

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

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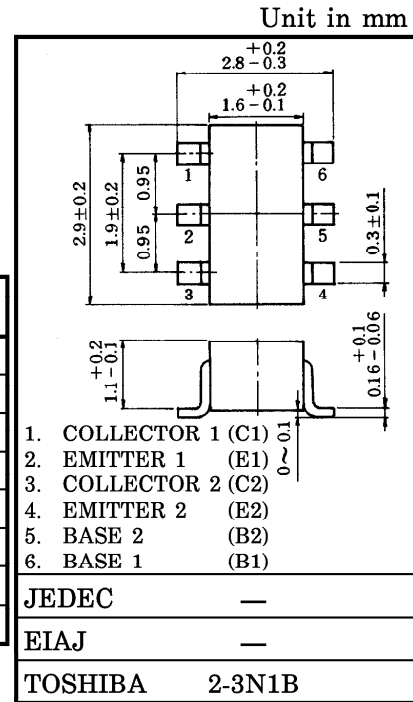
TV TUNER, VHF CONVERTER APPLICATION.
TV VHF RF AMPLIFIER APPLICATION.

- Including Two Devices in SM6 (Super Mini Type with 6Leads)
- Low Reverse Transfer Capacitance : $C_{re}=0.38\text{pF}$ (Typ.)
- High Transition Frequency : $f_T=1400\text{MHz}$ (Typ.)

MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$) (Q_1, Q_2)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CB0}	30	V
Collector-Emitter Voltage	V_{CEO}	20	V
Emitter-Base Voltage	V_{EB0}	3	V
Collector Current	I_C	50	mA
Base Current	I_B	25	mA
Collector Power Dissipation	P_C^*	300	mW
Junction Temperature	T_j	125	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55~125	$^\circ\text{C}$

* Total

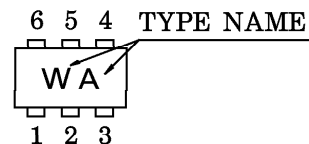
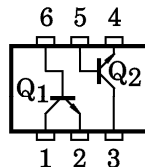


ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$) (Q_1, Q_2)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	I_{CBO}	$V_{CB}=25\text{V}, I_E=0$	—	—	0.1	μA
Emitter Cut-off Current	I_{EBO}	$V_{EB}=3\text{V}, I_C=0$	—	—	1.0	μA
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=1\text{mA}, I_B=0$	20	—	—	V
DC Current Gain	h_{FE}	$V_{CE}=10\text{V}, I_C=5\text{mA}$	40	150	300	—
Transition Frequency	f_T	$V_{CE}=10\text{V}, I_C=5\text{mA}, f=200\text{MHz}$	900	1400	—	MHz
Reverse Transfer Capacitance Q_1	$C_{re(1)}$	$V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$	—	0.38	0.53	pF
Reverse Transfer Capacitance Q_2	$C_{re(2)}$	$V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$	—	0.31	0.46	pF
Collector-Base Time Constant Q_1	$C_c \cdot r_{bb'(1)}$	$V_{CB}=10\text{V}, I_C=5\text{mA}, f=30\text{MHz}$	—	6.0	12	ps
Collector-Base Time Constant Q_2	$C_c \cdot r_{bb'(2)}$	$V_{CB}=10\text{V}, I_C=5\text{mA}, f=30\text{MHz}$	—	5.5	11.5	ps

PIN ASSIGNMENT (TOP VIEW)

MARKING



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