

SILICON TRANSISTOR 2SC3631-Z

NPN SILICON TRIPLE DIFFUSED TRANSISTOR MP-3

DESCRIPTION

2SC3631-Z is designed for High Voltage Switching, especially in Hybrid Integrated Circuits.

FEATURES

- High Voltage $V_{CE0} = 400$ V
- High Speed $t_r < 0.7$ μ s
- Complement to 2SA1412-Z

QUALITY GRADE

Standard

Please refer to "Quality grade on NEC Semiconductor Devices" (Document number IEI-1209) published by NEC Corporation to know the specification of quality grade on the devices and its recommended applications.

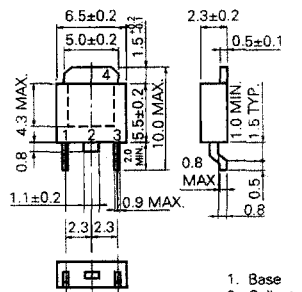
ABSOLUTE MAXIMUM RATINGS ($T_s = 25$ °C)

Collector to Base Voltage	V_{CE0}	500	V
Collector to Emitter Voltage	V_{CE0}	400	V
Emitter to Base Voltage	V_{EB0}	7	V
Collector Current (DC)	I_c	2.0	A
Collector Current (Pulse)*	I_c	4.0	A
Total Power Dissipation ($T_s = 25$ °C)**	P_T	2.0	W
Junction Temperature	T_j	150	°C
Storage Temperature	T_{stg}	-55 to +150	°C

* $PW \leq 10$ ms, Duty Cycle ≤ 50 %

** When mounted on ceramic substrate of 7.5 cm² $\times$ 0.7 mm

PACKAGE DIMENSIONS (in millimeters)



ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cutoff Current	I_{CBO}			10	μA	$V_{CB} = 400\text{ V}$, $I_E = 0$
Emitter Cutoff Current	I_{EBO}			10	μA	$V_{EB} = 5.0\text{ V}$, $I_C = 0$
DC Current Gain	h_{FE1}^*	40	60	120		$V_{CE} = 5.0\text{ V}$, $I_C = 100\text{ mA}$
DC Current Gain	h_{FE2}^*	6	14			$V_{CE} = 5.0\text{ V}$, $I_C = 1.0\text{ A}$
Collector Saturation Voltage	$V_{CE(sat)}^*$		0.35	1.0	V	$I_C = 1.0\text{ A}$, $I_B = 0.2\text{ A}$
Base Saturation Voltage	$V_{BE(sat)}^*$		1.0	1.5	V	$I_C = 1.0\text{ A}$, $I_B = 0.2\text{ A}$
Gain Bandwidth Product	f_T		50		MHz	$V_{CE} = 10\text{ V}$, $I_E = -100\text{ mA}$
Output Capacitance	C_{ob}		20		pF	$V_{CB} = 10\text{ V}$, $I_E = 0$, $f = 1.0\text{ MHz}$
Turn-on Time	t_{on}		0.03	0.5	μs	$I_C = 1.0\text{ A}$, $R_L = 150\ \Omega$ $I_{B1} = -I_{B2} = 0.2\text{ A}$ $V_{CC} = 150\text{ V}$
Storage Time	t_{stg}		1.5	2.0	μs	
Fall Time	t_f		0.1	0.7	μs	

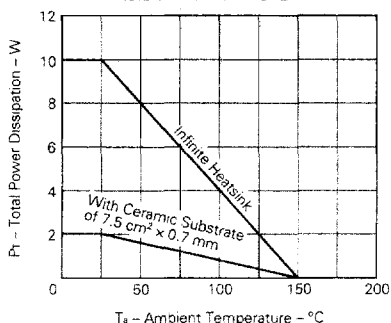
* Pulsed: $PW \leq 350\ \mu\text{s}$, Duty Cycle $\leq 2\%$

h_{FE} Classification

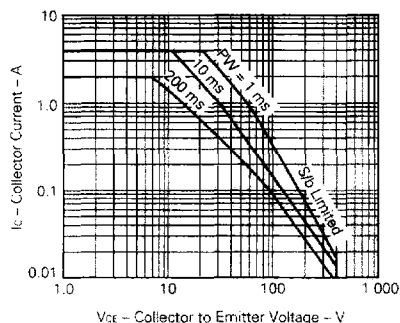
MARKING	L	K
h_{FE}	40 to 80	60 to 120

TYPICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

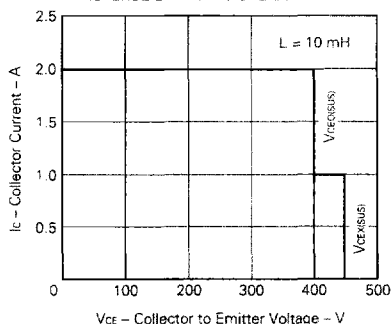
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



FORWARD BIAS SAFE OPERATING AREA



REVERSE BIAS SAFE OPERATING AREA



COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE

