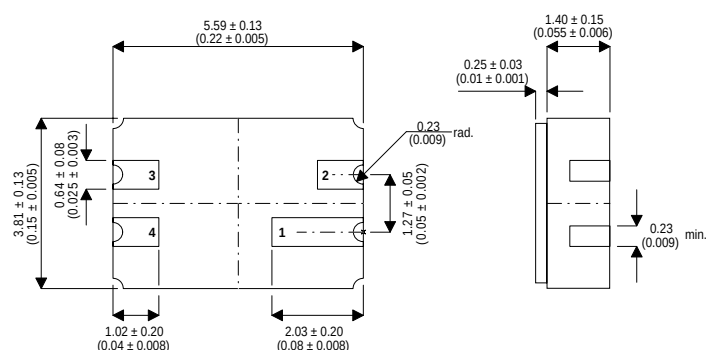


Medium Current NPN Silicon Annular Transistors Designed for High-Speed Switching and Driver Applications in a Ceramic Surface Mount Package

MECHANICAL DATA

Dimensions in mm (inches)



FEATURES

- **High Voltage**
- **Ceramic Surface Mount Package**
- **Screening Options Available**

LCC3 PACKAGE Underside View

PAD 1 – Collector

PAD 3 – Emitter

PAD 2 – N/C

PAD 4 – Base

ABSOLUTE MAXIMUM RATINGS (T_{case} = 25°C unless otherwise stated)

V_{CB}	Collector – Base Voltage	75V
V_{CEO}	Collector – Emitter Voltage	50V
V_{EBO}	Emitter – Base Voltage	5V
I_C	Collector Current	1A
P_D	Total Device Dissipation $T_A = 25\text{ }^{\circ}\text{C}$	0.5W
$R_{\theta ja}$	Thermal Resistance Junction to Ambient	2.9mW/ $^{\circ}\text{C}$
T_J	Junction to Ambient	200 $^{\circ}\text{C}$
T_{stg}	Storage Temperature	–65 to 200 $^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise stated)

Parameter		Test Conditions		Min.	Typ.	Max.	Unit
OFF CHARACTERISTICS							
BV _{CEO}	Collector-Emitter Breakdown Voltage ¹	I _C = 10mA	I _B = 0	50			V
BV _{CBO}	Collector-Base Breakdown Voltage	I _C = 10μA	I _E = 0	75			
BV _{EBO}	Emitter-Base Breakdown Voltage	I _E = 10μA	I _C = 0	5			μA
I _{CEX}	Collector Cutoff Current	V _{CE} = 40V	V _{EB} = 2 T _A = 100°C			0.20 20	
I _{BL}	Base Cutoff Current	V _{CE} = 40V	V _{EB} = 2			0.3	
ON CHARACTERISTICS							
h _{FE}	DC Current Gain ¹	I _C = 10mA	V _{CE} = 1V	35			—
		I _C = 150mA	V _{CE} = 1V	40			
		I _C = 500mA	V _{CE} = 1V	35			
		I _C = 1A	V _{CE} = 1.5V	20		80	
V _{CE(SAT)}	Collector- Saturation Voltage ¹	I _C = 10mA	I _B = 1mA			0.2	V
		I _C = 150mA	I _B = 15mA			0.3	
		I _C = 500mA	I _B = 50mA			0.5	
		I _C = 1A	I _B = 100mA			0.9	
V _{BE(SAT)}	Base-Emitter Saturation Voltage ¹	I _C = 10mA	I _B = 1mA			0.8	V
		I _C = 150mA	I _B = 15mA			1.0	
		I _C = 500mA	I _B = 50mA			1.2	
		I _C = 1A	I _B = 100mA	0.9		1.4	
DYNAMIC CHARACTERISTICS							
C _{ob}	Output Capacitance	V _{CB} = 10V	I _E = 0 f = 100KHz			9.0	pF
C _{ib}	Input Capacitance	V _{BE} = 0.5V	I _C = 0 f = 100KHz			80	
h _{fe}	High Frequency Current Gain	V _{CE} = 10V	I _C = 50mA f = 100MHz	2.5			—
t _d	Delay Time	V _{CC} = 30V	V _{BE(off)} = 2V			8	ns
t _r	Rise Time	I _C = 1A	I _{B1} = 100mA			40	
t _s	Storage Time	V _{CC} = 30V	I _C = 1A			30	
t _f	Fall Time	I _{B1} = - I _{B2} = 100mA				30	
Q _T	Total Control Charge	I _C = 1A V _{CC} = 30V	I _B = 100mA			10	nC

1) Pulse test : Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$