

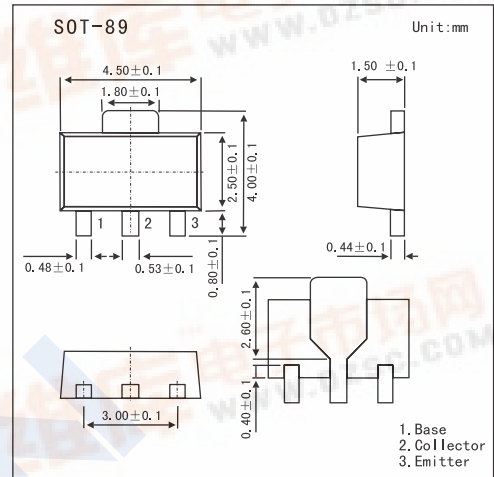
SMD Type Transistors

Digital Transistors

HR1F3P

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 _{CB0}	-60	V
Collector-Emitter Voltage	V _{CE0}	-60	V
Emitter-Base Voltage	V _{EB0}	-10	V
Collector Current (DC)	I _{C(DC)}	-1.0	A
Collector Current (Pulse)	I _{C(pulse)} *1	-2.0	A
Base Current (DC)	I _{B(DC)}	-0.02	A
Total Power Dissipation	P _T *2	2.0	W
Junction temperature	T _j	150	°C
Storage temperature	T _{stg}	-55 to +150	°C

*1 PW ≤ 10ms, Duty Cycle ≤ 50%

*2 When 0.7mm x 16cm² ceramic board is used.

Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Collector Cut-off Current	I _{CBO}	V _{CB} = -60V, I _E = 0			-100	nA
DC Current Gain	h _{FE} *	V _{CE} = -2.0V, I _C = -0.1A	150			
		V _{CE} = -2.0V, I _C = -0.5A	100			
		V _{CE} = -2.0V, I _C = -1.0A	50			
Low Level Output Voltage	V _{OL} *	V _{IN} = -5.0V, I _C = -0.3A			-0.3	V
Low Level Input Voltage	V _{IL} *	V _{CE} = -5.0V, I _C = -100 μA			-0.3	V
Input Resistance	R ₁		1.54	2.2	2.86	kΩ
Emitter-Base Resistance	R ₂		7	10	13	kΩ

* PW ≤ 350 μs, Duty Cycle ≤ 2%

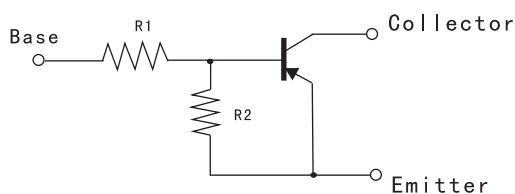


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■ Marking

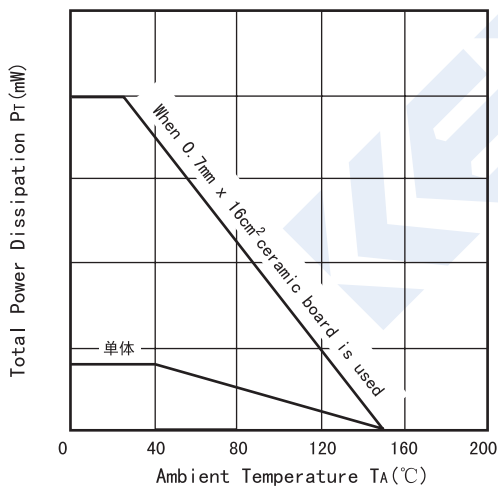
Marking	MQ
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■ Equivalent Circuit

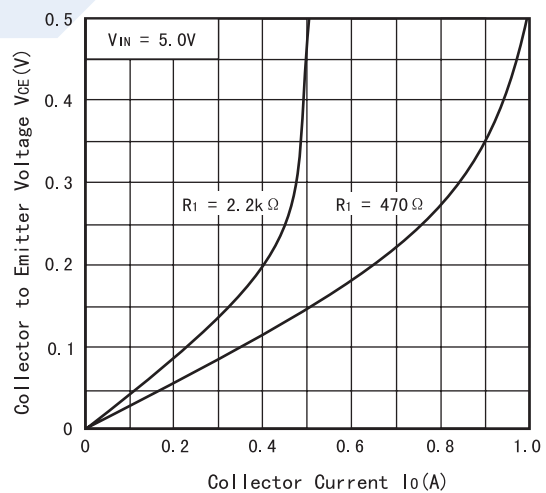


$R1 = 2.2k\Omega$ $R2 = 10k\Omega$

■ Electrical Characteristics Curves

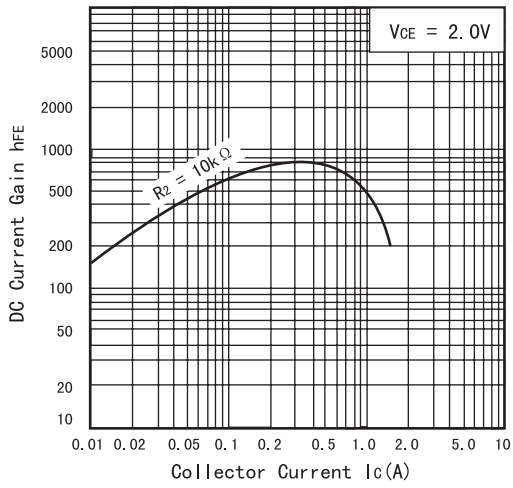


TOTAL POWER DISSIPATION VS. AMBIENT TEMPERATURE

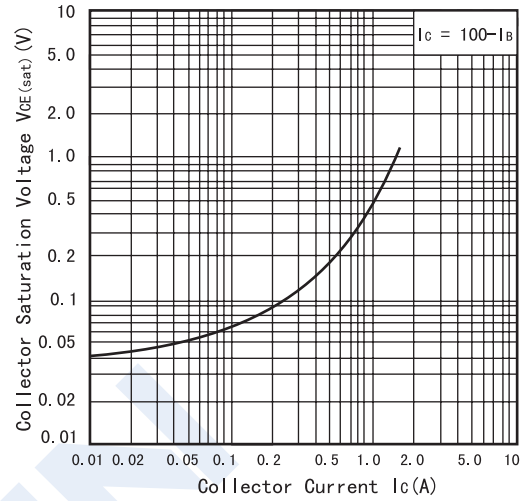


COLLECTOR TO EMITTER VOLTAGE VS. COLLECTOR CURRENT

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DC CURRENT GAIN VS. COLLECTOR CURRENT



COLLECTOR SATURATION VOLTAGE VS. COLLECTOR CURRENT