

# UP0KG8D

Silicon epitaxial planar type (SBD)  
Silicon PNP epitaxial planar type (Tr)

For digital circuits

## ■ Features

- Two elements incorporated into one package (SBD + Tr)
- Costs can be reduced through downsizing of the equipment and reduction of the number of parts

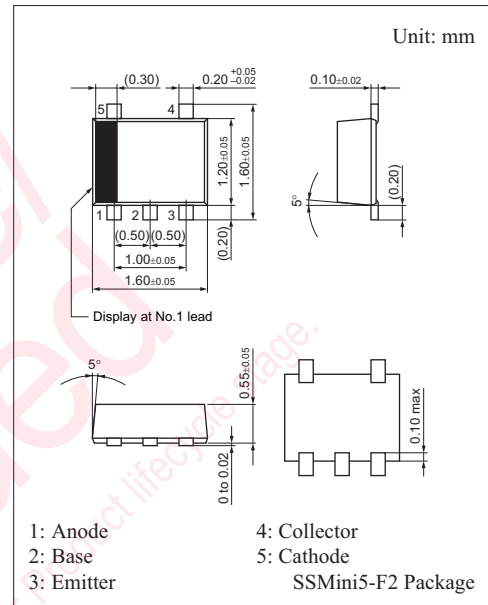
## ■ Basic Part Number

- MA2SD24 + UNR31A3

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

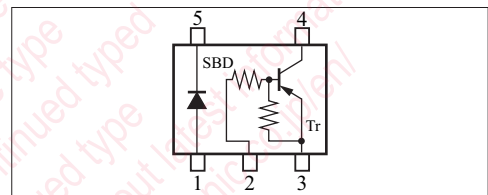
	Parameter	Symbol	Rating	Unit
SBD	Reverse voltage	$V_R$	20	V
	Repetitive peak reverse voltage	$V_{RRM}$	20	V
	Forward current (Average)	$I_{F(AV)}$	200	mA
	Peak forward current	$I_{FM}$	300	mA
	Non-repetitive peak forward surge current	$I_{FSM}$	1	A
Tr	Collector-base voltage (Emitter open)	$V_{CBO}$	-50	V
	Collector-emitter voltage (Base open)	$V_{CEO}$	-50	V
	Collector current	$I_C$	-80	mA
Overall	Total power dissipation	$P_T$	125	mW
	Junction temperature	$T_j$	125	$^\circ\text{C}$
	Storage temperature	$T_{stg}$	-55 to +125	$^\circ\text{C}$

Note) \*: 50 Hz sine wave 1 cycle (Non-repetitive peak current)



Marking Symbol: 6K

Internal Connection



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

• SBD

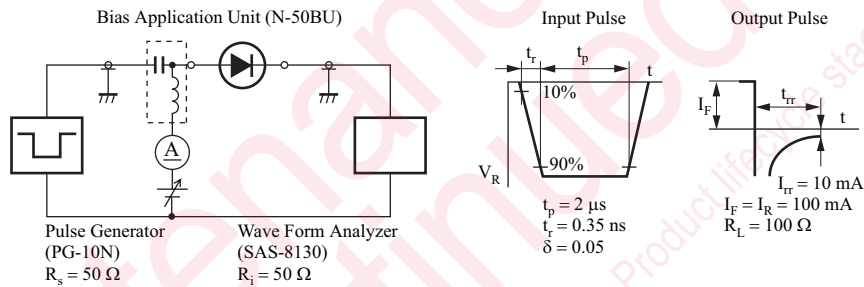
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Forward voltage	$V_F$	$I_F = 200 \text{ mA}$		0.50	0.58	V
Reverse current	$I_R$	$V_R = 10 \text{ V}$		0.1	1	$\mu\text{A}$
Terminal capacitance	$C_t$	$V_R = 0 \text{ V}, f = 1 \text{ MHz}$		25		pF
Reverse recovery time *	$t_{rr}$	$I_F = I_R = 100 \text{ mA}, I_{rr} = 10 \text{ mA}, R_L = 100 \Omega$		3		ns

Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7031 measuring methods for diodes.

2. Absolute frequency of input and output is 250 MHz

2. This product is sensitive to electric shock (static electricity, etc.). Due attention must be paid on the charge of a human body and the leakage of current from the operating equipment.

3. \*:  $t_{rr}$  measurement circuit

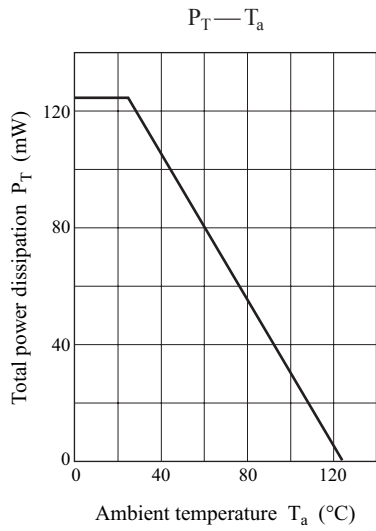


• Tr2

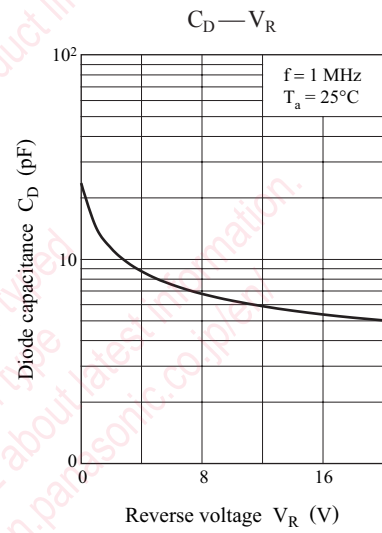
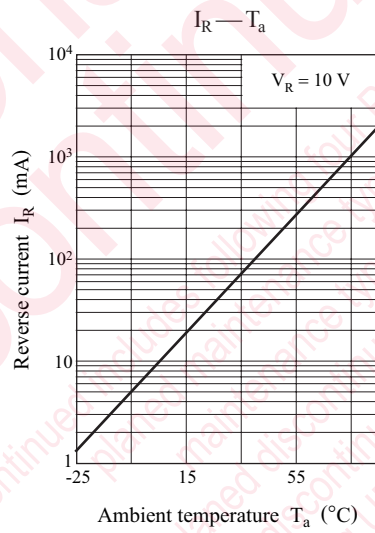
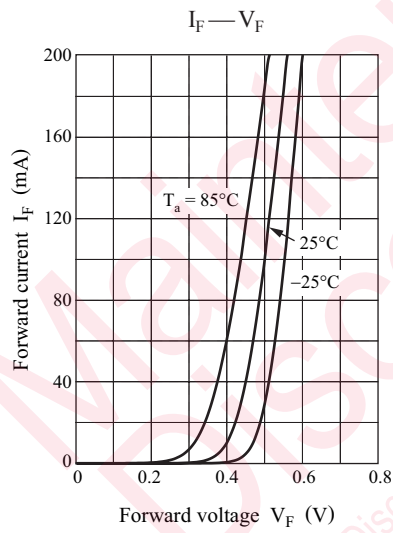
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base voltage (Emitter open)	$V_{CBO}$	$I_C = -10 \mu\text{A}, I_E = 0$	-50			V
Collector-emitter voltage (Base open)	$V_{CEO}$	$I_C = -2 \text{ mA}, I_B = 0$	-50			V
Collector-base cutoff current (Emitter open)	$I_{CBO}$	$V_{CB} = -50 \text{ V}, I_E = 0$			-0.1	$\mu\text{A}$
Collector-emitter cutoff current (Base open)	$I_{CEO}$	$V_{CE} = -50 \text{ V}, I_B = 0$			-0.5	$\mu\text{A}$
Emitter-base cutoff current (Collector open)	$I_{EBO}$	$V_{EB} = -6 \text{ V}, I_C = 0$			-0.1	mA
Forward current transfer ratio	$h_{FE}$	$V_{CE} = -10 \text{ V}, I_C = -5 \text{ mA}$	80			—
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	$V_{OL}$	$V_{CC} = -5 \text{ V}, V_B = -3.5 \text{ V}, R_L = 1 \text{ k}\Omega$			-0.2	V
Input resistance	$R_1$		-30%	47	+30%	$\text{k}\Omega$
Resistance ratio	$R_1 / R_2$		0.8	1.0	1.2	—
Transition frequency	$f_T$	$V_{CB} = -10 \text{ V}, I_E = 2 \text{ mA}, f = 200 \text{ MHz}$		80		MHz

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

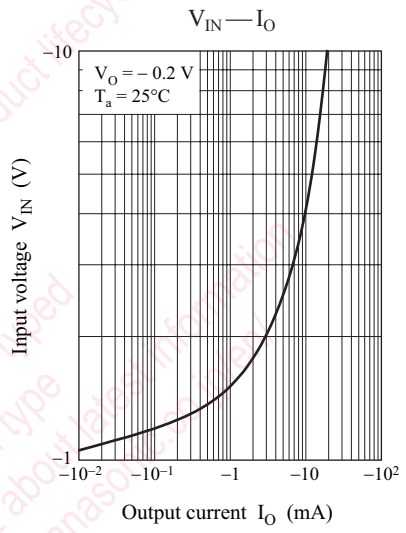
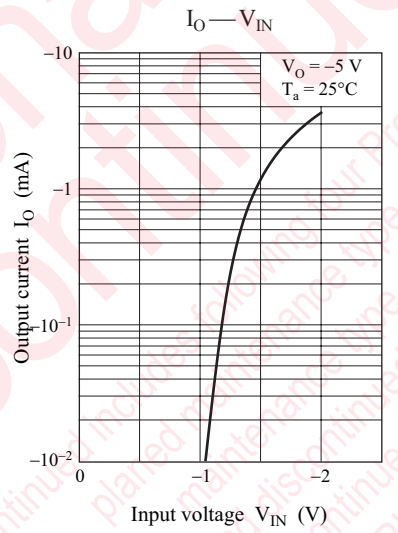
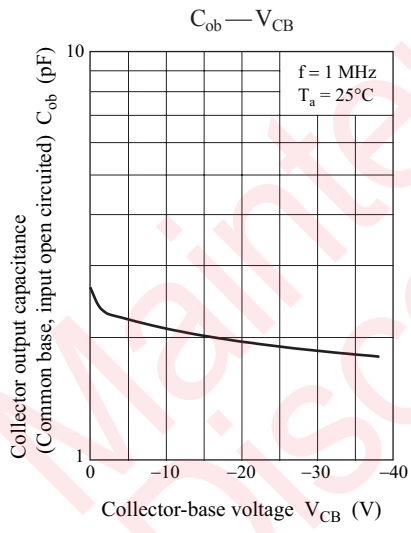
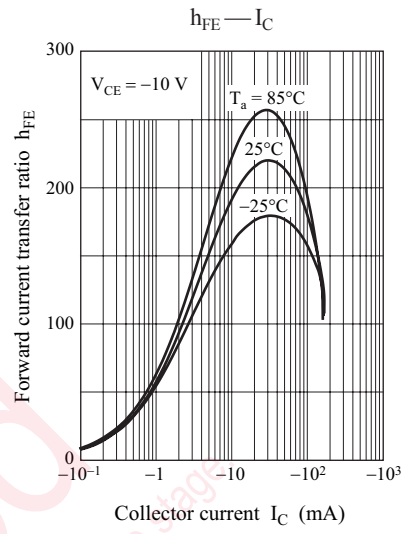
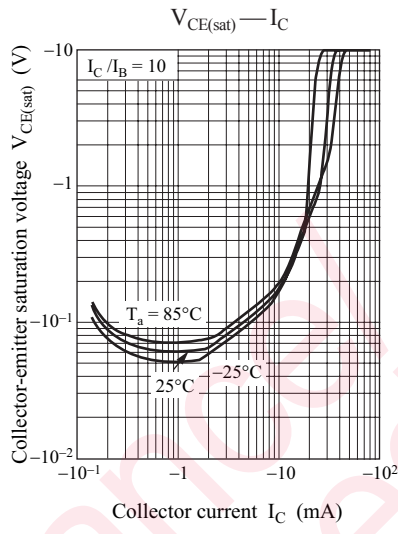
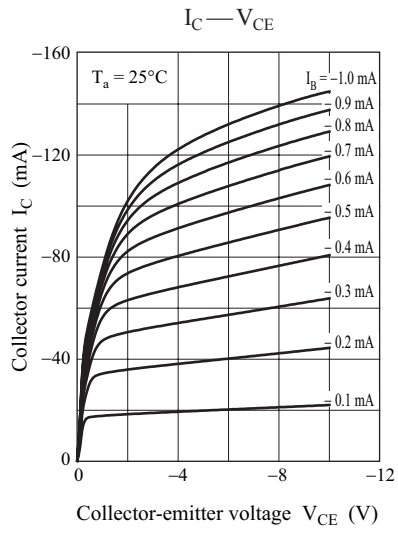
Common characteristics chart



Characteristics charts of SBD



Characteristics charts of Tr



## utions in using the technical information and scribed in this book

s book is to be exported or provided to non-residents, the laws and  
rd to security export control, must be observed.

ly to show the main characteristics and application circuit examples  
l property right or other right owned by our company or any other  
any as to the infringement upon any such right owned by any other  
rmation described in this book.

standard applications or general electronic equipment (such as office  
and household appliances).

ng applications:

biles, traffic control equipment, combustion equipment, life support  
reliability are required, or if the failure or malfunction of the prod-

ck are subject to change without notice for modification and/or im-  
use of the products, therefore, ask for the most up-to-date Product  
atisfy your requirements.

bsolute maximum rating and the guaranteed operating conditions  
(.). Especially, please be careful not to exceed the range of absolute  
er-off and mode-switching. Otherwise, we will not be liable for any



take into the consideration of incidence of break down and failure  
n the systems such as redundant design, arresting the spread of fire  
al injury, fire, social damages, for example, by using the products.

own and characteristics change due to external factors (ESD, EOS,  
mounting or at customer's process. When using products for which  
shelf life and the elapsed time since first opening the packages.

ly or partially, without the prior written permission of Matsushita

## Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

-  [View UP0KG8D00L on WIN SOURCE](#)
-  [Panasonic Information](#)

## Optimize Your Supply Chain with WIN SOURCE Solutions

-  Global Sourcing Solution
-  Obsolete Management
-  Cost Control Management
-  Shortage Management
-  Alternative Solution
-  Excess Inventory Management