

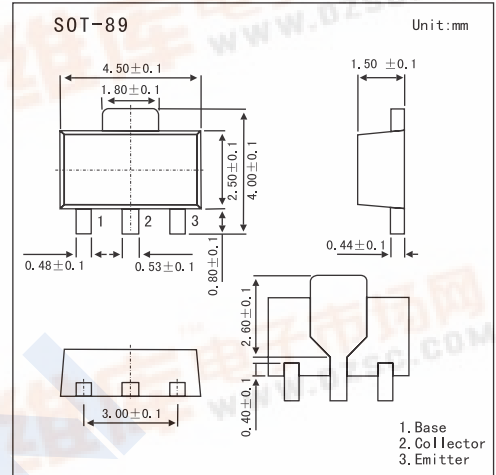
SMD Type Transistors

Digital Transistors

HR1A4M

Features

- Up to 2A High Current Drives Such As IC Outputs and Actuators Available
- On-chip Bias Resistor
- Low Power Consumption During Drive



Absolute Maximum Ratings Ta = 25°C

Parameter	Symbol	Rating	Unit
Collector-Base Voltage	V <sub>CB0</sub>	-60	V
Collector-Emitter Voltage	V <sub>CE0</sub>	-60	V
Emitter-Base Voltage	V <sub>EB0</sub>	-10	V
Collector Current (DC)	I <sub>C(DC)</sub>	-1.0	A
Collector Current (Pulse)	I <sub>C(pulse)</sub> *1	-2.0	A
Base Current (DC)	I <sub>B(DC)</sub>	-0.02	A
Total Power Dissipation	P <sub>T</sub> *2	2.0	W
Junction temperature	T <sub>j</sub>	150	°C
Storage temperature	T <sub>stg</sub>	-55 to +150	°C

\*1 PW ≤ 10ms, Duty Cycle ≤ 50%

\*2 When 0.7mm x 16cm<sup>2</sup> ceramic board is used.

Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Collector Cut-off Current	I <sub>CBO</sub>	V <sub>CB</sub> = -60V, I <sub>E</sub> = 0			-100	nA
DC Current Gain	h <sub>FE</sub> *	V <sub>CE</sub> = -2.0V, I <sub>C</sub> = -0.1A	150			
		V <sub>CE</sub> = -2.0V, I <sub>C</sub> = -0.5A	100			
		V <sub>CE</sub> = -2.0V, I <sub>C</sub> = -1.0A	50			
Low Level Output Voltage	V <sub>OL</sub> *	V <sub>IN</sub> = -5.0V, I <sub>C</sub> = -0.1A			-0.2	V
Low Level Input Voltage	V <sub>IL</sub> *	V <sub>CE</sub> = -5.0V, I <sub>C</sub> = -100 μ A			-0.3	V
Input Resistance	R <sub>1</sub>		7	10	13	kΩ
Emitter-Base Resistance	R <sub>2</sub>		7	10	13	kΩ

\* PW ≤ 350 μ s, Duty Cycle ≤ 2%

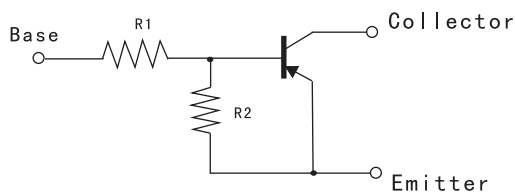


### HR1A4M

■ Marking

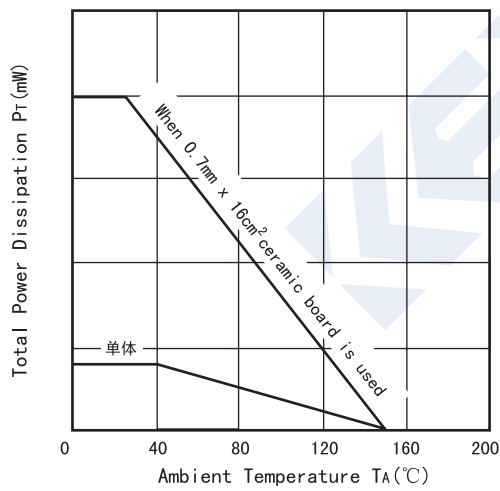
Marking	MS
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■ Equivalent Circuit

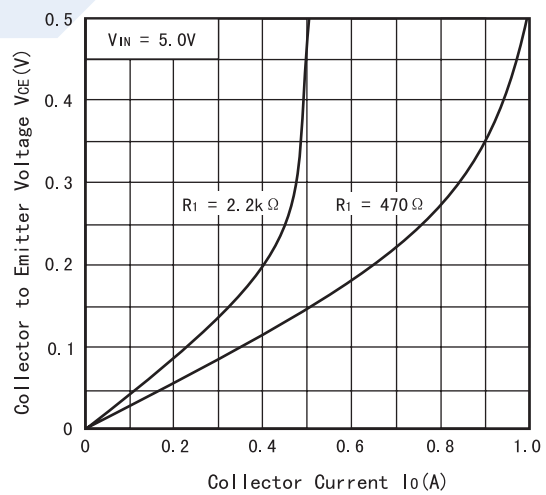


$R1 = 10k\Omega$       $R2 = 10k\Omega$

■ Electrical Characteristics Curves

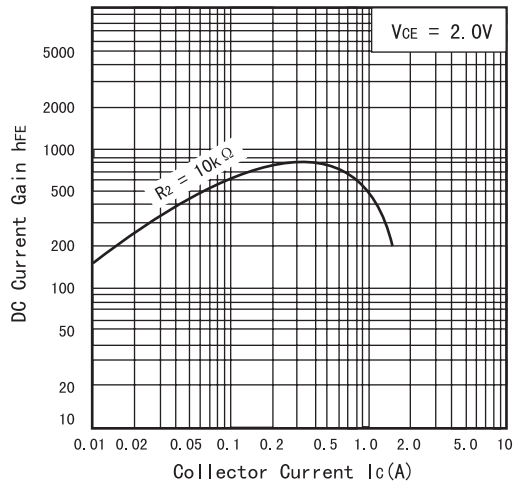


TOTAL POWER DISSIPATION VS. AMBIENT TEMPERATURE

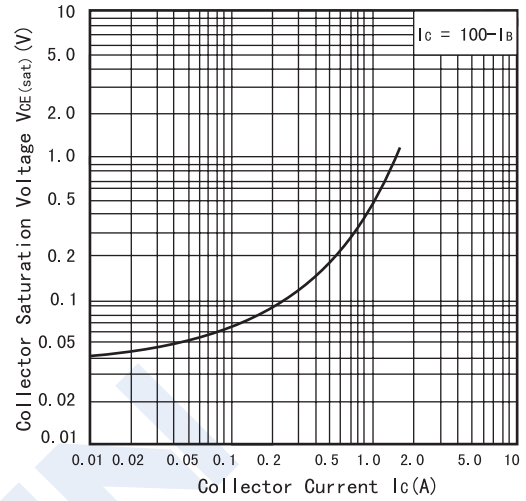


COLLECTOR TO EMITTER VOLTAGE VS. COLLECTOR CURRENT

HR1A4M



DC CURRENT GAIN VS. COLLECTOR CURRENT



COLLECTOR SATURATION VOLTAGE VS. COLLECTOR CURRENT