DATA SHEET

SILICON POWER TRANSISTOR 2SD2164

NPN SILICON EPITAXIAL TRANSISTOR FOR LOW-FREQUENCY POWER AMPLIFIERS AND LOW-SPEED SWITCHING

The 2SD2164 is a single power transistor developed especially for high hre. This transistor is ideal for simplifying drive circuits and reducing power dissipation because its hre is as high as that of Darlington transistors, but it is a single transistor.

In addition, this transistor features a small resin insulated package, thus contributing to high-density mounting and mounting cost reduction.

FEATURES

NEC

- High hFE and low VCE(sat): hFE \cong 1,300 TYP. (VCE = 5.0 V, IC = 0.5 A) VCE(SAT) \cong 0.3 V TYP. (IC = 2.0 A, IB = 20 mA)
- Full mold package that does not require an insulating board or insulation bushing

Parameter	Symbol	Ratings	Unit				
Collector to base voltage	Vсво	60	V				
Collector to emitter voltage	VCEO	60	V				
Emitter to base voltage	Vebo	7.0	V				
Collector current (DC)	IC(DC)	3.0	А				
Collector current (pulse)	IC(pulse)	5.0 ^{Note}	А				
Base current (DC)	B(DC)	0.5	А				
Total power dissipation	Р⊤ (Tc = 25°C)	20	W				
Total power dissipation	PT (TA = 25°C)	2.0	W				
Junction temperature	Tj	150	°C				
Storage temperature	Tstg	–55 to +150	°C				

ABSOLUTE MAXIMUM RATINGS (TA = 25°C)

Note PW \leq 300 μ s, duty cycle \leq 10%

PACKAGE DRAWING (UNIT: mm)





Electrode Connection 1. Base 2. Collector 3. Emitter

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ELECTRICAL CHARACTERISTICS (TA = 25°C)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Collector cutoff current	Ісво	Vcb = 60 V, IE = 0 A			10	μA
Emitter cutoff current	Іево	VEB = 7.0 V, Ic = 0 A			10	μA
DC current gain	hfe1	$V_{\text{CE}} = 5.0 \text{ V}, \text{ I}_{\text{C}} = 0.5 \text{ A}^{\text{Note}}$	800	1,300	3,200	
DC current gain	hFE2	$V_{\text{CE}} = 5.0 \text{ V}, \text{ Ic} = 3.0 \text{ A}^{\text{Note}}$	500	1,000		
Collector saturation voltage	VCE(sat)	$I_{C} = 2.0 \text{ A}, I_{B} = 20 \text{ mA}^{Note}$		0.3	0.5	V
Base saturation voltage	VBE(sat)	$I_{C} = 2.0 \text{ A}, I_{B} = 20 \text{ mA}^{Note}$			1.2	V
Gain bandwidth product	f⊤	Vce = 5.0 V, Ic = 0.1 A		110		MHz
Collector capacitance	Cob	V _{CB} = 10 V, I _E = 0 A, f = 1.0 MHz		50		pF

Note Pulse test PW \leq 350 μ s, duty cycle \leq 2%

hfe1 CLASSIFICATION

Marking	М	L	к
hfe1	800 to 1,600	1,000 to 2,000	1,600 to 3,200

TYPICAL CHARACTERISTICS (TA = 25°C)



FORWARD BIAS SAFE OPERATING AREA









0.1 0.2

0.5

Collector to Base Voltage VCB (V)

 [MEMO]

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