

# UP05C8BG

Silicon NPN epitaxial planar type (Tr)  
 Silicon epitaxial planar type (CCD load device)

For CCD output circuits

■ Features

- Two elements incorporated into one package (Tr + CCD load device)
- Costs can be reduced through downsizing of the equipment and reduction of the number of parts.

■ Basic Part Number

- 2SC3931G + CCD load device

■ Absolute Maximum Ratings  $T_a = 25^\circ\text{C}$

	Parameter	Symbol	Rating	Unit
Tr	Collector-base voltage (Emitter open)	$V_{CB0}$	30	V
	Collector-emitter voltage (Base open)	$V_{CEO}$	20	V
	Emitter-base voltage (Collector open)	$V_{EBO}$	3	V
	Collector current	$I_C$	15	mA
CCD load device	Limiting element voltage	$V_{max}$	40	V
	Limiting element current	$I_{max}$	10	mA
	Total power dissipation *	$P_T$	125	mW
Overall	Junction temperature	$T_j$	125	$^\circ\text{C}$
	Storage temperature	$T_{stg}$	-55 to +125	$^\circ\text{C}$

Note) \* : Measuring on substrate at 17 mm × 10 mm × 1 mm

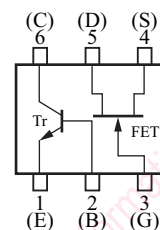
■ Package

- Code  
SSMini6-F2
- Pin Name
 

1: Emitter	4: Source
2: Base	5: Drain
3: Gate	6: Collector

■ Marking Symbol: 4F

■ Internal Connection



■ Electrical Characteristics  $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

• Tr

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base voltage (Emitter open)	$V_{CBO}$	$I_C = 10 \mu\text{A}, I_E = 0$	30			V
Emitter-base voltage (Collector open)	$V_{EBO}$	$I_E = 10 \mu\text{A}, I_C = 0$	3			V
Base-emitter voltage	$V_{BE}$	$V_{CE} = 6 \text{V}, I_C = 1 \text{mA}$		720		mV
Forward current transfer ratio	$h_{FE}$	$V_{CE} = 6 \text{V}, I_C = 1 \text{mA}$	65		160	—
Reverse transfer capacitance (Common emitter)	$C_{re}$	$V_{CB} = 6 \text{V}, I_E = -1 \text{mA}, f = 10.7 \text{MHz}$		0.8		pF
Transition frequency	$f_T$	$V_{CB} = 6 \text{V}, I_E = -1 \text{mA}, f = 200 \text{MHz}$		640		MHz
Noise figure	NF	$V_{CB} = 6 \text{V}, I_E = -1 \text{mA}, f = 100 \text{MHz}$		3.3		dB
Power gain	PG	$V_{CB} = 6 \text{V}, I_E = -1 \text{mA}, f = 100 \text{MHz}$		24		dB

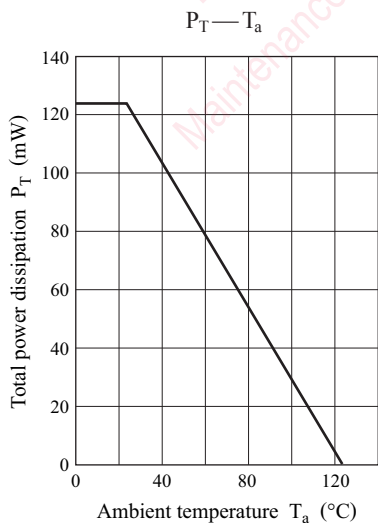
Note) Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

• CCD Load Device

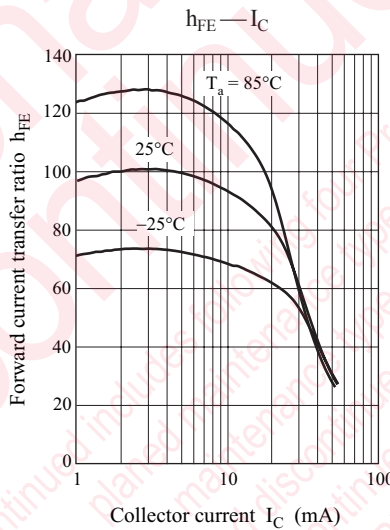
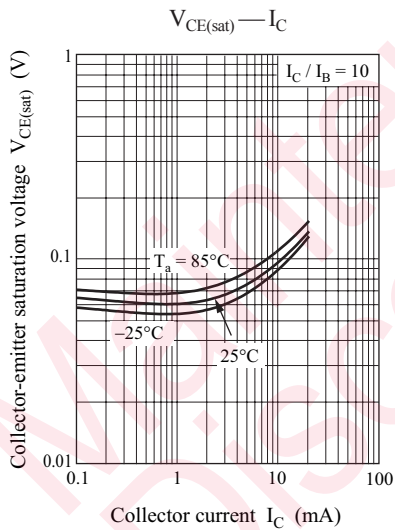
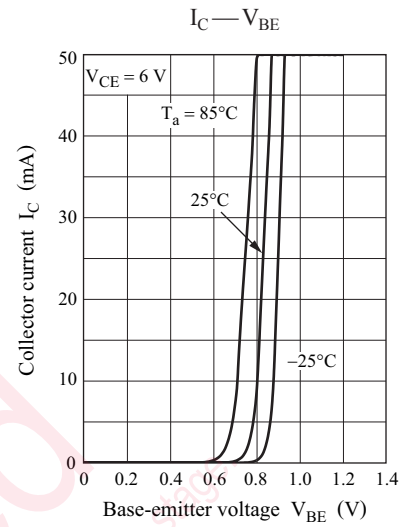
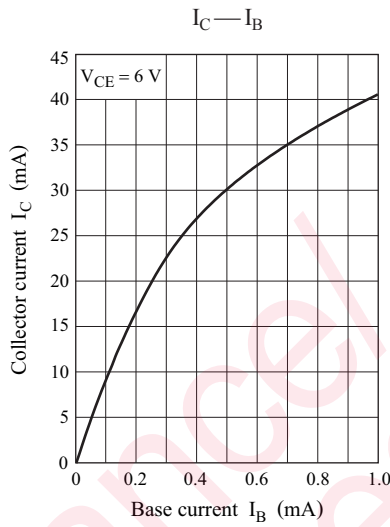
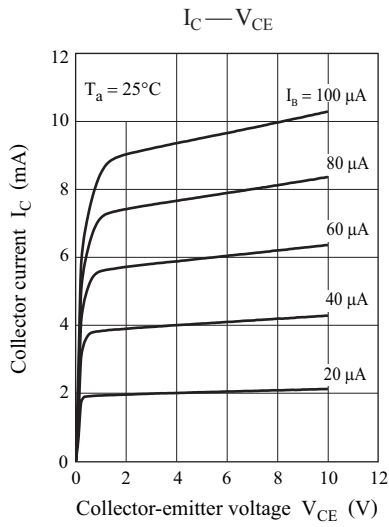
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Pinch off current	$I_P$	$V_{DS} = 10 \text{V}, V_G = 0$	3.5		5.5	mA
Output impedance	$Z_O$	$V_{DS} = 10 \text{V}, V_G = 0$		0.05		$M\Omega$

Note) Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

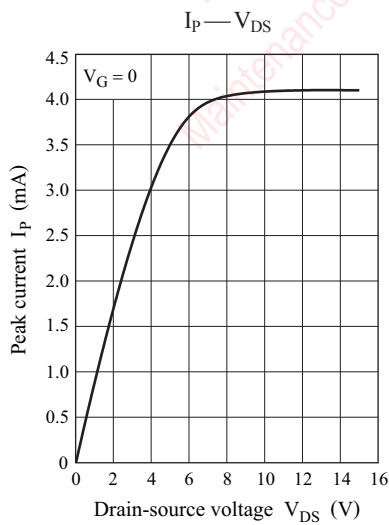
Common characteristics chart



Characteristics charts of Tr

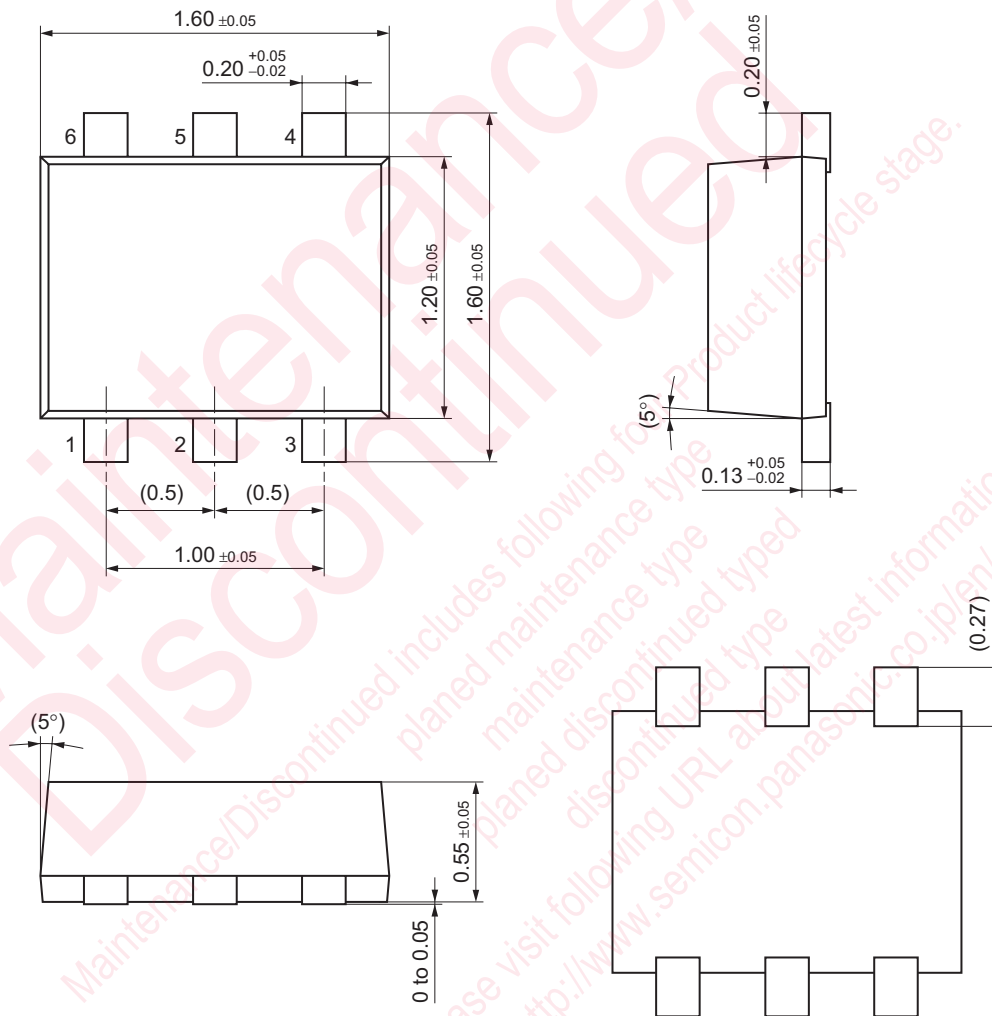


Characteristics charts of CCD load device



SSMini6-F2

Unit: mm



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