# XN01215 (XN1215)

## Silicon NPN epitaxial planar type

### For switching/digital circuits

#### ■ Features

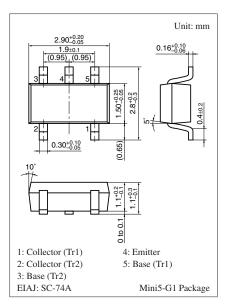
- Two elements incorporated into one package (Emitter-coupled transistors with built-in resistor)
- Reduction of the mounting area and assembly cost by one half

#### ■ Basic Part Number

• UNR2215 (UN2215) × 2

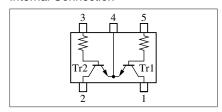
### ■ Absolute Maximum Ratings $T_a = 25$ °C

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	$I_C$	100	mA	
Total power dissipation	$P_{T}$	300	mW	
Junction temperature	$T_{j}$	150	°C	
Storage temperature	$T_{stg}$	-55 to +150	°C	



Marking Symbol: 9M

#### Internal Connection



#### ■ Electrical Characteristics $T_a = 25$ °C $\pm 3$ °C

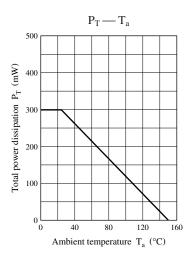
Parameter	Symbol	Conditions	Min	Тур	Max	Unit
Collector-base voltage (Emitter open)	V <sub>CBO</sub>	$I_C = 10 \mu\text{A},  I_E = 0$	50			V
Collector-emitter voltage (Base open)	V <sub>CEO</sub>	$I_C = 2 \text{ mA}, I_B = 0$	50			V
Collector-base cutoff current (Emitter open)	$I_{CBO}$	$V_{CB} = 50 \text{ V}, I_{E} = 0$			0.1	μΑ
Collector-emitter cutoff current (Base open)	$I_{CEO}$	$V_{CE} = 50 \text{ V}, I_{B} = 0$			0.5	μΑ
Emitter-base cutoff current (Collector open)	$I_{EBO}$	$V_{EB} = 6 \text{ V}, I_C = 0$			0.01	mA
Forward current transfer ratio	h <sub>FE</sub>	$V_{CE} = 10 \text{ V}, I_{C} = 5 \text{ mA}$	160		460	_
h <sub>FE</sub> Ratio *	h <sub>FE(Small</sub>	$V_{CE} = 10 \text{ V}, I_{C} = 5 \text{ mA}$	0.50	0.99		_
	/Large)					
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	$I_C = 10 \text{ mA}, I_B = 0.3 \text{ mA}$			0.25	V
Output voltage high-level	V <sub>OH</sub>	$V_{CC} = 5 \text{ V}, V_B = 0.5 \text{ V}, R_L = 1 \text{ k}\Omega$	4.9			V
Output voltage low-level	V <sub>OL</sub>	$V_{CC} = 5 \text{ V}, V_B = 2.5 \text{ V}, R_L = 1 \text{ k}\Omega$			0.2	V
Input resistance	R <sub>1</sub>		-30%	10	+30%	kΩ
Transition frequency	$f_T$	$V_{CB} = 10 \text{ V}, I_E = -2 \text{ mA}, f = 200 \text{ MHz}$		150		MHz

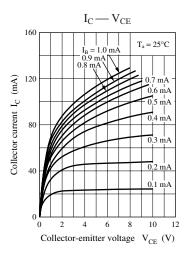
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

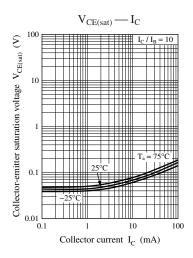
2. \*: Ratio between 2 elements

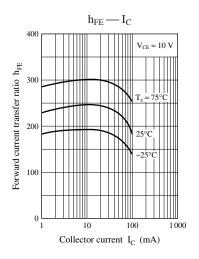
Note) The part number in the parenthesis shows conventional part number.

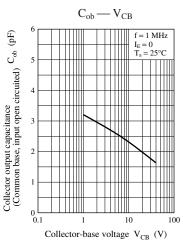
## **Panasonic**

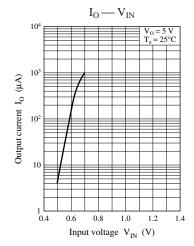


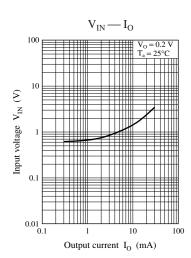












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