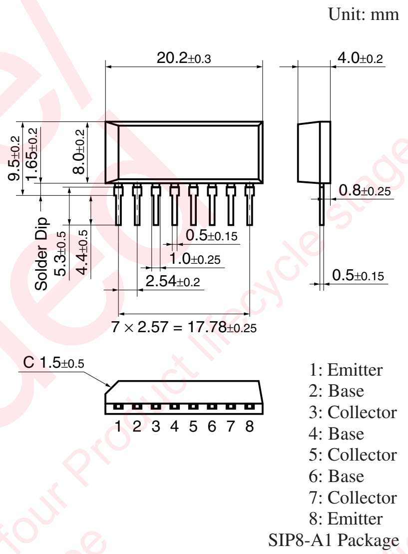
PUA3111 (PU3111)

Silicon NPN triple diffusion planar type

For power amplification/switching
Complementary to PUA3211 (PU3211)



■ Features

- High forward current transfer ratio h_{FE} which has satisfactory linearity
- Low collector-emitter saturation voltage $V_{CE(sat)}$
- NPN 3 elements

■ Absolute Maximum Ratings $T_C = 25°C$

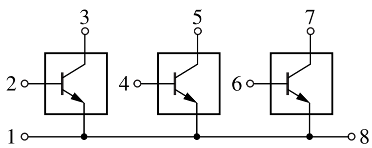
Parameter	Symbol	Rating	Unit
Collector-base voltage (Emitter open)	V_{CBO}	60	V
Collector-emitter voltage (Base open)	V_{CEO}	60	V
Emitter-base voltage (Collector open)	V_{EBO}	5	V
Collector current	I_C	4	A
Peak collector current	I_{CP}	8	A
Collector power dissipation	P_C	15	W
$T_a = 25°C$		2.4	
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	−55 to +150	°C

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

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-emitter voltage (Base open)	V_{CEO}	$I_C = 30$ mA, $I_B = 0$	60			V
Base-emitter voltage	V_{BE}	$V_{CE} = 4$ V, $I_C = 3$ A			2.0	V
Collector-emitter current (E-B short)	I_{CES}	$V_{CE} = 60$ V, $V_{BE} = 0$			400	µA
Collector-emitter cutoff current (Base open)	I_{CEO}	$V_{CE} = 30$ V, $I_B = 0$			700	µA
Emitter-base cutoff current (Collector open)	I_{EBO}	$V_{EB} = 5$ V, $I_C = 0$			1	mA
Forward current transfer ratio	h_{FE1}	$V_{CE} = 4$ V, $I_C = 1$ A	40		250	—
	h_{FE2}	$V_{CE} = 4$ V, $I_C = 3$ A	15			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 4$ A, $I_B = 0.4$ A			1.5	V
Transition frequency	f_T	$V_{CE} = 10$ V, $I_C = 0.1$ A, f = 1 MHz		20		MHz
Turn-on time	t_{on}	$I_C = 4$ A		0.3		µs
Storage time	t_{stg}	$I_{B1} = 0.4$ A, $I_{B2} = -0.4$ A		1.2		µs
Fall time	t_f	$V_{CC} = 50$ V		0.4		µs

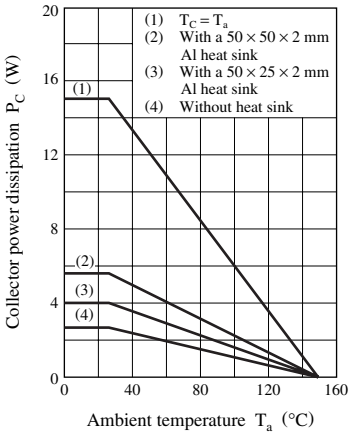
Note) Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

■ Internal Connection

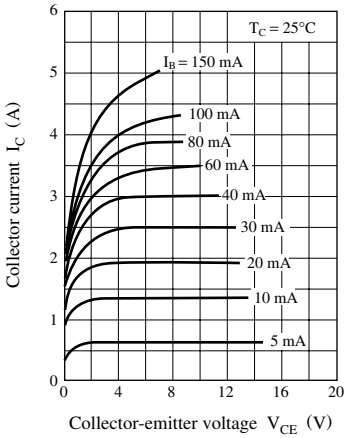


Note) The part number in the parenthesis shows conventional part number.

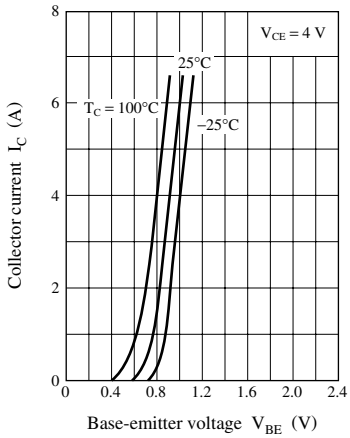
P_C — T_a



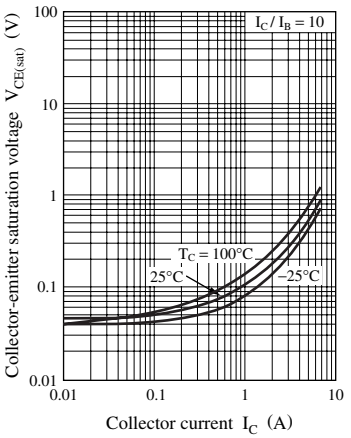
I_C — V_{CE}



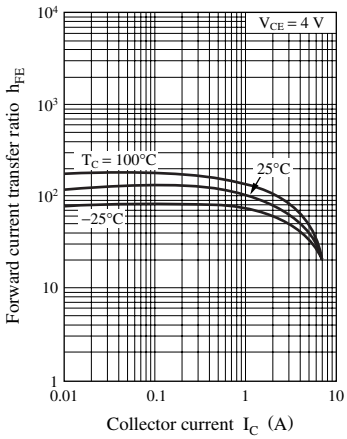
I_C — V_{BE}



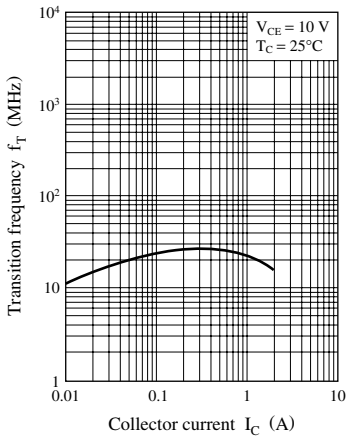
$V_{CE(sat)}$ — I_C



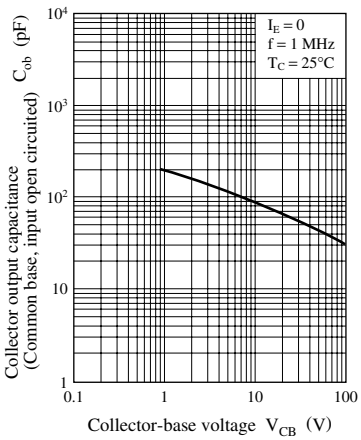
h_{FE} — I_C



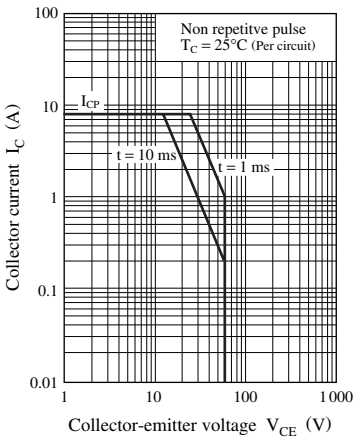
f_T — I_C



C_{ob} — V_{CB}



Safe operation area



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