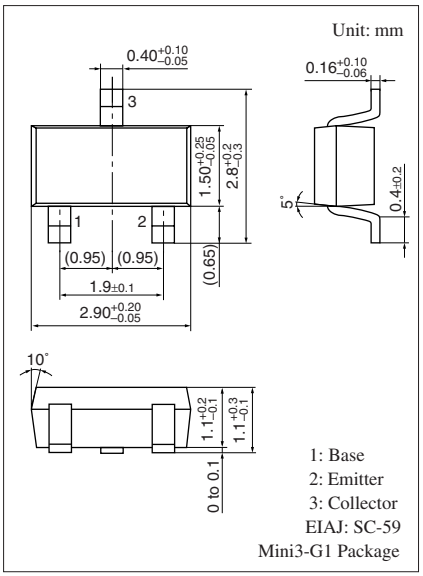
UNR212x Series (UN212x Series)

Silicon PNP epitaxial planar type

For digital circuits



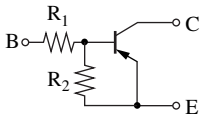
■ Features

- Costs can be reduced through downsizing of the equipment and reduction of the number of parts.
- Mini type package allowing easy automatic insertion through tape packing and magazine packing

■ Resistance by Part Number

		Marking Symbol	(R_1)	(R_2)
• UNR2121	(UN2121)	7A	2.2 kΩ	2.2 kΩ
• UNR2122	(UN2122)	7B	4.7 kΩ	4.7 kΩ
• UNR2123	(UN2123)	7C	10 kΩ	10 kΩ
• UNR2124	(UN2124)	7D	2.2 kΩ	10 kΩ
• UNR212X	(UN212X)	7I	0.27 kΩ	5 kΩ
• UNR212Y	(UN212Y)	7Y	3.1 kΩ	4.6 kΩ

Internal Connection



■ Absolute Maximum Ratings $T_a = 25°C$

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	−500	mA
Total power dissipation	P_T	200	mW
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	−55 to +150	°C

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

Parameter		Symbol	Conditions	Min	Typ	Max	Unit
Collector-base voltage (Emitter open)		V_{CBO}	$I_C = -10$ μA, $I_E = 0$	−50			V
Collector-emitter voltage (Base open)		V_{CEO}	$I_C = -2$ mA, $I_B = 0$	−50			V
Collector-base cutoff current (Emitter open)		I_{CBO}	$V_{CB} = -50$ V, $I_E = 0$			−1.0	μA
	UNR212X					− 0.1	
Collector-emitter cutoff current (Base open)		I_{CEO}	$V_{CE} = -50$ V, $I_B = 0$			−1.0	μA
	UNR212X					− 0.5	
Emitter-base cutoff current (Collector open)	UNR2121	I_{EBO}	$V_{EB} = -6$ V, $I_C = 0$			−5	mA
	UNR2122/212X/212Y					−2	
	UNR2123/2124					−1	
Forward current transfer ratio	UNR2121	h_{FE}	$V_{CE} = -10$ V, $I_C = -5$ mA	40			—
	UNR2122/212Y			50			
	UNR2123/2124			60			
	UNR212X			20			

Note) The part numbers in the parenthesis show conventional part number.

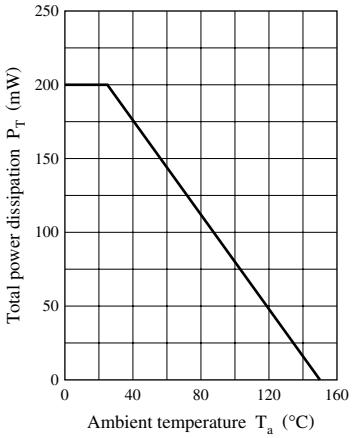
■ Electrical Characteristics (continued) $T_a = 25°C \pm 3°C$

Parameter		Symbol	Conditions	Min	Typ	Max	Unit
Collector-emitter saturation voltage		$V_{CE(sat)}$	$I_C = -100$ mA, $I_B = -5$ mA			− 0.25	V
	UNR212X/212Y		$I_C = -10$ mA, $I_B = -0.3$ mA				
Output voltage high-level		V_{OH}	$V_{CC} = -5$ V, $V_B = -0.5$ V, $R_L = 500\ \Omega$	−4.9			V
Output voltage low-level		V_{OL}	$V_{CC} = -5$ V, $V_B = -3.5$ V, $R_L = 500\ \Omega$			− 0.2	V
Transition frequency		f_T	$V_{CB} = -10$ V, $I_E = 50$ mA, f = 200 MHz		200		MHz
Input resistance	UNR2121/2124	R_1		−30%	2.2	+30%	kΩ
	UNR2122				4.7		
	UNR2123				10		
	UNR212X				0.27		
	UNR212Y				3.1		
Resistance ratio		R_1/R_2		0.8	1.0	1.2	
	UNR2124			0.17	0.22	0.27	
	UNR212X			0.043	0.054	0.065	
	UNR212Y			0.53	0.67	0.81	

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

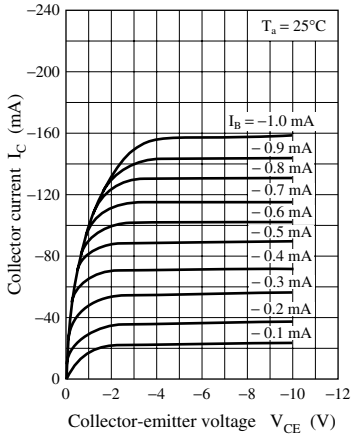
Common characteristics chart

P_T — T_a

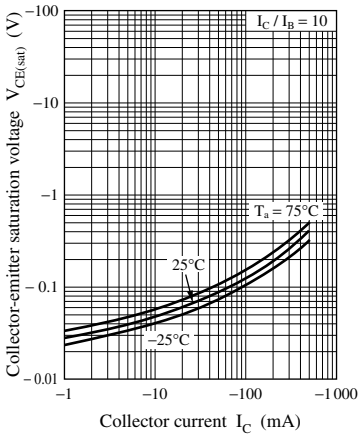


Characteristics charts of UNR2121

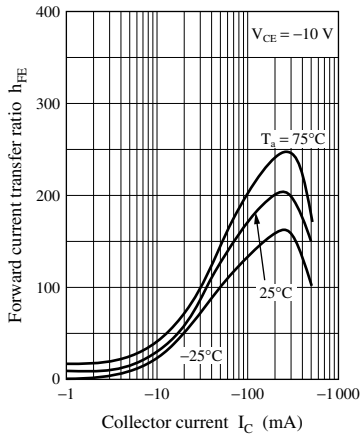
I_C — V_{CE}



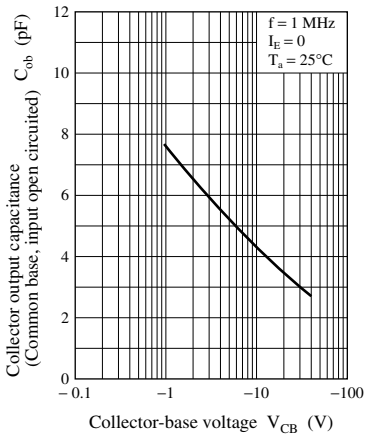
$V_{CE(sat)}$ — I_C



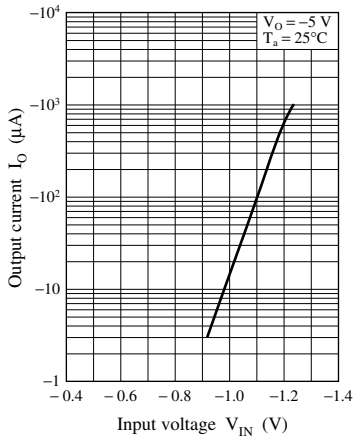
h_{FE} — I_C



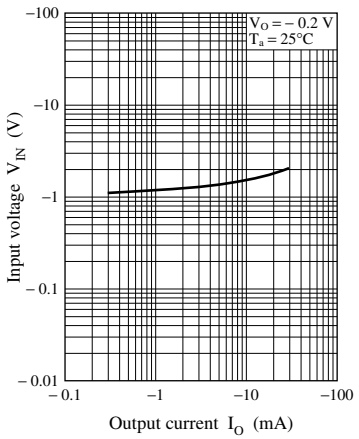
C_{ob} — V_{CB}



I_O — V_{IN}

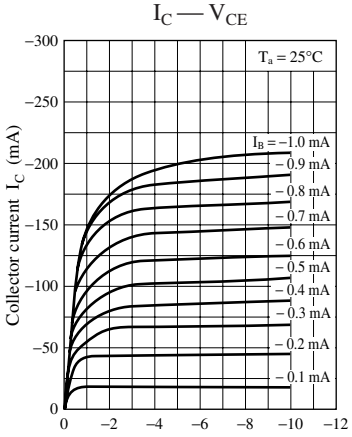


V_{IN} — I_O

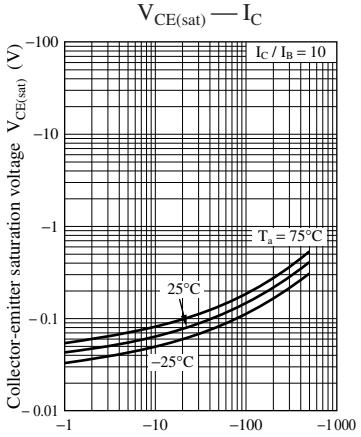


Characteristics charts of UNR2122

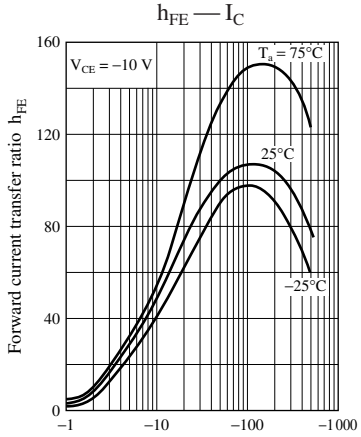
I_C — V_{CE}



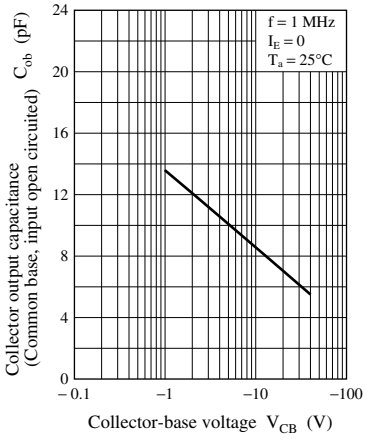
$V_{CE(sat)}$ — I_C



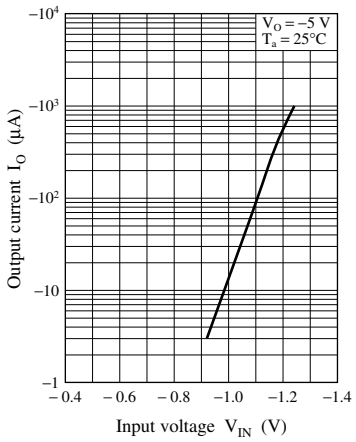
h_{FE} — I_C



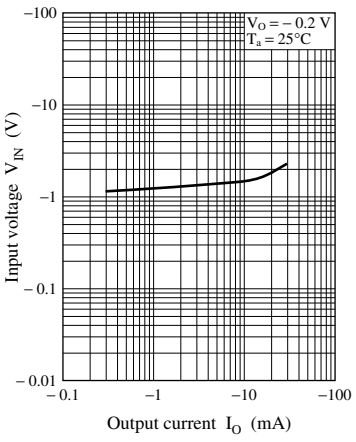
C_{ob} — V_{CB}



I_O — V_{IN}

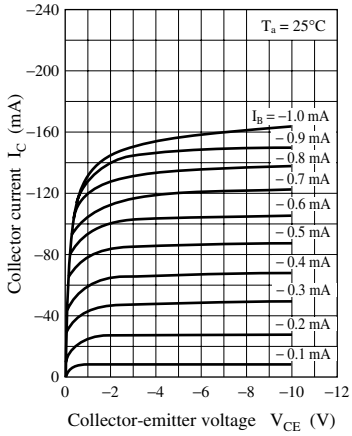


V_{IN} — I_O

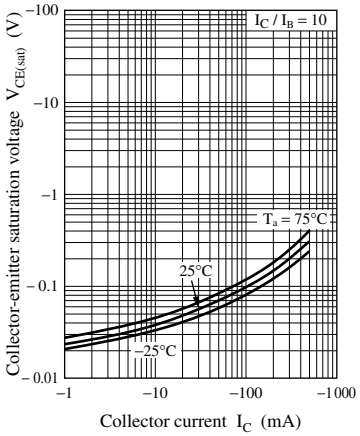


Characteristics charts of UNR2123

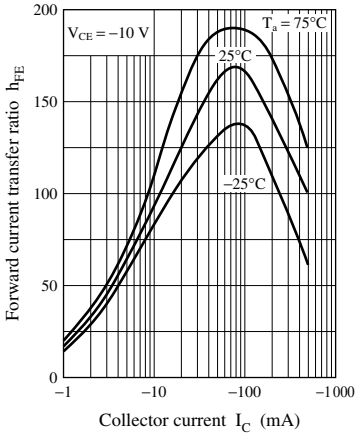
I_C — V_{CE}



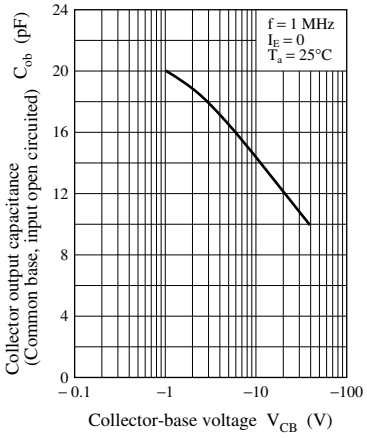
$V_{CE(sat)}$ — I_C



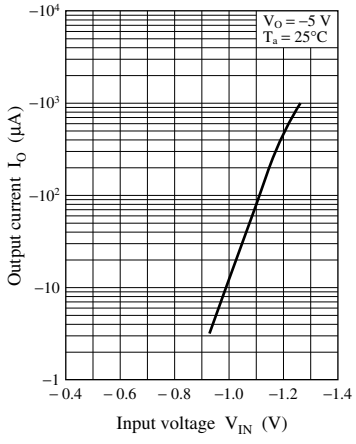
h_{FE} — I_C



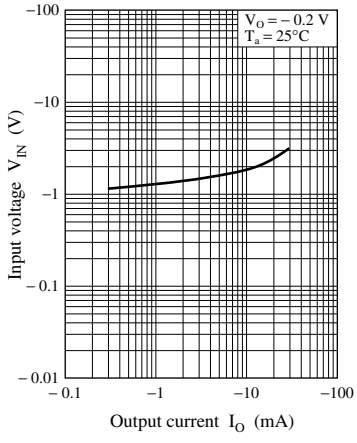
C_{ob} — V_{CB}



I_O — V_{IN}

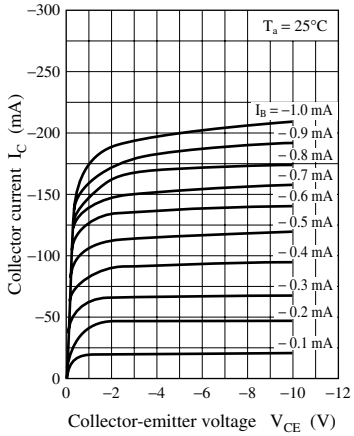


V_{IN} — I_O

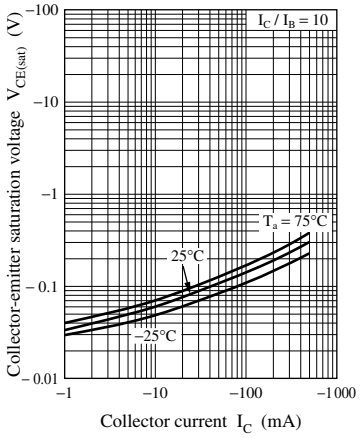


Characteristics charts of UNR2124

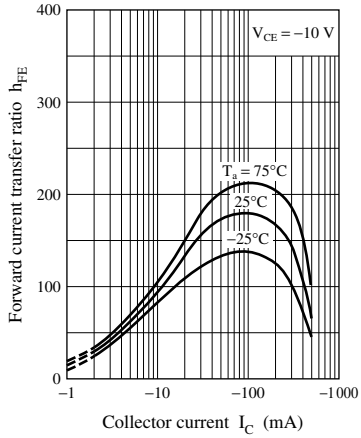
I_C — V_{CE}



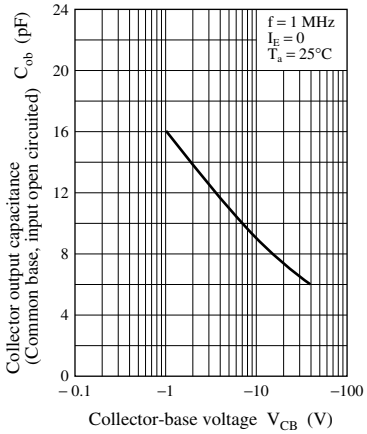
$V_{CE(sat)}$ — I_C



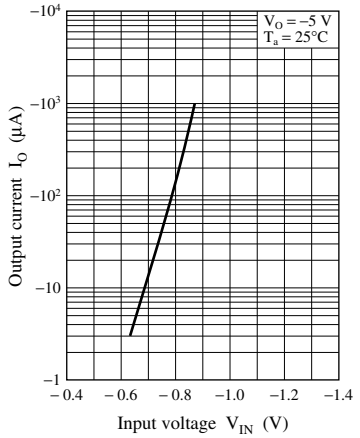
h_{FE} — I_C



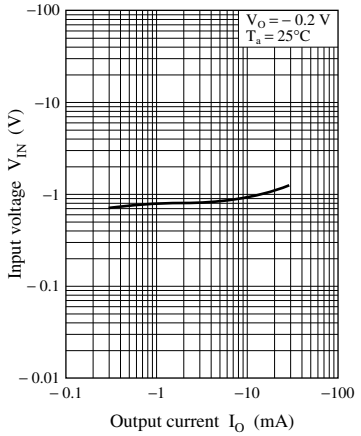
C_{ob} — V_{CB}



I_O — V_{IN}

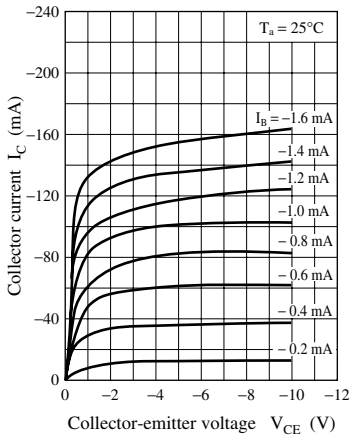


V_{IN} — I_O

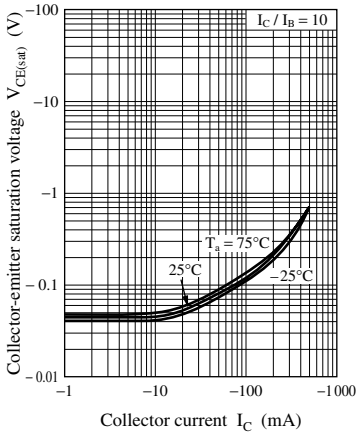


Characteristics charts of UNR212X

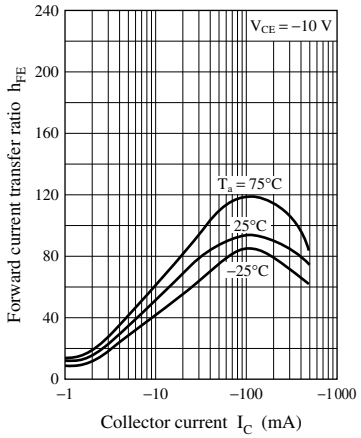
I_C — V_{CE}



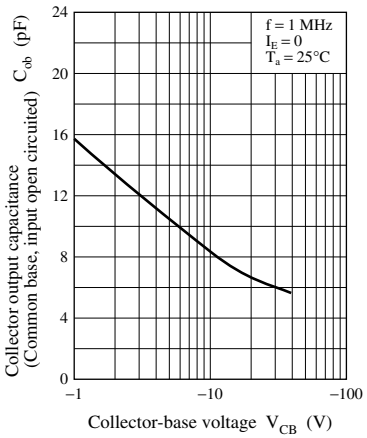
$V_{CE(sat)}$ — I_C



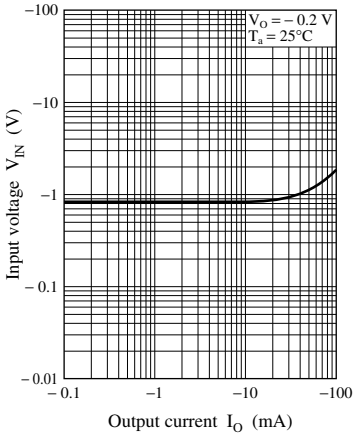
h_{FE} — I_C



C_{ob} — V_{CB}

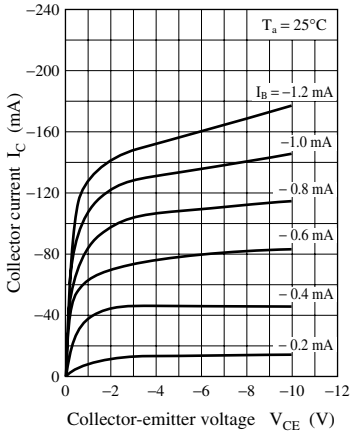


V_{IN} — I_O

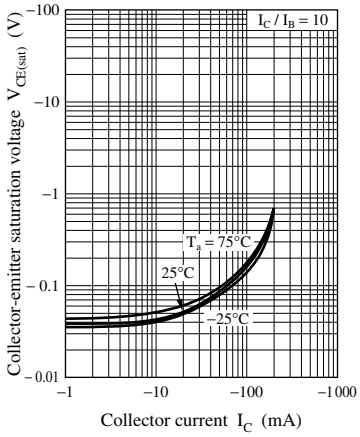


Characteristics charts of UNR212Y

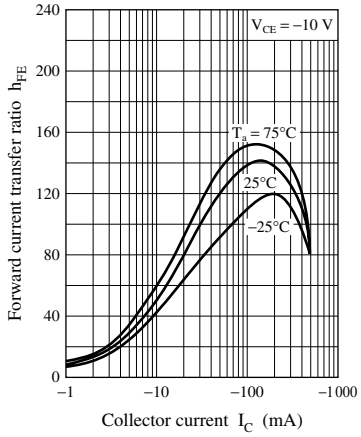
I_C — V_{CE}



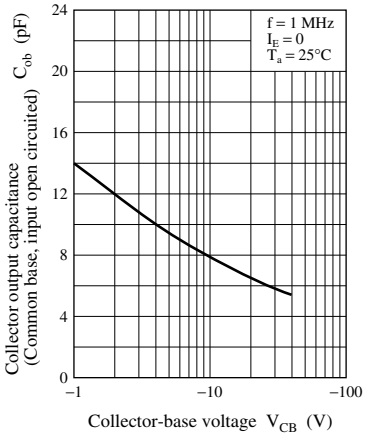
$V_{CE(sat)}$ — I_C



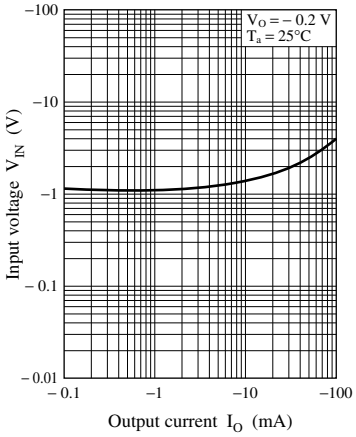
h_{FE} — I_C



C_{ob} — V_{CB}



V_{IN} — I_O



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- Special applications (such as for airplanes, aerospace, automobiles, traffic control equipment, combustion equipment, life support systems and safety devices) in which exceptional quality and reliability are required, or if the failure or malfunction of the products may directly jeopardize life or harm the human body.
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(6) When designing your equipment, comply with the guaranteed values, in particular those of maximum rating, the range of operating power supply voltage, and heat radiation characteristics. Otherwise, we will not be liable for any defect which may arise later in your equipment.
Even when the products are used within the guaranteed values, take into the consideration of incidence of break down and failure mode, possible to occur to semiconductor products. Measures on the systems such as redundant design, arresting the spread of fire or preventing glitch are recommended in order to prevent physical injury, fire, social damages, for example, by using the products.

(7) When using products for which damp-proof packing is required, observe the conditions (including shelf life and amount of time let standing of unsealed items) agreed upon when specification sheets are individually exchanged.