

UP04A8MG

Silicon PNP epitaxial planar type (Tr1)
 Silicon NPN epitaxial planar type (Tr2)

For general amplification

■ Features

- Two elements incorporated into one package (Transistors with built-in resistor)
- Reduction of the mounting area and assembly cost by one half

■ Basic Part Number

- 2SA2161 + UNR221N

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

	Parameter	Symbol	Rating	Unit
Tr1	Collector-base voltage (Emitter open)	V_{CBO}	-15	V
	Collector-emitter voltage (Base open)	V_{CEO}	-12	V
	Emitter-base voltage (Collector open)	V_{EBO}	-5	V
	Collector current	I_C	-500	mA
	Peak collector current	I_{CP}	-1	A
Tr2	Collector-base voltage (Emitter open)	V_{CBO}	50	V
	Collector-emitter voltage (Base open)	V_{CEO}	50	V
	Collector current	I_C	100	mA
Overall	Total power dissipation	P_T	125	mW
	Junction temperature	T_j	125	$^\circ\text{C}$
	Storage temperature	T_{stg}	-55 to +125	$^\circ\text{C}$

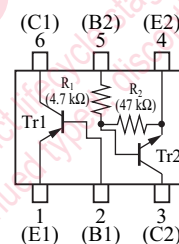
■ Package

- Code
SSMini6-F2
- Pin Name

1: Emitter (Tr1)	4: Emitter (Tr2)
2: Base (Tr1)	5: Base (Tr2)
3: Collector (Tr2)	6: Collector (Tr1)

■ Marking Symbol: 8M

■ Internal Connection



Discontinued (planned maintenance type)

Maintenance type includes following four Product Discontinued type, planned discontinued type, planned discontinued type, planned discontinued type

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

• Tr1

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base voltage (Emitter open)	V_{CBO}	$I_{\text{C}} = -10 \mu\text{A}, I_{\text{E}} = 0$	-15			V
Collector-emitter voltage (Base open)	V_{CEO}	$I_{\text{C}} = -1 \text{ mA}, I_{\text{B}} = 0$	-12			V
Emitter-base voltage (Collector open)	V_{EBO}	$I_{\text{E}} = -10 \mu\text{A}, I_{\text{B}} = 0$	-5			V
Collector-base cutoff current (Emitter open)	I_{CBO}	$V_{\text{CB}} = -15 \text{ V}, I_{\text{E}} = 0$			-0.1	μA
Forward current transfer ratio	h_{FE}	$V_{\text{CE}} = -2 \text{ V}, I_{\text{C}} = -10 \text{ mA}$	270		680	—
Collector-emitter saturation voltage	$V_{\text{CE(sat)}}$	$I_{\text{C}} = -200 \text{ mA}, I_{\text{B}} = -10 \text{ mA}$			-0.25	V
Collector output capacitance (Common base, input open circuited)	C_{ob}	$V_{\text{CB}} = -10 \text{ V}, I_{\text{E}} = 0, f = 1 \text{ MHz}$		4.5		pF
Transition frequency	f_{T}	$V_{\text{CB}} = -2 \text{ V}, I_{\text{E}} = 10 \text{ mA}, f = 200 \text{ MHz}$		200		MHz

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

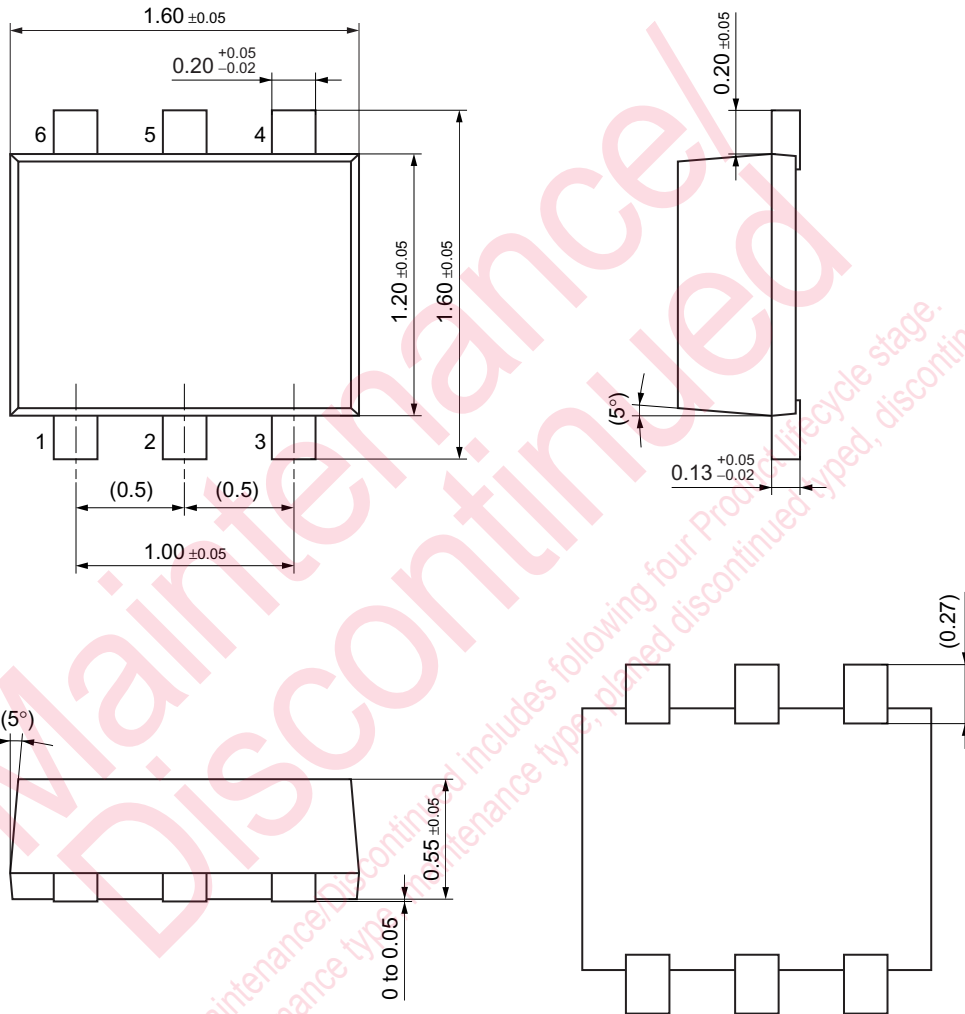
• Tr2

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base voltage (Emitter open)	V_{CBO}	$I_{\text{C}} = 10 \mu\text{A}, I_{\text{E}} = 0$	50			V
Collector-emitter voltage (Base open)	V_{CEO}	$I_{\text{C}} = 2 \text{ mA}, I_{\text{B}} = 0$	50			V
Collector-base cutoff current (Emitter open)	I_{CBO}	$V_{\text{CB}} = 50 \text{ V}, I_{\text{E}} = 0$			0.1	μA
Collector-emitter cutoff current (Base open)	I_{CEO}	$V_{\text{CE}} = 50 \text{ V}, I_{\text{B}} = 0$			0.5	μA
Emitter-base cutoff current (Collector open)	I_{EBO}	$V_{\text{EB}} = 6 \text{ V}, I_{\text{C}} = 0$			0.2	mA
Forward current transfer ratio	h_{FE}	$V_{\text{CE}} = 10 \text{ V}, I_{\text{C}} = 5 \text{ mA}$	80		400	—
Collector-emitter saturation voltage	$V_{\text{CE(sat)}}$	$I_{\text{C}} = 10 \text{ mA}, I_{\text{B}} = 0.3 \text{ mA}$			0.25	V
Output voltage high-level	V_{OH}	$V_{\text{CC}} = 5 \text{ V}, V_{\text{B}} = 0.5 \text{ V}, R_{\text{L}} = 1 \text{ k}\Omega$	4.9			V
Output voltage low-level	V_{OL}	$V_{\text{CC}} = 5 \text{ V}, V_{\text{B}} = 2.5 \text{ V}, R_{\text{L}} = 1 \text{ k}\Omega$			0.2	V
Input resistance	R_{I}		-30%	4.7	+30%	$\text{k}\Omega$
Resistance ratio	$R_{\text{I}} / R_{\text{2}}$			0.1		—
Transition frequency	f_{T}	$V_{\text{CB}} = 10 \text{ V}, I_{\text{E}} = -2 \text{ mA}, f = 200 \text{ MHz}$		150		MHz

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

SSMini6-F2

Unit: mm



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