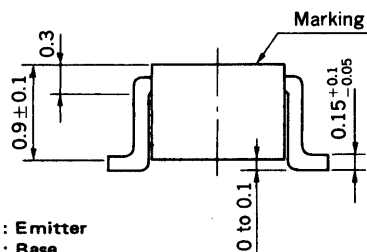
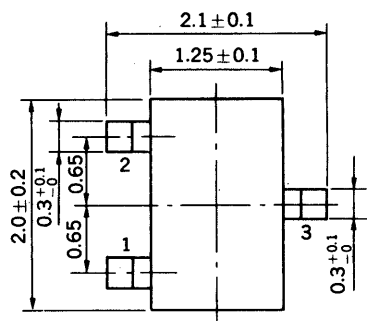


MEDIUM SPEED SWITCHING
RESISTOR BUILT-IN TYPE PNP TRANSISTOR

PACKAGE DIMENSIONS
in millimeters

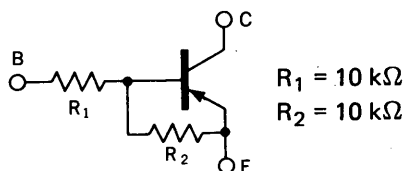


1 : Emitter
2 : Base
3 : Collector

Marking: M33

FEATURES

- Resistors Built-in TYPE



- Complementary to GA1A4M

ABSOLUTE MAXIMUM RATINGS

Maximum Voltages and Currents ($T_a = 25\text{ }^\circ\text{C}$)

Collector to Base Voltage	V_{CB0}	-60	V
Collector to Emitter Voltage	V_{CE0}	-50	V
Emitter to Base Voltage	V_{EBO}	-10	V
Collector Current (DC)	$I_{C(DC)}$	-100	mA
Collector Current (Pulse)	$I_{C(Pulse)}$	-200	mA

Maximum Power Dissipation

Total Power Dissipation at $25\text{ }^\circ\text{C}$ Ambient Temperature	P_T	150	mW
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Maximum Temperatures

Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55 to +150	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS ($T_a = 25\text{ }^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cutoff Current	I_{CBO}			-100	nA	$V_{CB} = -50\text{ V}, I_E = 0$
DC Current Gain	h_{FE1}^*	35	60	100		$V_{CB} = -5.0\text{ V}, I_C = -5.0\text{ mA}$
DC Current Gain	h_{FE2}^*	80	200			$V_{CE} = -5.0\text{ V}, I_C = -50\text{ mA}$
Collector Saturation Voltage	$V_{CE(sat)}^*$		-0.04	-0.2	V	$I_C = -50\text{ mA}, I_B = -0.25\text{ mA}$
Low-Level Input Voltage	V_{IL}^*		-1.13	-0.8	V	$V_{CE} = -5.0\text{ V}, I_C = -100\text{ }\mu\text{A}$
High-Level Input Voltage	V_{IH}^*	-3.0	-1.6		V	$V_{CE} = -0.2\text{ V}, I_C = -5.0\text{ mA}$
Input Resistor	R_1	7	10	13	$\text{k}\Omega$	
Resistor Ratio	R_1/R_2	0.9	1.0	1.1		
Turn-on Time	t_{on}		0.1	0.5	μs	$V_{CC} = -5\text{ V}, V_{in} = -5\text{ V}$
Storage Time	t_{stg}		0.95	3.0	μs	$R_L = 1\text{ k}\Omega$
Turn-off Time	t_{off}		1.1	5.0	μs	$PW = 2\text{ }\mu\text{s}, \text{Duty Cycle} \leq 2\%$

* Pulsed: $PW \leq 350\text{ }\mu\text{s}, \text{Duty Cycle} \leq 2\%$

TYPICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

