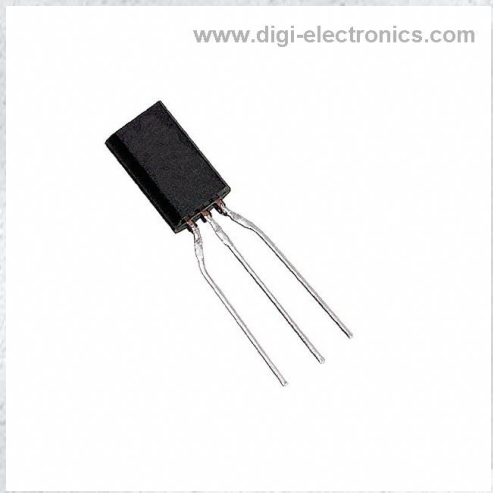
2SC13840S Datasheet



https://www.DiGi-Electronics.com

DiGi Electronics Part Number	2SC13840S-DG
Manufacturer	Panasonic Electronic Components
Manufacturer Product Number	2SC13840S
Description	TRANS NPN 50V 1A TO92L-A1
Detailed Description	Bipolar (BJT) Transistor NPN 50 V 1 A 200MHz 1 W Through Hole TO-92L-A1

Tel: +00 852-30501935

RFQ Email: Info@DiGi-Electronics.com

Purchase and inquiry

Manufacturer Product Number:	Manufacturer:
2SC13840S	Panasonic Electronic Components
Series:	Product Status:
-	Obsolete
Transistor Type:	Current - Collector (Ic) (Max):
NPN	1 A
Voltage - Collector Emitter Breakdown (Max):	Vce Saturation (Max) @ Ib, Ic:
50 V	400mV @ 50mA, 500mA
Current - Collector Cutoff (Max):	DC Current Gain (hFE) (Min) @ Ic, Vce:
100nA (ICBO)	170 @ 500mA, 10V
Power - Max:	Frequency - Transition:
1 W	200MHz
Operating Temperature:	Mounting Type:
150°C (TJ)	Through Hole
Package / Case:	Supplier Device Package:
TO-226-3, TO-92-3 Long Body	TO-92L-A1
Base Product Number:	
2SC138	

Environmental & Export classification

Moisture Sensitivity Level (MSL):	ECCN:
1 (Unlimited)	EAR99
HTSUS:	
8541.29.0075	

2SC1384

Silicon NPN epitaxial planar type

For low-frequency power amplification and driver amplification
Complementary to 2SA0684

■ Features

- Low collector-emitter saturation voltage $V_{CE(sat)}$
- Complementary pair with 2SA0684

■ Package

- Code
  TO-92L-A1
- Pin Name
  1. Emitter
  2. Collector
  3. Base

■ Absolute Maximum Ratings $T_a = 25°C$

Parameter	Symbol	Rating	Unit
Collector-base voltage (Emitter open)	V_{CBO}	60	V
Collector-emitter voltage (Base open)	V_{CEO}	50	V
Emitter-base voltage (Collector open)	V_{EBO}	5	V
Collector current	I_C	1	A
Peak collector current	I_{CP}	1.5	A
Collector power dissipation	P_C	1	W
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	–55 to +150	°C

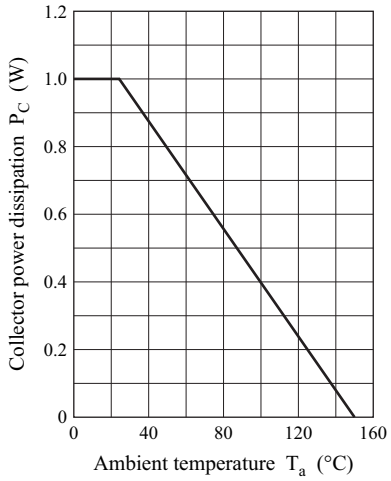
■ Electrical Characteristics $T_a = 25°C \pm 3°C$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base voltage (Emitter open)	V_{CBO}	$I_C = 10\ \mu A$, $I_E = 0$	60			V
Collector-emitter voltage (Base open)	V_{CEO}	$I_C = 2$ mA, $I_B = 0$	50			V
Emitter-base voltage (Collector open)	V_{EBO}	$I_E = 10\ \mu A$, $I_C = 0$	5			V
Collector-base cutoff current (Emitter open)	I_{CBO}	$V_{CB} = 20$ V, $I_E = 0$			0.1	μA
Forward current transfer ratio *1	h_{FE1} *2	$V_{CE} = 10$ V, $I_C = 500$ mA	85		340	—
	h_{FE2}	$V_{CE} = 5$ V, $I_C = 1$ A	50			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 500$ mA, $I_B = 50$ mA		0.2	0.4	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = 500$ mA, $I_B = 50$ mA		0.85	1.20	V
Transition frequency	f_T	$V_{CB} = 10$ V, $I_E = -50$ mA, $f = 200$ MHz		200		MHz
Collector output capacitance (Common base, input open circuited)	C_{re}	$V_{CB} = 10$ V, $I_E = 0$, $f = 1$ MHz		11	20	pF

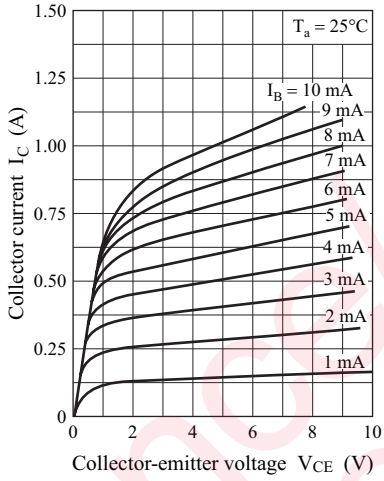
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.
2. *1: Pulse measurement
*2: Rank classification

Rank	Q	R	S
h_{FE1}	85 to 170	120 to 240	170 to 340

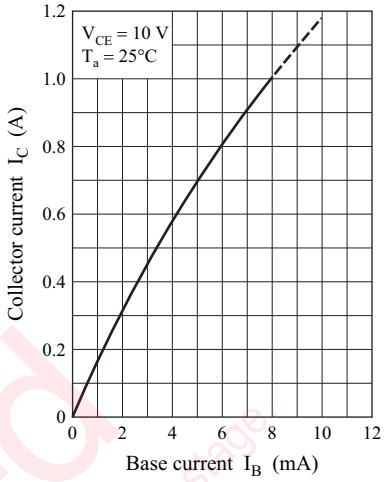
P_C — T_a



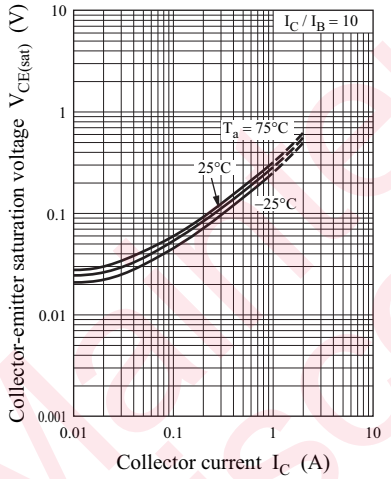
I_C — V_{CE}



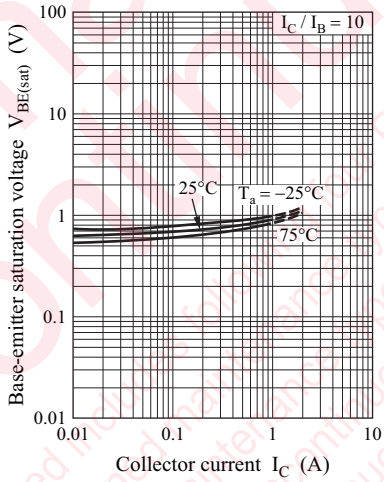
I_C — I_B



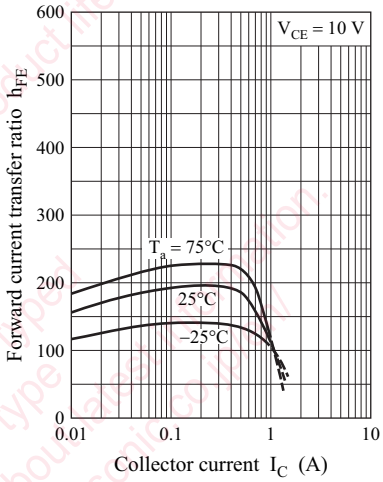
$V_{CE(sat)}$ — I_C



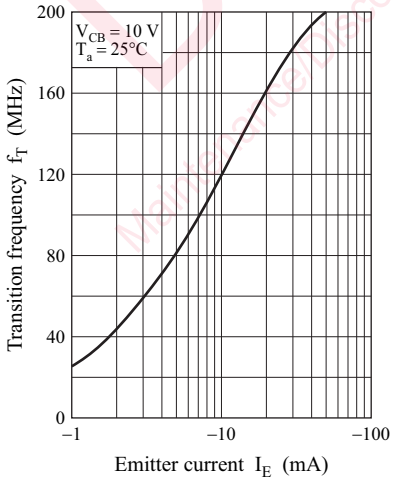
$V_{BE(sat)}$ — I_C



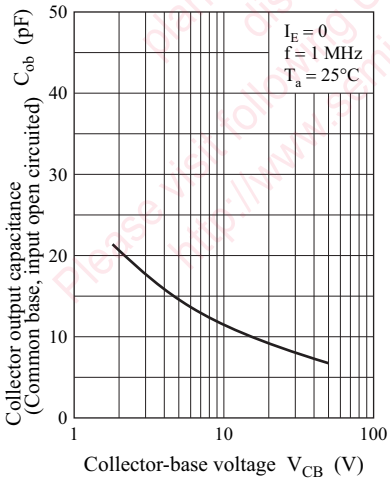
h_{FE} — I_C



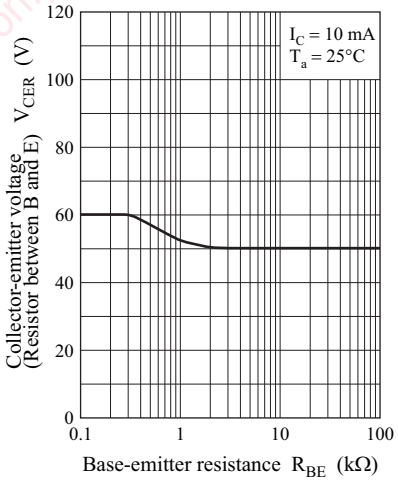
f_T — I_E



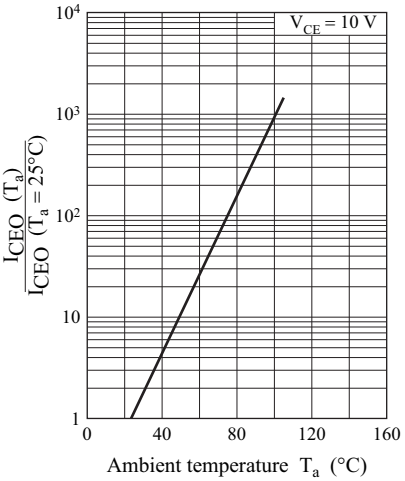
C_{ob} — V_{CB}



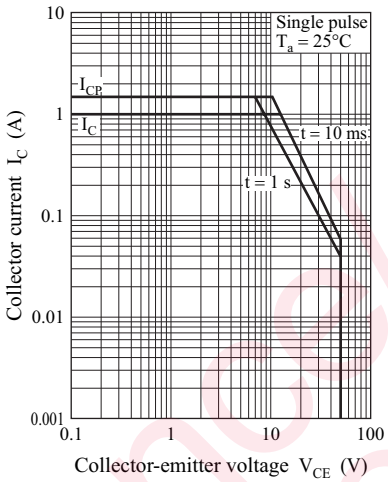
V_{CER} — R_{BE}



I_{CEO} — T_a

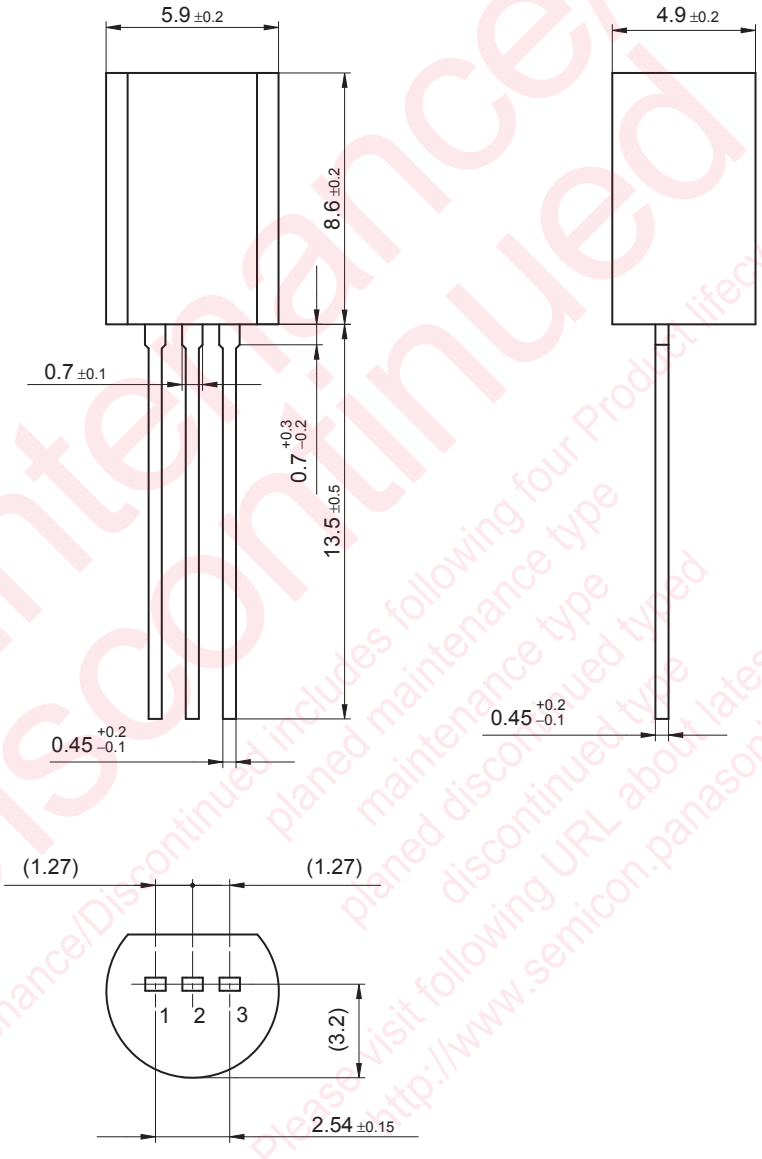


Safe operation area



TO-92L-A1

Unit: mm



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