



NPN 2N3227

SILICON ANNULAR TRANSISTORS

The 2N3227 are silicon NPN silicon annular transistors for low-current, high-speed switching applications.

They are mounted in Jedec TO-18 metal.

Compliance to RoHS

ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings		Value	Unit
V_{CBO}	Collector-Base Voltage		40	V
V_{CEO}	Collector-Emitter Voltage		20	V
V_{EBO}	Emitter-Base Voltage		6	V
V_{CES}	Collector-Emitter Voltage		40	V
$I_{C(peak)}$	Collector Current		500	mA
P_D	Total Device Dissipation Ambient Temperature	@ $T_C = 25^\circ$	0.36	Watts
	Derating Factor Above		2.06	mW/°C
P_D	Total Device Dissipation Case Temperature	@ $T_C = 25^\circ$	1.2	Watts
	Derating Factor Above		6.85	mW/°C
T_J	Junction Temperature		+200	°C
T_{Stg}	Storage Temperature range		-65 to +200	

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ELECTRICAL CHARACTERISTICS

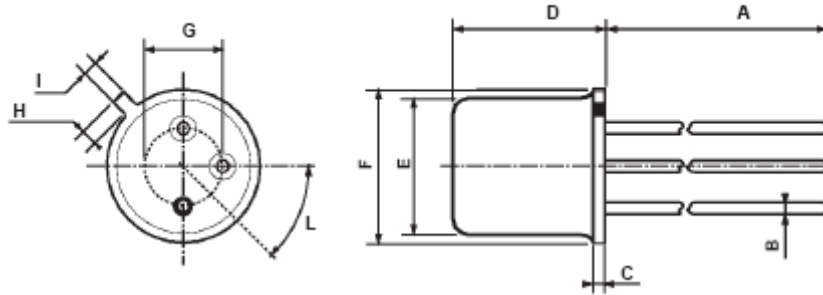
TC=25°C unless otherwise noted

Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit
I_{CBO}	Collector cut-off current	$I_E = 0 ; V_{CB} = 20V$	-	-	0.2	μA
		$I_E = 0 ; V_{CB} = 20V$ $T_A = 150^\circ C$	-	-	50	
		$V_{CE} = 20V ; V_{EB(off)} = 3V$	-	-	0.2	
I_{CEX}	Collector cut-off curren	$V_{CE} = 20V ; V_{EB(off)} = 3V$	-	-	0.2	
I_{BL}	Base cut-off curren	$V_{CE} = 20V ; V_{EB(off)} = 3V$	-	-	0.5	
BV_{CBO}	Collector-Base Breakdown voltage	$I_C = 10 \mu A ; I_B = 0$	40	-	-	V
BV_{EBO}	Emitter-Base Breakdown voltage	$I_E = 10 \mu A ; I_C = 0$	6	-	-	V
BV_{CEO}	Collector-Emitter Breakdown voltage	$I_C = 10 \text{ mA}$	20	-	-	V
BV_{CES}	Collector-Emitter voltage	$I_C = 10 \mu A ; I_B = 0$	40	-	-	V
$V_{CE(SAT)}$	Collector-Emitter saturation Voltage	$I_C = 10 \text{ mA}, I_B = 1.0 \text{ mA}$	-	-	0.25	V
		$I_C = 100 \text{ mA}, I_B = 10 \text{ mA}$	-	-	0.45	
$V_{BE(SAT)}$	Base-Emitter saturation Voltage	$I_C = 10 \text{ mA}, I_B = 1.0 \text{ mA}$	-	-	0.85	V
		$I_C = 100 \text{ mA}, I_B = 10 \text{ mA}$	-	-	1.4	
h_{FE}	DC Current Gain	$V_{CE} = 1.0 \text{ V}, I_C = 10 \text{ mA}$	100	-	300	-
		$V_{CE} = 1.0 \text{ V}, I_C = 10 \text{ mA}$ $T_A = -55^\circ C$	40	-	-	
		$V_{CE} = 1.0 \text{ V}, I_C = 100 \text{ mA}$	30	-	-	
h_{fe}	Small Signal Current Gain	$V_{CE} = 10 \text{ V}, I_C = 10 \text{ mA}$ $f = 100 \text{ MHz}$	5	-	-	-
t_s	Storage time	$I_C = I_{B1} = I_{B2} = 10 \text{ mA}$	-	-	13	Ns
T_{off}	Turn-off time	$I_C = 10 \text{ A}; I_{B1} = 3 \text{ mA};$ $I_{B2} = 1.5 \text{ mA}; V_{CC} = 3.0 \text{ V}$	-	-	18	
t_{on}	Turn-on time	$I_C = 10 \text{ A}; I_{B1} = 3 \text{ mA}$ $V_{CC} = 3.0 \text{ V}, V_{EB(off)} = 1.5 \text{ V}$	-	-	12	
C_{ob}	Output Capacitance	$V_{CB} = 5 \text{ V}; I_E = 0$, $f = 140 \text{ kHz}$	-	-	4.0	pF
C_{ib}	Input Capacitance	$V_{BE} = 1 \text{ V}; I_C = 0$, $f = 140 \text{ kHz}$	-	-	4.0	pF

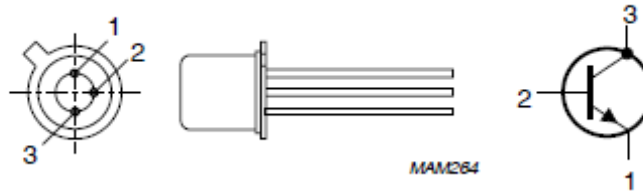
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MECHANICAL DATA CASE TO-18

DIMENSIONS (mm)		
	min	max
A	12.7	-
B	-	0.49
C	0.9	-
D	-	5.3
E	-	4.9
F	-	5.8
G	2.54	-
H	-	1.2
I	-	1.16
L	45°	-



Pin 1 :	emitter
Pin 2 :	base
Pin 3 :	Collector
Case :	Collector



MAM264

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