

# 2SD1164-Z

# SILICON POWER TRANSISTOR

R07DS0254EJ0400 Rev.4.00 Feb 24, 2011

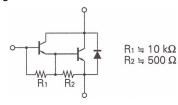
#### **DESCRIPTION**

The 2SD1164-Z is designed for Low Frequency Amplifier and Switching, especially in Hybrid Integrated Circuits.

#### **FEATURES**

<R>

• High hFE = 2 000 to 30 000



### ABSOLUTE MAXIMUM RATINGS (TA = 25°C)

CHARACTERISTICS	SYMBOL	RATINGS	UNIT
Collector to Base Voltage	Vcвo	150	V
Collector to Emitter Voltage	Vceo	60	V
Base to Emitter Voltage	V <sub>EBO</sub>	8.0	V
Collector Current (DC)	Ic(DC)	2	Α
Collector Current (pulse) Note 1	IC(pulse)	4	Α
Total Power Dissipation (T <sub>A</sub> = 25°C) Note 2	Рт	2.0	W
Junction Temperature	Tj	150	°C
Storage Temperature	T <sub>stg</sub>	-55 to +150	°C

**Notes 1.** PW  $\leq$  10 ms, Duty Cycle  $\leq$  50%

**2.** When mounted on ceramic substrate of 7.5 cm $^2$  × 0.7 mm

The mark <R> shows major revised points.

The revised points can be easily searched by copying an "<R>" in the PDF file and specifying it in the "Find what:" field.



### **ELECTRICAL CHARACTERISTICS (Ta = 25 °C)**

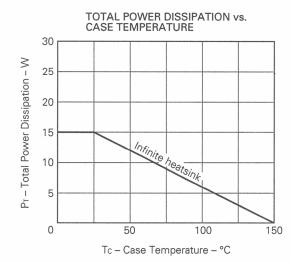
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS	
Collector Cutoff Current	Ісво			10	μΑ	Vcb = 60 V, IE = 0	
Emitter Cutoff Current	Ієво			1.0	mA	V <sub>EB</sub> = 5.0 V, I <sub>C</sub> = 0	
DC Current Gain	hFE1*	1 000				Vce = 2.0 V, lc = 0.5 A	
DC Current Gain	hFE2*	2 000		30 000		Vce = 2.0 V, lc = 1.0 A	
Collector Saturation Voltage	VCE(sat)*			1.5	V	Ic = 1.0 A, I <sub>B</sub> = 1.0 mA	
Base Saturation Voltage	V <sub>BE(sat)</sub> *			2.0	V	Ic = 1.0 A, I <sub>B</sub> = 1.0 mA	
Turn-on Time	ton		0.5		με	Ic = 1.0 A, IB1 = -IB2 = 1.0 mA	
Storage Time	tstg		1.0		μs		
Fall Time	t <sub>f</sub>		1.0		μs	Vcc ≒ 50 V, RL = 50 Ω	

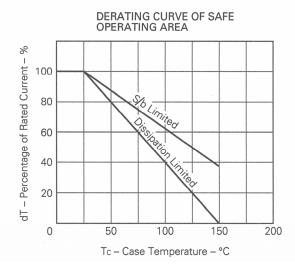
<sup>\*</sup>Pulsed: PW  $\leq$  350  $\mu$ s, Duty Cycle  $\leq$  2 %

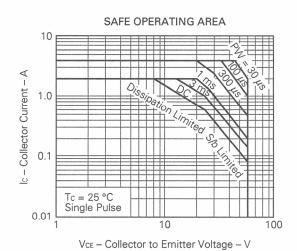
#### hfe Classification

MARKING	M	L	К
h <sub>FE2</sub>	2 000 to 5 000	4 000 to 10 000	8 000 to 30 000

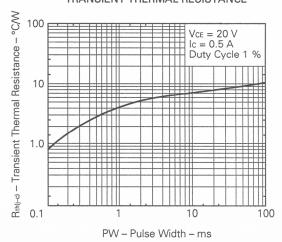
### TYPICAL CHARACTERISTICS (Ta = 25 °C)

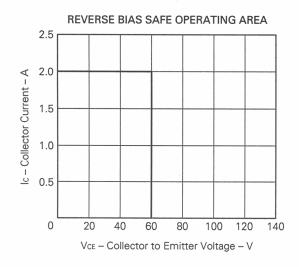


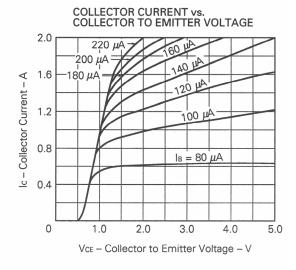




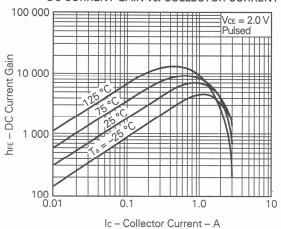
TRANSIENT THERMAL RESISTANCE



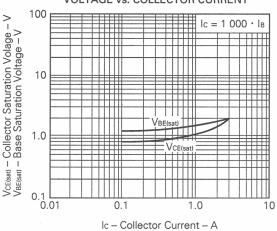




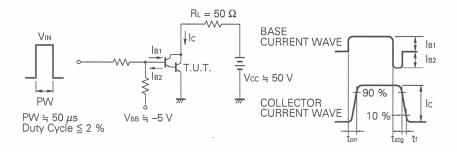






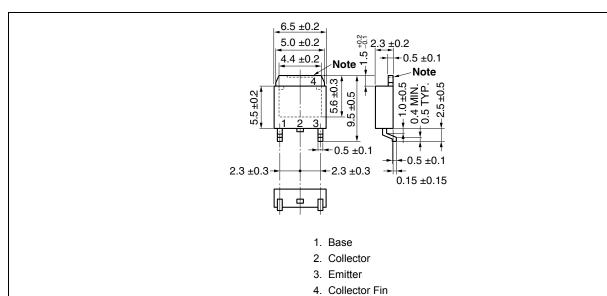


### SWITCHING TIME (ton, tstg, tf) TEST CIRCUIT



### **PACKAGE DRAWING (Unit: mm)**

TO-252 (MP-3Z)



**Note** The depth of notch at the top of the fin is from 0 to 0.2 mm.

**Revision History** 

## 2SD1164-Z Data Sheet

		Description	
Rev.	Date	Page	Summary
_	Jul 2006	-	Previous No. : D18286EJ3V0DS00
4.00	Feb 24, 2011	p.1	Modification of equivalent circuit

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