



## NPN 2N2894

### HIGH-SPEED SATURATED SWITCHES

The 2N2894 are silicon planar epitaxial PNP transistors mounted in TO-18 metal package. They are intended for high speed, low saturation switching applications up to 100 mA. Compliance to RoHS.

#### ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings	Value	Unit
$V_{CEO}$	Collector-Emitter Voltage ( $I_B = 0$ )	-12	V
$V_{CBO}$	Collector-Base Voltage ( $I_E = 0$ )	-12	V
$V_{CES}$	Collector-Emitter Voltage ( $V_{BE} = 0$ )	-12	V
$V_{EBO}$	Emitter-Base Voltage ( $I_C = 0$ )	-4	V
$I_C$	Collector Current	-200	mA
$P_D$	Total Power Dissipation	@ $T_{amb} = 25^\circ$	0.36
		@ $T_{case} = 25^\circ$	1.2
		@ $T_{case} < 100^\circ$	1
$T_J$	Junction Temperature	-65 to +200	$^\circ\text{C}$
$T_{Stg}$	Storage Temperature range	-65 to +200	$^\circ\text{C}$

#### THERMAL CHARACTERISTICS

Symbol	Ratings	Value	Unit
$R_{thJ-a}$	Thermal Resistance, Junction-ambient	486	$^\circ\text{C}/\text{W}$
$R_{thJ-c}$	Thermal Resistance, Junction-case	146	$^\circ\text{C}/\text{W}$

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### ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

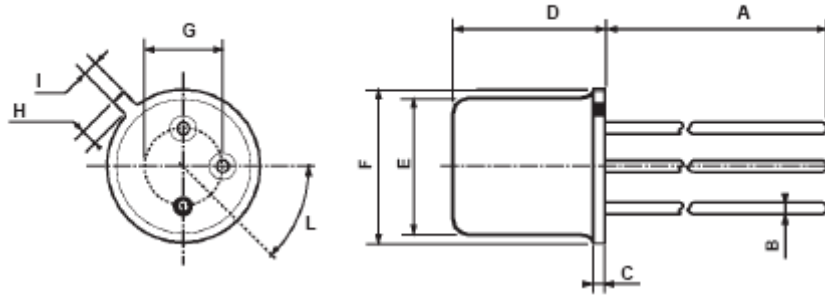
Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit
$I_{CBO}$	Collector Cutoff Current	$V_{CB} = -6\text{ V}$ , $I_E = 0\text{ V}$ $T_j = 125^\circ\text{C}$	-	-	-10	$\mu\text{A}$
$I_{CES}$	Collector Cutoff Current	$V_{BE} = 0\text{ V}$ , $V_{CE} = -6\text{ V}$	-	-	-80	nA
$V_{CEO} (*)$	Collector Emitter Breakdown Voltage	$I_C = -10\text{ mA}$ , $I_B = 0$	-12	-	-	V
$V_{CES}$	Collector Emitter Breakdown Voltage	$V_{BE} = 0\text{ V}$ , $I_C = -10\ \mu\text{A}$	-12	-	-	V
$V_{CBO}$	Collector Base Breakdown Voltage	$I_C = -10\ \mu\text{A}$ , $I_E = 0$	-12	-	-	V
$V_{EBO}$	Emitter Base Breakdown Voltage	$I_E = -100\ \mu\text{A}$ , $I_C = 0$	-4	-	-	V
$h_{FE} (*)$	DC Current Gain	$I_C = -10\text{ mA}$ , $V_{CE} = -0.3\text{ V}$	30	-	-	-
		$I_C = -30\text{ mA}$ , $V_{CE} = -0.5\text{ V}$	40	-	150	
		$I_C = -100\text{ mA}$ , $V_{CE} = -1\text{ V}$	25	-	-	
		$I_C = 150\text{ mA}$ , $V_{CE} = 10\text{ V}$ $T_{amb} = -55^\circ$	17	-	-	
$V_{CE(SAT)} (*)$	Collector-Emitter saturation Voltage	$I_C = -10\text{ mA}$ , $I_B = -1\text{ mA}$	-	-	-0.15	V
		$I_C = -30\text{ mA}$ , $I_B = -3\text{ mA}$	-	-	-0.2	
		$I_C = -100\text{ mA}$ , $I_B = -10\text{ mA}$	-	-	-0.5	
$V_{BE(SAT)} (*)$	Base-Emitter saturation Voltage	$I_C = -10\text{ mA}$ , $I_B = -1\text{ mA}$	-0.78	-	-0.98	
		$I_C = -30\text{ mA}$ , $I_B = -3\text{ mA}$	-0.85	-	-1.2	
		$I_C = -100\text{ mA}$ , $I_B = -10\text{ mA}$	-	-	-1.7	
$f_T$	Transition frequency	$I_C = -30\text{ mA}$ , $V_{CE} = -10\text{ V}$ $f = 100\text{ MHz}$	400	-	-	MHz
$C_{CBO}$	Collector-Base Capacitance	$I_E = 0$ , $V_{CB} = -5\text{ V}$ $f = 1\text{ MHz}$	-	-	6	pF
$C_{EBO}$	Emitter-Base Capacitance	$I_C = 0$ , $V_{EB} = -0.5\text{ V}$ $f = 1\text{ MHz}$	-	-	6	pF
$t_{on}$	Turn-on Time	$I_C = -30\text{ mA}$ , $V_{CC} = -2\text{ V}$ $I_{B1} = -1.5\text{ mA}$	-	-	60	ns
$t_{off}$	Turn-off Time	$I_C = -30\text{ mA}$ , $V_{CC} = -2\text{ V}$ $I_{B1} = -I_{B2} = -1.5\text{ mA}$	-	-	90	

(\*) Pulse conditions :  $t_p < 300\ \mu\text{s}$ ,  $\delta = 1\%$

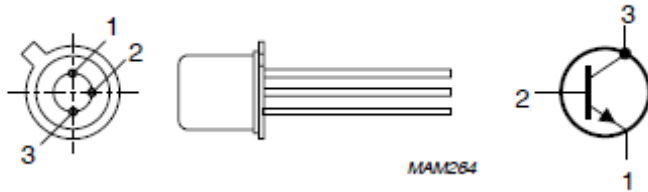
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### MECHANICAL DATA CASE TO-18

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



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