

Transistor

Silicon NPN Epitaxial Type

For General Purpose Switching and Amplifier Applications

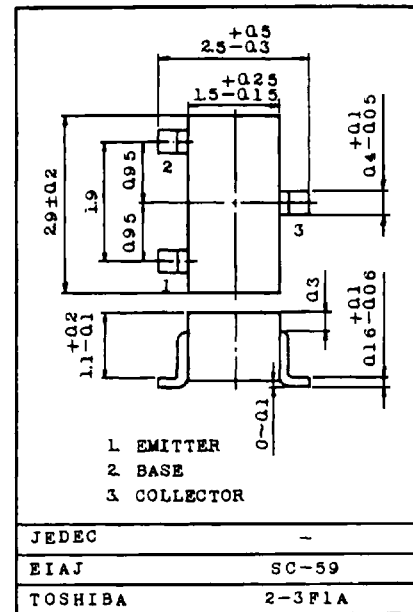
Features

- Low Leakage Current
 - $I_{CEV} = 50\text{nA (Max.)}$, $I_{BEV} = 50\text{nA (Max.)}$
 - @ $V_{CE} = 30\text{V}$, $V_{BE} = 3\text{V}$
- Excellent DC Current Gain Linearity
- Low Saturation Voltage
 - $V_{CE(sat)} = 0.3\text{V (Max.)}$ @ $I_C = 50\text{mA}$, $I_B = 5\text{mA}$
- Low Collector Output Capacitance
 - $C_{ob} = 4\text{pF (Max.)}$ @ $V_{CB} = 5\text{V}$
- Complementary to YTS3906

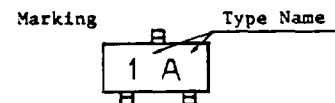
Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CBO}	60	V
Collector-Emitter Voltage	V_{CEO}	40	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current	I_C	200	mA
Base Current	I_B	50	mA
Collector Power Dissipation ($T_a = 25^\circ\text{C}$) Derate Linearly 25°C	P_C	200	mW
		1.6	mW/ $^\circ\text{C}$
Thermal Resistance (Junction to Ambient)	$R_{th(j-a)}$	625	$^\circ\text{C/W}$
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55 - 150	$^\circ\text{C}$

Unit in mm



Weight : 0.012g



Electrical Characteristics (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		I_{CEV}	$V_{CE} = 30V, V_{BE} = -3V$	—	—	50	nA
Base Cut-off Current		I_{BEV}	$V_{CE} = 30V, V_{BE} = -3V$	—	—	-50	nA
Collector-Base Breakdown Voltage		$V_{(BR)CBO}$	$I_C = 10\mu A, I_E = 0$	60	—	—	V
Collector-Emitter Breakdown Voltage		$V_{(BR)CEO}$	$I_C = 1mA, I_B = 0$	40	—	—	V
Emitter-Base Breakdown Voltage		$V_{(BR)EBO}$	$I_E = 10\mu A, I_C = 0$	6	—	—	V
DC Current Gain		$h_{FE(1)}$	$V_{CE} = 1V, I_C = 0.1mA$	40	—	—	
		$h_{FE(2)}$	$V_{CE} = 1V, I_C = 1mA$	70	—	—	
		$h_{FE(3)}$	$V_{CE} = 1V, I_C = 10mA$	100	—	300	
		$h_{FE(4)}$	$V_{CE} = 1V, I_C = 50mA$	60	—	—	
		$h_{FE(5)}$	$V_{CE} = 1V, I_C = 100mA$	30	—	—	
Collector-Emitter Saturation Voltage		$V_{CE(sat)1}$	$I_C = 10mA, I_B = 1mA$	—	—	0.2	V
		$V_{CE(sat)2}$	$I_C = 50mA, I_B = 5mA$	—	—	0.3	
Base-Emitter Saturation Voltage		$V_{BE(sat)1}$	$I_C = 150mA, I_B = 15mA$	0.65	—	0.85	V
		$V_{BE(sat)2}$	$I_C = 500mA, I_B = 5mA$	—	—	0.95	
Transition Frequency		f_T	$V_{CE} = 20V, I_C = 20mA, f = 100MHz$	300	—	—	MHz
Collector Output Capacitance		C_{ob}	$V_{CB} = 5V, I_E = 0, f = 1MHz$	—	—	4	pF
Input Capacitance		C_{ib}	$V_{EB} = 0.5V, I_C = 0, f = 1MHz$	—	—	8	pF
Input Impedance		h_{ie}	$V_{CE} = 10V, I_C = 1mA, f = 1kHz$	1.0	—	10	k Ω
Voltage Feedback Ratio		h_{re}		0.5	—	8	x10 ⁻⁴
Small-Signal Current Gain		h_{fe}		100	—	400	
Collector Output Admittance		h_{oe}		1.0	—	40	μS
Noise Figure		NF		$V_{CE} = 5V, I_C = 0.1mA$ $R_g = 1k\Omega, f = 10Hz - 15.7kHz$	—	—	5
Switching Time	Delay Time	t_d	<p>$\tau_r, \tau_f < 1ns, Du = 2\%$</p>	—	—	35	ns
	Rise Time	t_r		—	—	35	
	Storage Time	t_{sig}		—	—	200	
	Fall Time	t_f		—	—	50	
			<p>$\tau_r, \tau_f < 1ns, Du = 2\%$</p>				