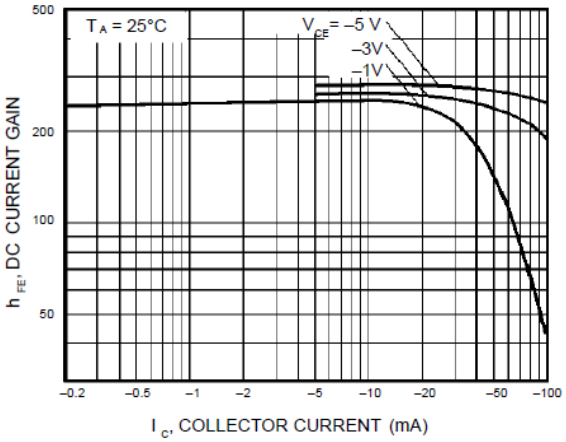
2. Grounded emitter output characteristics(I)



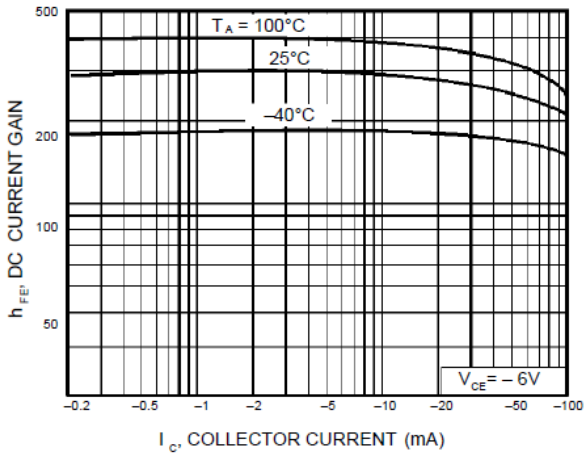
3. Grounded emitter output characteristics(II)



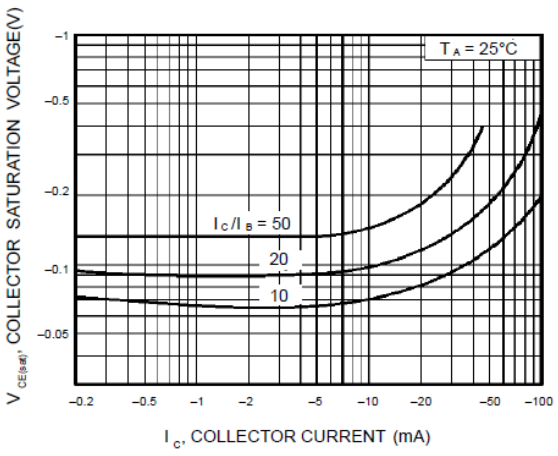
4. DC current gain vs. collector current (I)



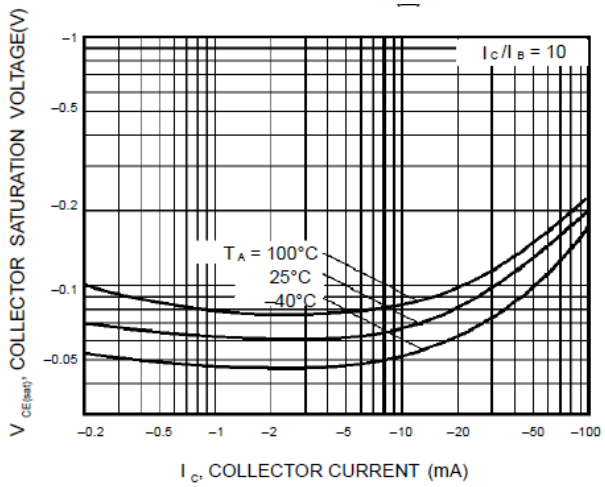
5. DC current gain vs. collector current (II)



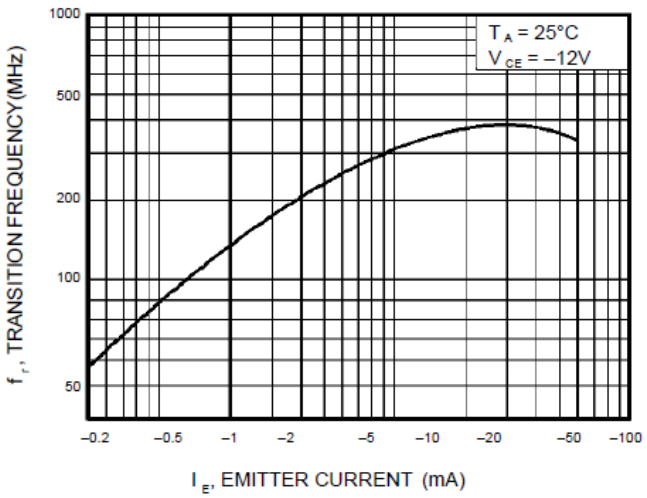
6. Collector-emitter saturation voltage vs. collector current (I)



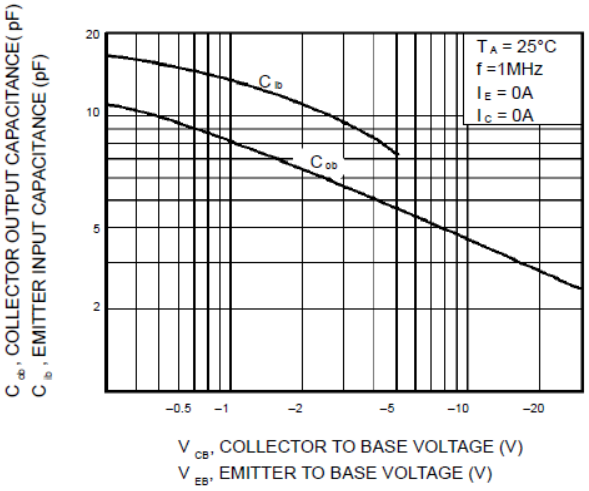
7. Collector-emitter saturation voltage vs. collector current (II)



8. Gain bandwidth product vs. emitter current

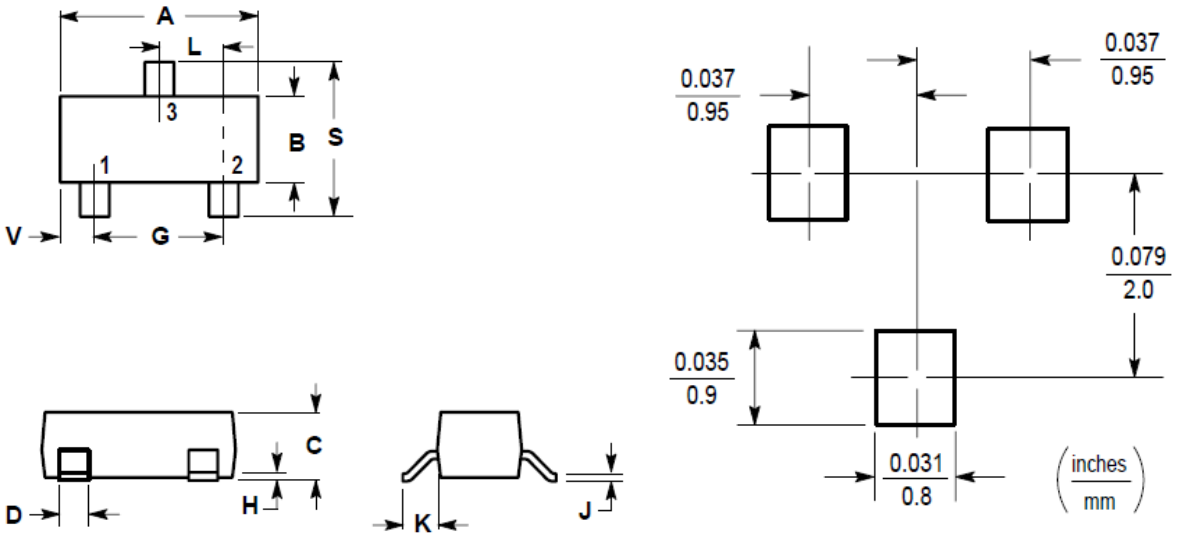


9. Collector output capacitance vs. collector-base voltage
Emitter inputcapacitance vs. emitter-base voltage



PACKAGE INFORMATION

Dimension in SOT-23 Package (Unit: mm)



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.80	3.04	0.1102	0.1197
B	1.20	1.40	0.0472	0.0551
C	0.89	1.11	0.0350	0.0440
D	0.37	0.50	0.0150	0.0200
G	1.78	2.04	0.0701	0.0807
H	0.013	0.100	0.0005	0.0040
J	0.085	0.177	0.0034	0.0070
K	0.35	0.69	0.0140	0.0285
L	0.89	1.02	0.0350	0.0401
S	2.10	2.64	0.0830	0.1039
V	0.45	0.60	0.0177	0.0236

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