General purpose transistor (50V, 0.15A)

2SC2412K / 2SC4081 / 2SC4617 / 2SC5658 / 2SC1740S

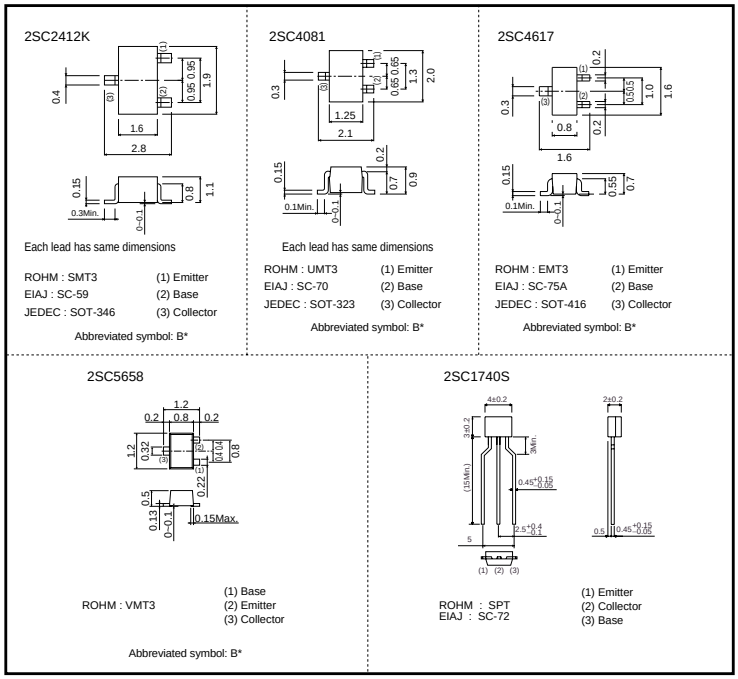
●Features

1) Low Cob.
   Cob=2.0pF (Typ.)
2) Complements the 2SA1037AK / 2SA1576A / 2SA1774H / 2SA2029 / 2SA933AS.

●Structure

Epitaxial planar type
NPN silicon transistor

●External dimensions (Units : mm)



* Denotes h_{FE}

●Absolute maximum (Ta=25°C)

Parameter		Symbol	Limits	Unit
Collector-base voltage		V_{CBO}	60	V
Collector-emitter voltage		V_{CEO}	50	V
Emitter-base voltage		V_{EBO}	7	V
Collector current		I_C	0.15	A
Collector power dissipation	2SC2412K, 2SC4081	P_C	0.2	W
	2SC4617, 2SC5658		0.15	
	2SC1740S		0.3	
Junction temperature		Tj	150	°C
Storage temperature		Tstg	–55~+150	°C

●**Electrical characteristics** (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	60	–	–	V	I_C=50μA
Collector-emitter breakdown voltage	BV_{CEO}	50	–	–	V	I_C=1mA
Emitter-base breakdown voltage	BV_{EBO}	7	–	–	V	I_E=50μA
Collector cutoff current	I_{CBO}	–	–	0.1	μA	V_{CB}=60V
Emitter cutoff current	I_{EBO}	–	–	0.1	μA	V_{EB}=7V
DC current transfer ratio	h_{FE}	120	–	560	–	V_{CE}=6V, I_C=1mA
Collector-emitter saturation voltage	$V_{CE(sat)}$	–	–	0.4	V	I_C/I_B=50mA/5mA
Transition frequency	f_T	–	180	–	MHz	V_{CE}=12V, I_E=–2mA, f=100MHz
Output capacitance	Cob	–	2	3.5	pF	V_{CE}=12V, I_E=0A, f=1MHz

●**Packaging specifications and h_{FE}**

Type	h_{FE}	Package	Taping				Bulk
		Code	T146	T106	TL	T2L	TP
		Basic ordering unit (pieces)	3000	3000	3000	8000	5000
2SC2412K	QRS		○	–	–	–	–
2SC4081	QRS		–	○	–	–	–
2SC4617	QRS		–	–	○	–	–
2SC5658	QRS		–	–	–	○	–
2SC1740S	QRS		–	–	–	–	○

h_{FE} values are classified as follows :

Item	Q	R	S
h_{FE}	120~270	180~390	270~560

●**Electrical characterristic curves**

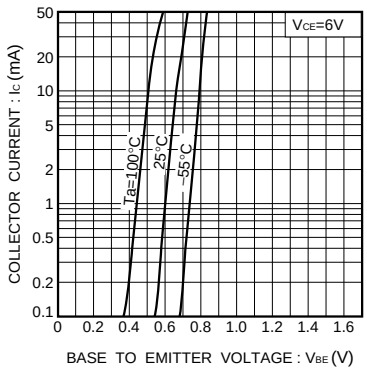


Fig.1 Grounded emitter propagation characteristics

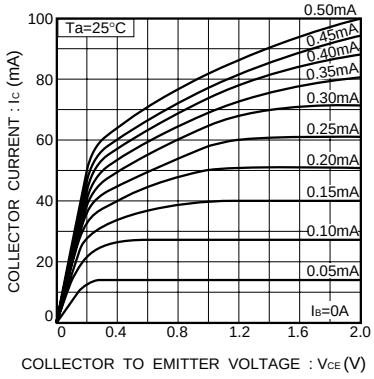


Fig.2 Grounded emitter output characteristics (I)

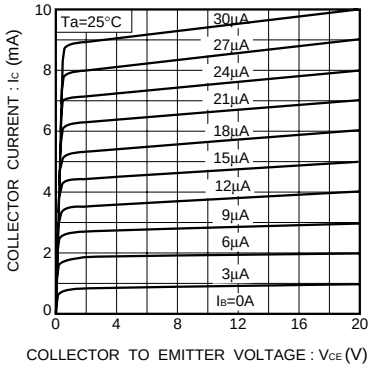


Fig.3 Grounded emitter output characteristics (II)

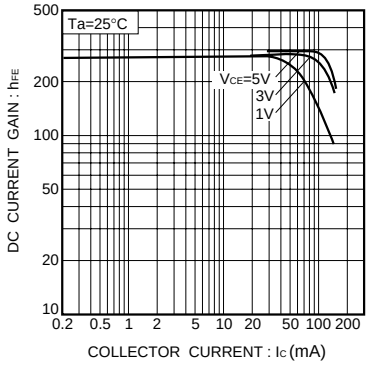


Fig.4 DC current gain vs. collector current (I)

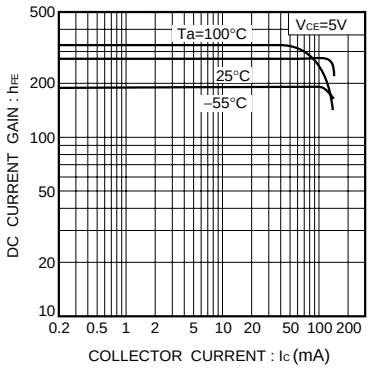


Fig.5 DC current gain vs. collector current (II)

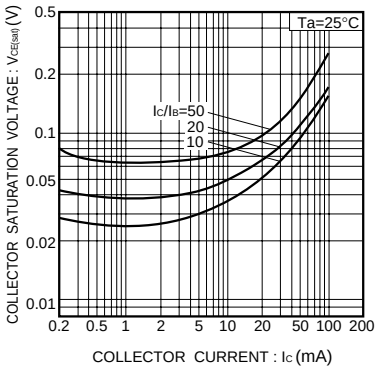


Fig. 6 Collector-emitter saturation voltage vs. collector current

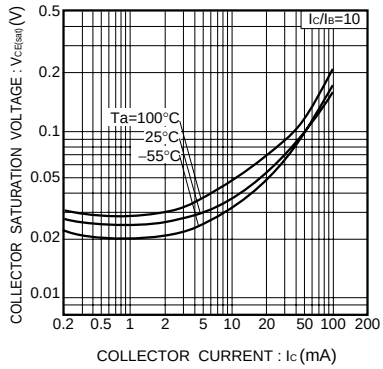


Fig.7 Collector-emitter saturation voltage vs. collector current (I)

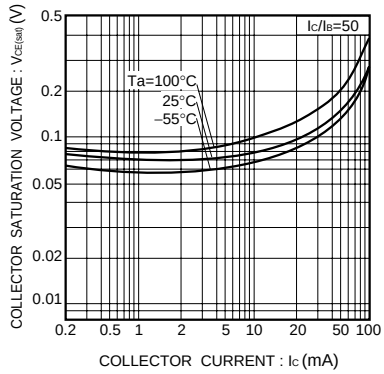


Fig.8 Collector-emitter saturation voltage vs. collector current (II)

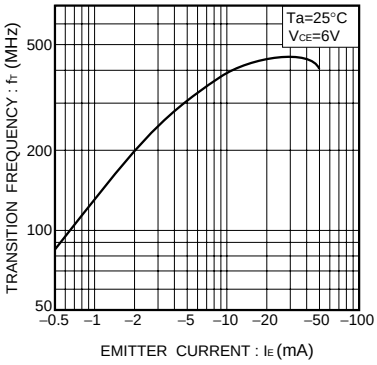


Fig.9 Gain bandwidth product vs. emitter current

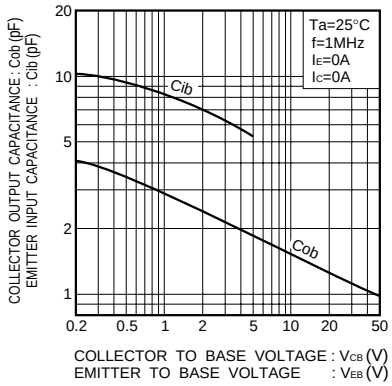


Fig.10 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

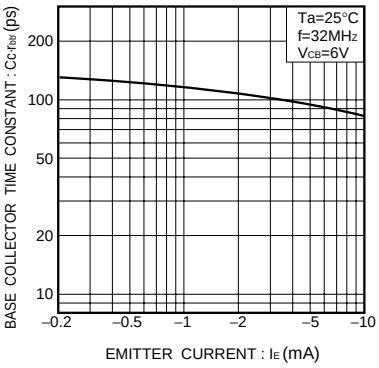


Fig.11 Base-collector time constant vs. emitter current