UNRF2A1

Silicon NPN epitaxial planar type

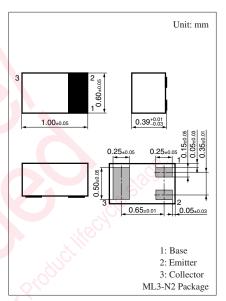
For digital circuits

■ Features

Suitable for high-density mounting and downsizing of the equipment for Ultraminiature leadless package
 0.6 mm × 1.0 mm (height 0.39 mm)

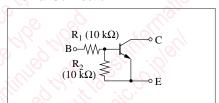
■ Absolute Maximum Ratings $T_a = 25$ °C

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}	80	mA	
Total power dissipation	P _T	100	mW	
Junction temperature	$T_{\rm j}$	125	°C	
Storage temperature	T_{stg}	-55 to +125	°C	



Marking Symbol: 1T

Internal Connection

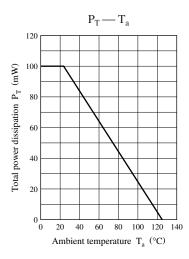


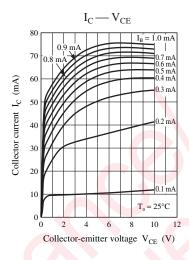
■ Electrical Characteristics $T_a = 25^{\circ}C \pm 3^{\circ}C$

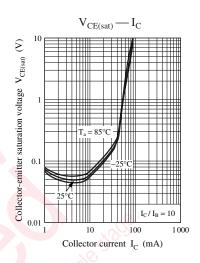
Parameter	Symbol	Conditions	Min	Тур	Max	Unit
Collector-base voltage (Emitter open)	V _{CBO}	$I_C = 10 \mu\text{A}, I_E = 0$	50			V
Collector-emitter voltage (Base open)	V _{CEO}	$I_C = 2 \text{ mA}, I_B = 0$	50			V
Collector-base cutoff current (Emitter open)	I_{CBO}	$V_{CB} = 50 \text{ V}, I_{E} = 0$			0.1	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}	$V_{EB} = 6 \text{ V}, I_{C} = 0$			0.5	mA
Forward current transfer ratio	h _{FE}	$V_{CE} = 10 \text{ V}, I_{C} = 5 \text{ mA}$	35			_
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%	10	+30%	kΩ
Resistance ratio	R_1/R_2		0.8	1.0	1.2	_
Transition frequency	f_T	$V_{CB} = 10 \text{ V}, I_E = -2 \text{ mA}, f = 200 \text{ MHz}$		150		MHz

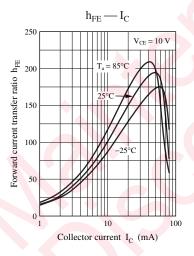
Note) Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

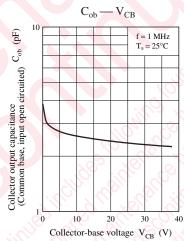
Panasonic

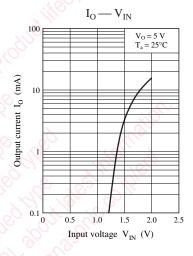


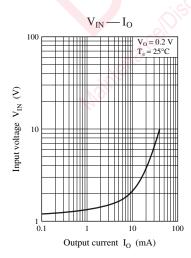












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