

UNRF2A3

Silicon NPN epitaxial planar transistor

For digital circuits

■ Features

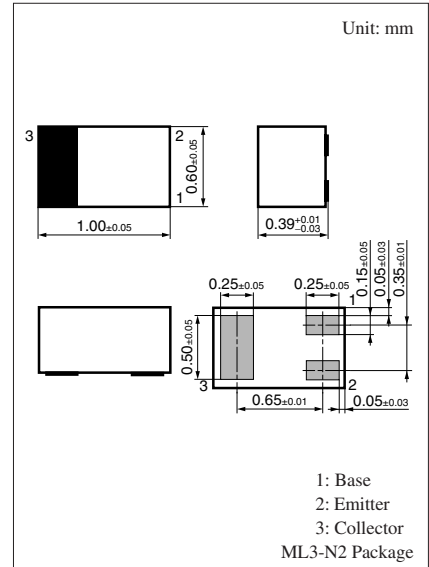
- Reduction of assembly cost and package size with 1006 type mold leadless package is possible
- Maximum package height (0.4 mm) contributes to develop thinner equipments

■ Basic Part Number of Element

- UNR12A3

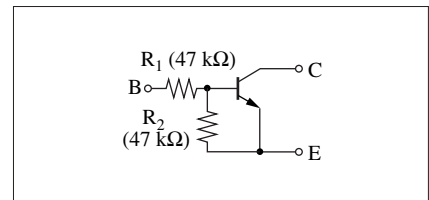
■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

	Parameter	Symbol	Rating	Unit
Rating of element	Collector to base voltage	V_{CBO}	50	V
	Collector to emitter voltage	V_{CEO}	50	V
	Collector current	I_{C}	80	mA
Overall	Total power dissipation	P_{T}	100	mW
	Junction temperature	T_{j}	125	$^\circ\text{C}$
	Storage temperature	T_{stg}	-55 to +125	$^\circ\text{C}$



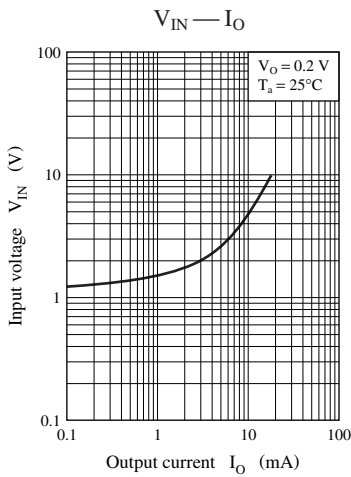
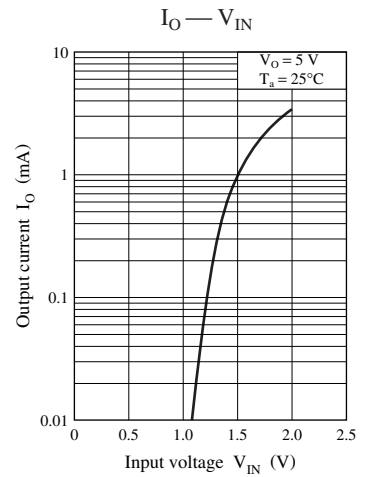
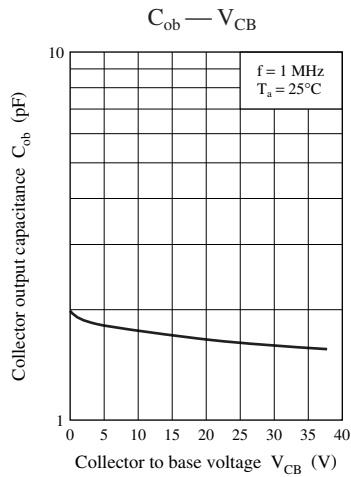
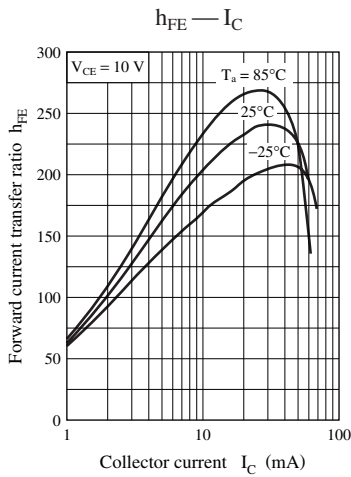
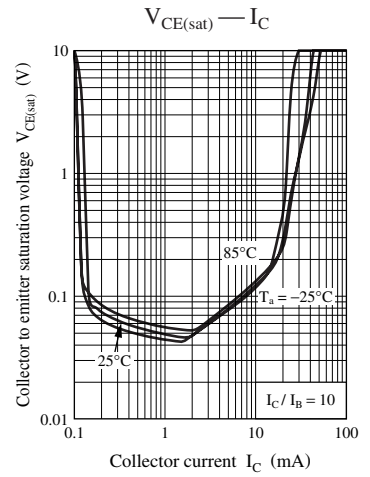
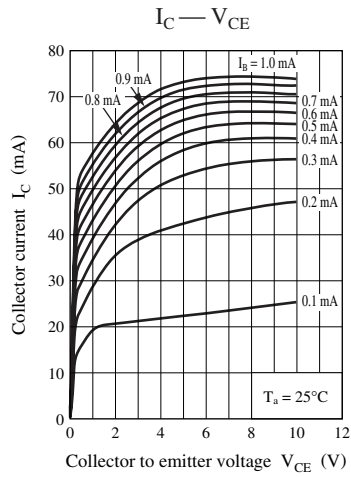
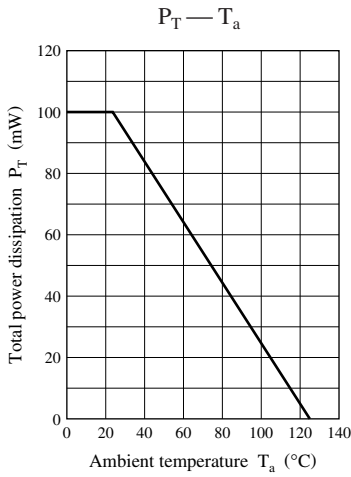
Marking Symbol: 1W

Internal Connection



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

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector to base voltage	V_{CBO}	$I_{\text{C}} = 10 \mu\text{A}, I_{\text{E}} = 0$	50			V
Collector to emitter voltage	V_{CEO}	$I_{\text{C}} = 2 \text{ mA}, I_{\text{B}} = 0$	50			V
Collector cutoff current	I_{CBO}	$V_{\text{CB}} = 50 \text{ V}, I_{\text{E}} = 0$			0.1	μA
	I_{CEO}	$V_{\text{CE}} = 50 \text{ V}, I_{\text{B}} = 0$			0.5	
Emitter cutoff current	I_{EBO}	$V_{\text{EB}} = 6 \text{ V}, I_{\text{C}} = 0$			0.1	mA
Forward current transfer ratio	h_{FE}	$V_{\text{CE}} = 10 \text{ V}, I_{\text{C}} = 5 \text{ mA}$	80			—
Collector to emitter saturation voltage	$V_{\text{CE(sat)}}$	$I_{\text{C}} = 10 \text{ mA}, I_{\text{B}} = 0.3 \text{ mA}$			0.25	V
High level output voltage	V_{OH}	$V_{\text{CC}} = 5 \text{ V}, V_{\text{B}} = 0.5 \text{ V}, R_{\text{L}} = 1 \text{ k}\Omega$	4.9			V
Low level output voltage	V_{OL}	$V_{\text{CC}} = 5 \text{ V}, V_{\text{B}} = 3.5 \text{ V}, R_{\text{L}} = 1 \text{ k}\Omega$			0.2	V
Input resistance	R_{I}		-30%	47	+30%	k Ω
Resistance ratio	$R_{\text{I}} / R_{\text{2}}$		0.8	1.0	1.2	—
Gain bandwidth product	f_{T}	$V_{\text{CB}} = 10 \text{ V}, I_{\text{E}} = -2 \text{ mA}, f = 200 \text{ MHz}$		150		MHz



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