

UNR31AF

Silicon PNP epitaxial planar type

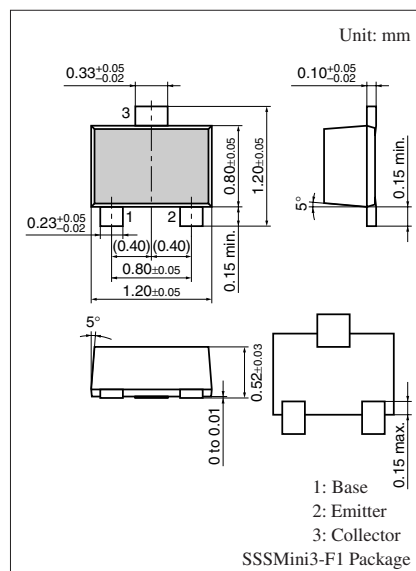
For digital circuits

■ Features

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

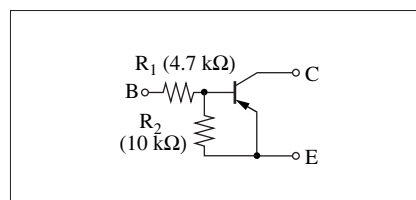
■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

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: DN

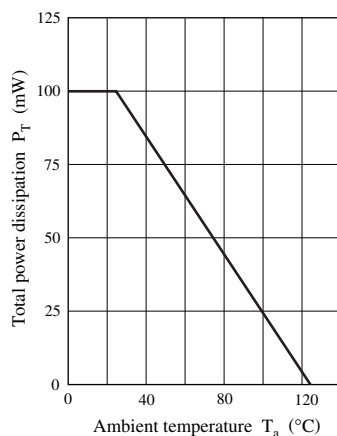
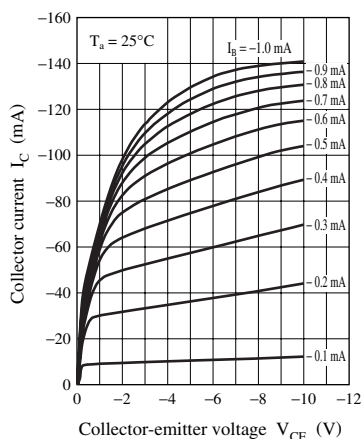
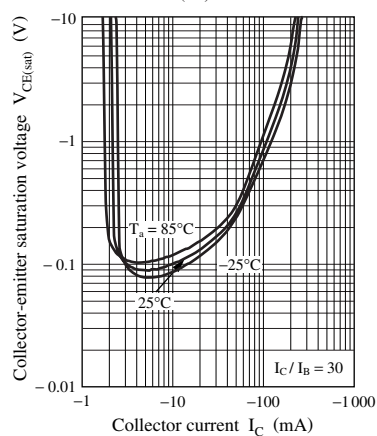
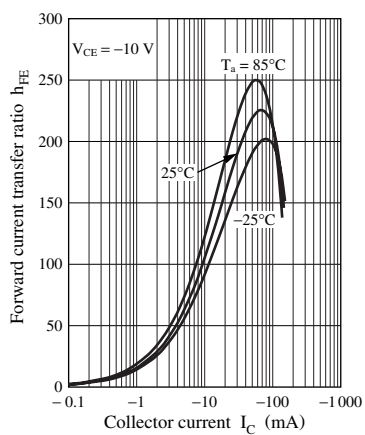
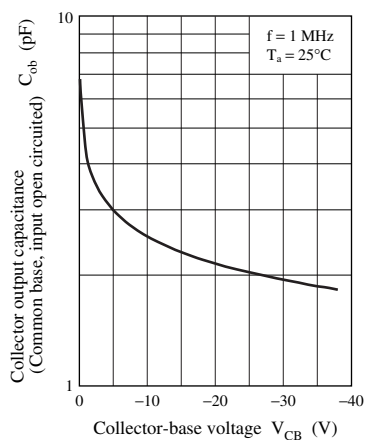
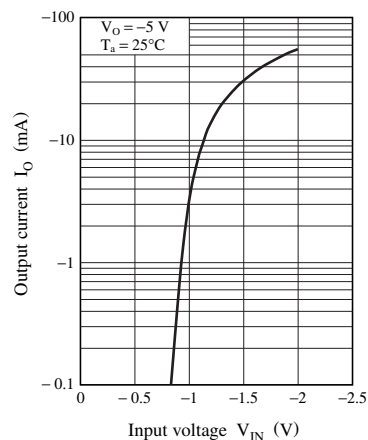
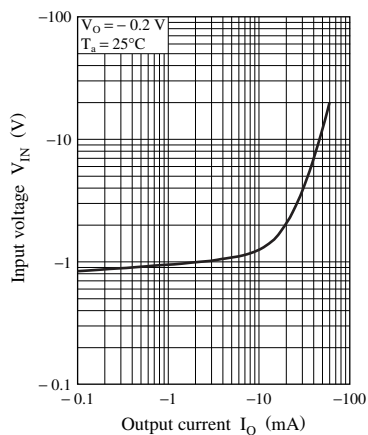
Internal Connection



■ 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}	$I_C = -10 \mu\text{A}$, $I_E = 0$	-50			V
Collector-emitter voltage (Base open)	V_{CEO}	$I_C = -2 \text{ mA}$, $I_B = 0$	-50			V
Collector-base cutoff current (Emitter open)	I_{CBO}	$V_{CB} = -50 \text{ V}$, $I_E = 0$			-0.1	μA
Collector-emitter cutoff current (Base open)	I_{CEO}	$V_{CE} = -50 \text{ V}$, $I_B = 0$			-0.5	μA
Emitter-base cutoff current (Collector open)	I_{EBO}	$V_{EB} = -6 \text{ V}$, $I_C = 0$			-1.0	mA
Forward current transfer ratio	h_{FE}	$V_{CE} = -10 \text{ V}$, $I_C = -5 \text{ mA}$	30			—
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -10 \text{ mA}$, $I_B = -0.3 \text{ mA}$			-0.25	V
Output voltage high-level	V_{OH}	$V_{CC} = -5 \text{ V}$, $V_B = -0.5 \text{ V}$, $R_L = 1 \text{ k}\Omega$	-4.9			V
Output voltage low-level	V_{OL}	$V_{CC} = -5 \text{ V}$, $V_B = -2.5 \text{ V}$, $R_L = 1 \text{ k}\Omega$			-0.2	V
Input resistance	R_1		-30%	4.7	+30%	k Ω
Resistance ratio	R_1 / R_2		0.37	0.47	0.57	—
Transition frequency	f_T	$V_{CB} = -10 \text{ V}$, $I_E = 1 \text{ mA}$, $f = 200 \text{ MHz}$		80		MHz

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

$P_T - T_a$  $I_C - V_{CE}$  $V_{CE(sat)} - I_C$  $h_{FE} - I_C$  $C_{ob} - V_{CB}$  $I_O - V_{IN}$  $V_{IN} - I_O$ 

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