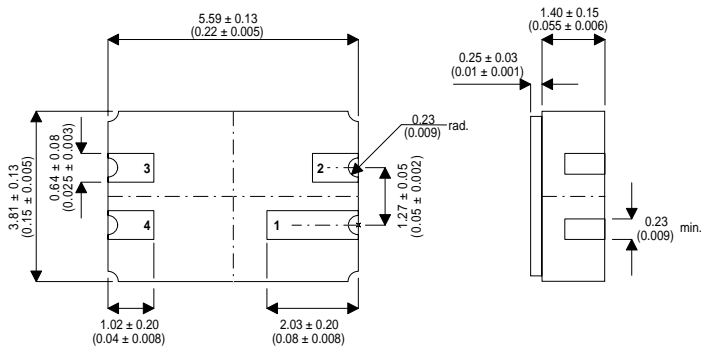


Medium Current NPN Silicon Annular Transistors Designed for High-Speed Switching and Driver Applications in a Ceramic Surface Mount Package

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 °C	0.5W
R _{θja}	Thermal Resistance Junction to Ambient	2.9mW/°C
T _J	Junction to Ambient	200°C
T _{stg}	Storage Temperature	-65 to 200°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	$I_C = 10\text{mA}$	$I_B = 0$	50			V
BV_{CBO}	Collector-Base Breakdown Voltage	$I_C = 10\mu\text{A}$	$I_E = 0$	75			
BV_{EBO}	Emitter-Base Breakdown Voltage	$I_E = 10\mu\text{A}$	$I_C = 0$	5			μA
I_{CEX}	Collector Cutoff Current	$V_{CE} = 40\text{V}$	$V_{EB} = 2$			0.20	
			$T_A = 100^\circ\text{C}$			20	
I_{BL}	Base Cutoff Current	$V_{CE} = 40\text{V}$	$V_{EB} = 2$			0.3	
ON CHARACTERISTICS							
h_{FE}	DC Current Gain ¹	$I_C = 10\text{mA}$	$V_{CE} = 1\text{V}$	35			—
		$I_C = 150\text{mA}$	$V_{CE} = 1\text{V}$	40			
		$I_C = 500\text{mA}$	$V_{CE} = 1\text{V}$	35			
		$I_C = 1\text{A}$	$V_{CE} = 1.5\text{V}$	20		80	
$V_{CE(SAT)}$	Collector- Saturation Voltage ¹	$I_C = 10\text{mA}$	$I_B = 1\text{mA}$			0.2	V
		$I_C = 150\text{mA}$	$I_B = 15\text{mA}$			0.3	
		$I_C = 500\text{mA}$	$I_B = 50\text{mA}$			0.5	
		$I_C = 1\text{A}$	$I_B = 100\text{mA}$			0.9	
$V_{BE(SAT)}$	Base-Emitter Saturation Voltage ¹	$I_C = 10\text{mA}$	$I_B = 1\text{mA}$			0.8	V
		$I_C = 150\text{mA}$	$I_B = 15\text{mA}$			1.0	
		$I_C = 500\text{mA}$	$I_B = 50\text{mA}$			1.2	
		$I_C = 1\text{A}$	$I_B = 100\text{mA}$	0.9		1.4	
DYNAMIC CHARACTERISTICS							
C_{ob}	Output Capacitance	$V_{CB} = 10\text{V}$	$I_E = 0$ $f = 100\text{KHz}$			9.0	μF
C_{ib}	Input Capacitance	$V_{BE} = 0.5\text{V}$	$I_C = 0$ $f = 100\text{KHz}$			80	
h_{fe}	High Frequency Current Gain	$V_{CE} = 10\text{V}$	$I_C = 50\text{mA}$ $f = 100\text{MHz}$	2.5			—
t_d	Delay Time	$V_{CC} = 30\text{V}$	$V_{BE(off)} = 2\text{V}$			8	ns
t_r	Rise Time	$I_C = 1\text{A}$	$I_{B1} = 100\text{mA}$			40	
t_s	Storage Time	$V_{CC} = 30\text{V}$	$I_C = 1\text{A}$			30	
t_f	Fall Time		$I_{B1} = - I_{B2} = 100\text{mA}$			30	
Q_T	Total Control Charge	$I_C = 1\text{A}$ $V_{CC} = 30\text{V}$	$I_B = 100\text{mA}$			10	nC

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