



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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UNR31A1

Silicon PNP epitaxial planar type

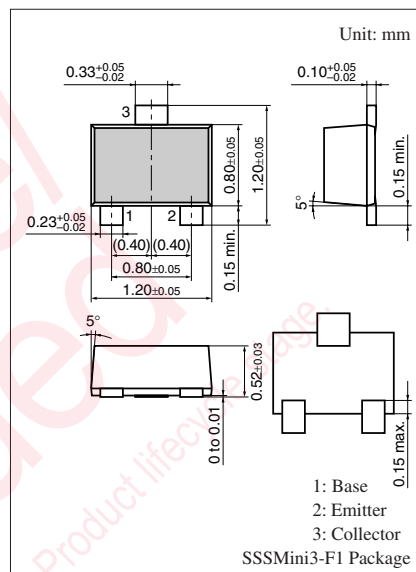
For digital circuits

■ Features

- Suitable for high-density mounting and downsizing of the equipment
- Contribute to low power consumption

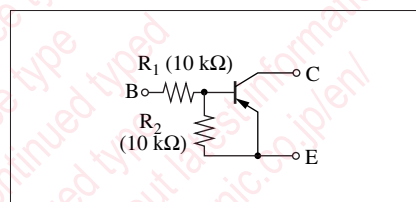
■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Collector-base voltage (Emitter open)	V_{CBO}	-50	V
Collector-emitter voltage (Base open)	V_{CEO}	-50	V
Collector current	I_{C}	-80	mA
Total power dissipation	P_{T}	100	mW
Junction temperature	T_{j}	125	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +125	$^\circ\text{C}$



Marking Symbol: CE

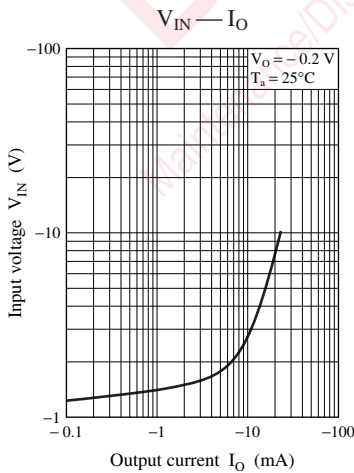
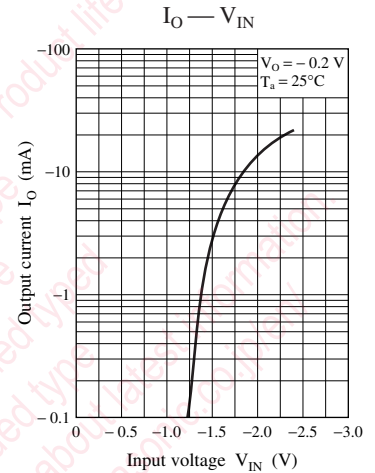
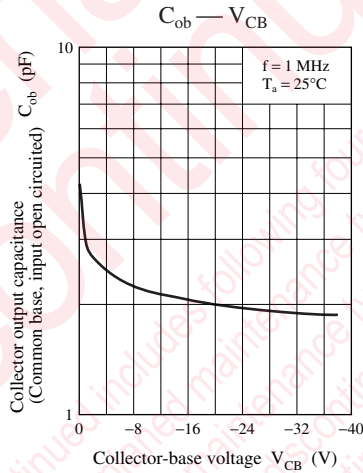
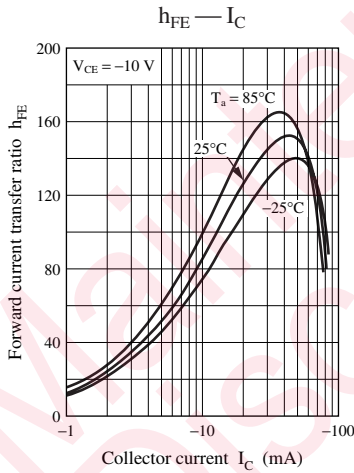
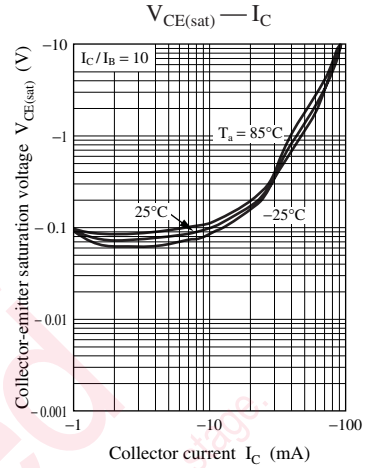
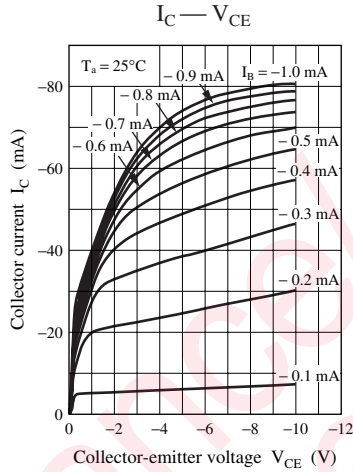
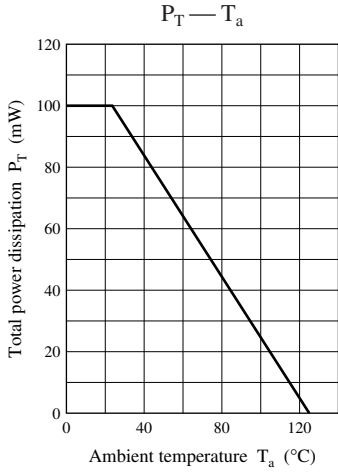
Internal Connection



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

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}	$V_{\text{EB}} = -6 \text{ V}, I_{\text{C}} = 0$			-0.5	mA
Forward current transfer ratio	h_{FE}	$V_{\text{CE}} = -10 \text{ V}, I_{\text{C}} = -5 \text{ mA}$	35			—
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%	10	+30%	$\text{k}\Omega$
Resistance ratio	$R_{\text{I}} / R_{\text{2}}$		0.8	1.0	1.2	—
Transition frequency	f_{T}	$V_{\text{CB}} = -10 \text{ V}, I_{\text{E}} = 1 \text{ mA}, f = 200 \text{ MHz}$		80		MHz

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



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