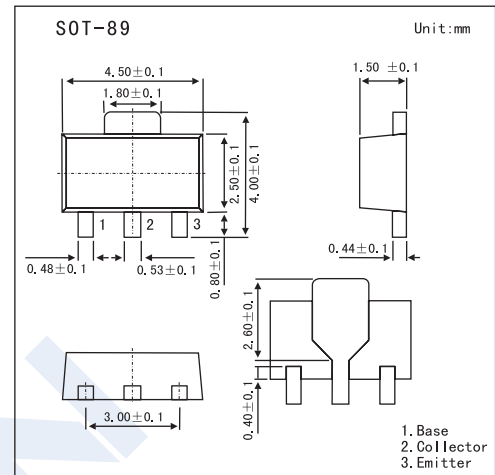


## Digital Transistors

## 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  $T_a = 25^\circ\text{C}$ 

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	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$

\*1  $PW \leq 10\text{ms}$ , Duty Cycle  $\leq 50\%$

\*2 When  $0.7\text{mm} \times 16\text{cm}^2$  ceramic board is used.

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

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Collector Cut-off Current	$I_{CBO}$	$V_{CB} = -60\text{V}$ , $I_E = 0$			-100	nA
DC Current Gain	$h_{FE} *$	$V_{CE} = -2.0\text{V}$ , $I_C = -0.1\text{A}$	150			
		$V_{CE} = -2.0\text{V}$ , $I_C = -0.5\text{A}$	100			
		$V_{CE} = -2.0\text{V}$ , $I_C = -1.0\text{A}$	50			
Low Level Output Voltage	$V_{OL} *$	$V_{IN} = -5.0\text{V}$ , $I_C = -0.3\text{A}$			-0.3	V
Low Level Input Voltage	$V_{IL} *$	$V_{CE} = -5.0\text{V}$ , $I_C = -100 \mu\text{A}$			-0.3	V
Input Resistance	$R_1$		1.54	2.2	2.86	k $\Omega$
Emitter-Base Resistance	$R_2$		7	10	13	k $\Omega$

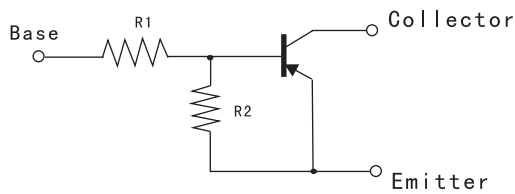
\*  $PW \leq 350 \mu\text{s}$ , Duty Cycle  $\leq 2\%$

# HR1F3P

■ Marking

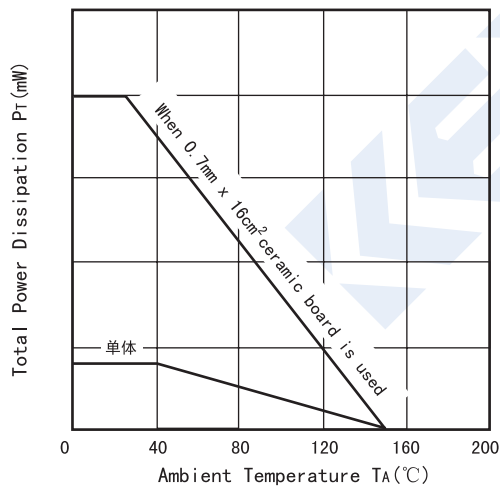
Marking	MQ
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■ Equivalent Circuit

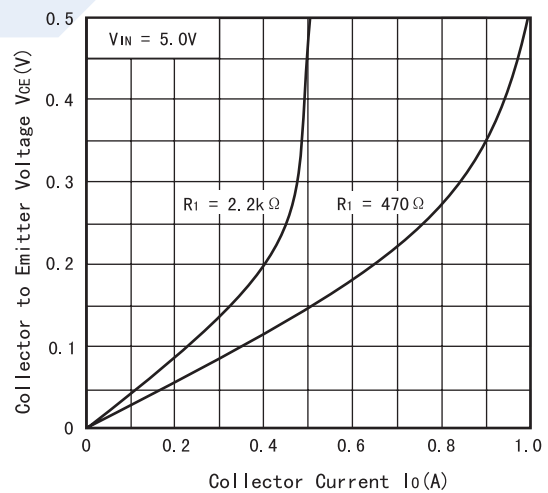


$R_1 = 2.2k\Omega$      $R_2 = 10k\Omega$

■ Electrical Characteristics Curves



TOTAL POWER DISSIPATION VS. AMBIENT TEMPERATURE



COLLECTOR TO EMITTER VOLTAGE VS. COLLECTOR CURRENT

## HR1F3P

