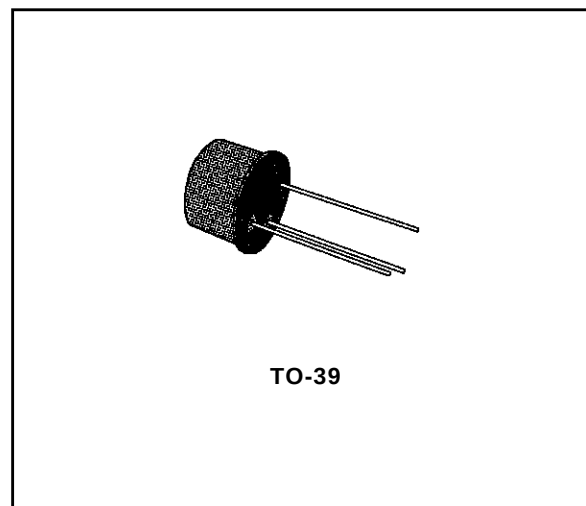


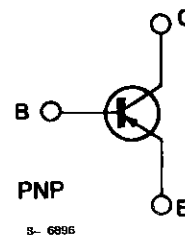
MEDIUM-SPEED SWITCH

DESCRIPTION

The 2N4036 is a silicon planar epitaxial PNP transistor in Jedec TO-39 metal case. It is intended particularly as medium speed saturated switch and general purpose amplifier.



INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-base Voltage ($I_E = 0$)	- 90	V
V_{CEX}	Collector-emitter Voltage ($V_{BE} = 1.5$ V)	- 85	V
V_{CER}	Collector-emitter Voltage ($R_{BE} \leq 200 \Omega$)	- 85	V
V_{CEO}	Collector-emitter Voltage ($I_B = 0$)	- 65	V
V_{EBO}	Emitter-base Voltage ($I_C = 0$)	- 6	V
I_C	Collector Current	- 1	A
I_B	Base Current	- 0.5	A
P_{tot}	Total Power Dissipation at $T_{amb} \leq 25^\circ\text{C}$ at $T_{case} \leq 25^\circ\text{C}$	1 7	W W
T_{stg}, T_j	Storage and Junction Temperature	- 65 to 200	$^\circ\text{C}$

THERMAL DATA

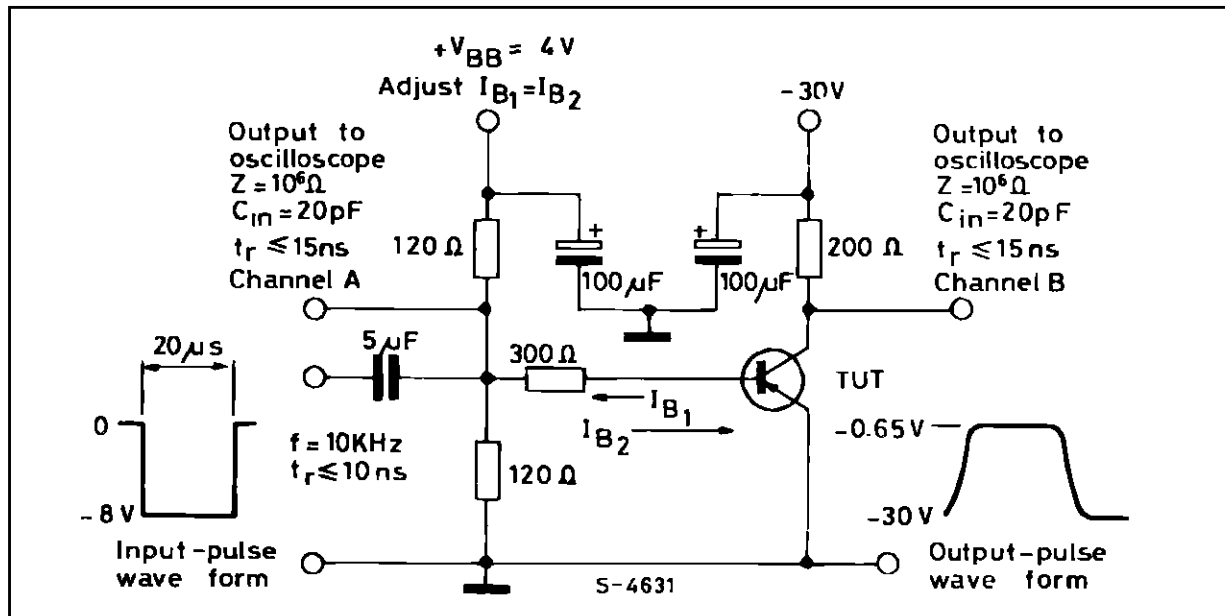
$R_{th\ j-case}$	Thermal Resistance Junction-case	Max	25	$^{\circ}C/W$
$R_{th\ j-amb}$	Thermal Resistance Junction-ambient	Max	175	$^{\circ}C/W$

ELECTRICAL CHARACTERISTICS ($T_{amb} = 25^{\circ}C$ unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cutoff Current ($I_E = 0$)	$V_{CB} = -60\ V$			- 20	nA
I_{CEO}	Collector Cutoff Current ($I_B = 0$)	$V_{CE} = -30\ V$			- 0.5	μA
I_{EBO}	Emitter Cutoff Current ($I_C = 0$)	$V_{EB} = -5\ V$			- 20	nA
$V_{(BR)CBO}$	Collector-base Breakdown Voltage ($I_E = 0$)	$I_C = -100\ \mu A$	- 90			V
$V_{(BR)CEX}^*$	Collector-emitter Breakdown Voltage ($V_{BE} = 1.5\ V$)	$I_C = -10\ mA$	- 85			V
$V_{(BR)CER}^*$	Collector-emitter Breakdown Voltage ($R_{BE} = 200\ \Omega$)	$I_C = -10\ mA$	- 85			V
$V_{(BR)CEO}^*$	Collector-emitter Breakdown Voltage ($I_B = 0$)	$I_C = -10\ mA$	- 65			V
$V_{(BR)EBO}$	Emitter-base Breakdown Voltage ($I_C = 0$)	$I_E = -100\ \mu A$	- 7			V
$V_{CE(sat)}^*$	Collector-emitter Saturation Voltage	$I_C = -150\ mA$ $I_B = -15\ mA$			- 0.65	V
V_{BE}^*	Base-emitter Voltage	$I_C = -150\ mA$ $V_{CE} = -10\ V$			- 1.1	V
h_{FE}^*	DC Current Gain	$I_C = -0.1\ mA$ $V_{CE} = -10\ V$ $I_C = -150\ mA$ $V_{CE} = -10\ V$ $I_C = -500\ mA$ $V_{CE} = -10\ V$	20 40 20		140	
f_T	Transition Frequency	$I_C = -50\ mA$ $V_{CE} = -10\ V$ $f = 20\ MHz$	60			MHz
C_{EBO}	Emitter-base Capacitance	$I_C = 0$ $V_{EB} = -0.5\ V$ $f = 1\ MHz$			90	pF
C_{CBO}	Collector-base Capacitance	$I_E = 0$ $V_{CB} = -10\ V$ $f = 1\ MHz$			30	pF
t_{on}^{**}	Turn-on Time	$I_C = -150\ mA$ $V_{CC} = -30V$ $I_{B1} = -15\ mA$			110	ns
t_{off}^{**}	Turn-off Time	$I_C = -150\ mA$ $V_{CC} = -30\ V$ $I_{B1} = -I_{B2} = -15\ mA$			700	ns

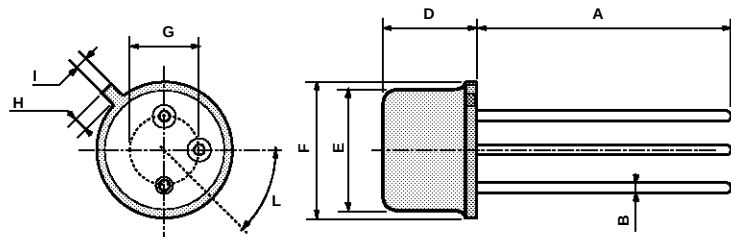
* Pulsed : pulse duration = 300 μs , duty cycle = 1 %.

** See test circuit.

Test Circuit for t_{on} , t_{off} .

TO39 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	12.7			0.500		
B			0.49			0.019
D			6.6			0.260
E			8.5			0.334
F			9.4			0.370
G	5.08			0.200		
H			1.2			0.047
I			0.9			0.035
L	45° (typ.)					



P008B

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