# **UNR32A**4

### Silicon NPN epitaxial planar type

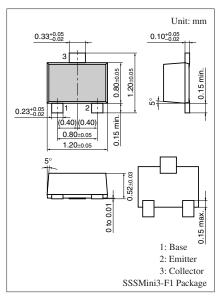
For digital circuits

#### Features

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

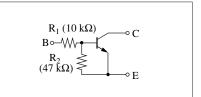
Absolute Maximum riatings $T_a = 25$ C							
Parameter	Symbol	Rating	Unit				
Collector-base voltage (Emitter open)	V <sub>CBO</sub>	50	V				
Collector-emitter voltage (Base open)	V <sub>CEO</sub>	50	V				
Collector current	I <sub>C</sub>	80	mA				
Total power dissipation	P <sub>T</sub>	100	mW				
Junction temperature	Tj	125	°C				
Storage temperature	T <sub>stg</sub>	-55 to +125	°C				

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



Marking Symbol: FP

#### Internal Connection

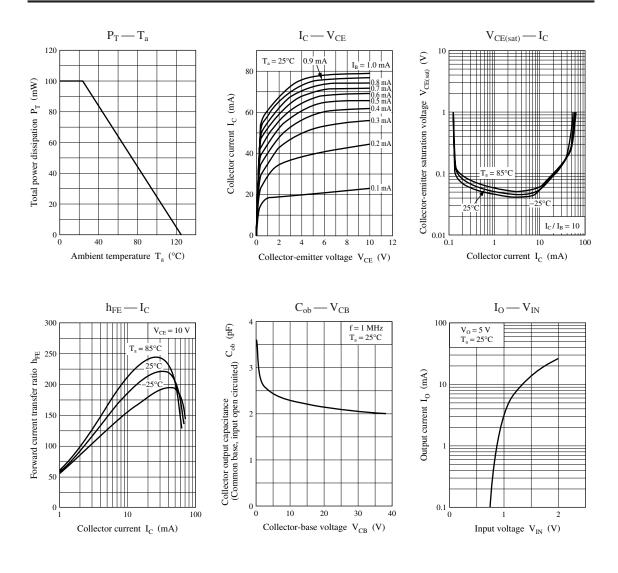


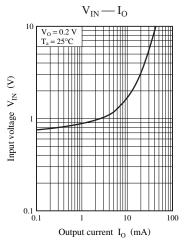
Parameter	Symbol	Conditions	Min	Тур	Max	Unit
Collector-base voltage (Emitter open)	V <sub>CBO</sub>	$I_{\rm C} = 10 \ \mu A, \ I_{\rm E} = 0$	50			V
Collector-emitter voltage (Base open)	V <sub>CEO</sub>	$I_{\rm C} = 2 \text{ mA}, I_{\rm B} = 0$	50			V
Collector-base cutoff current (Emitter open)	I <sub>CBO</sub>	$V_{CB} = 50 \text{ V}, I_E = 0$			0.1	μΑ
Collector-emitter cutoff current (Base open)	I <sub>CEO</sub>	$V_{CE} = 50 \text{ V}, I_B = 0$			0.5	μΑ
Emitter-base cutoff current (Collector open)	I <sub>EBO</sub>	$V_{EB} = 6 V, I_C = 0$			0.2	mA
Forward current transfer ratio	h <sub>FE</sub>	$V_{CE} = 10 \text{ V}, I_C = 5 \text{ mA}$	80			
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	$I_{\rm C} = 10 \text{ mA}, I_{\rm B} = 0.3 \text{ mA}$			0.25	V
Output voltage high-level	V <sub>OH</sub>	$V_{CC} = 5 \text{ V},  \text{V}_{B} = 0.5  \text{V},  \text{R}_{L} = 1  \text{k}\Omega$	4.9			V
Output voltage low-level	V <sub>OL</sub>	$V_{CC} = 5 V, V_B = 2.5 V, R_L = 1 k\Omega$			0.2	V
Input resistance	<b>R</b> <sub>1</sub>		-30%	10	+30%	kΩ
Resistance ratio	R <sub>1</sub> / R <sub>2</sub>		0.17	0.21	0.25	_
Transition frequency	f <sub>T</sub>	$V_{CB} = 10 \text{ V}, I_E = -2 \text{ mA}, f = 200 \text{ MHz}$		150		MHz

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

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

## Panasonic





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