

TOSHIBA

2SA1953

TOSHIBA TRANSISTOR SILICON PNP EPITAXIAL TYPE (PCT PROCESS)

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GENERAL PURPOSE AMPLIFIER APPLICATIONS

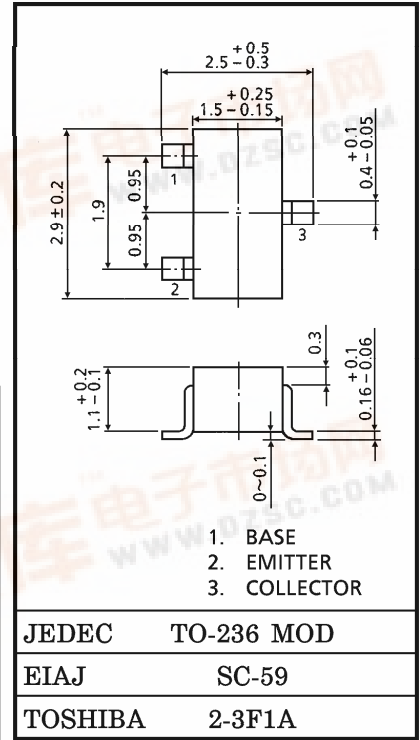
SWITCHING AND MUTING SWITCH APPLICATION

Unit in mm

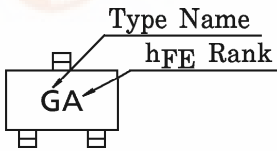
- Low Saturation Voltage : $V_{CE(sat)}(1) = -15\text{mV (Typ.)}$
@ $I_C = -10\text{mA} / I_B = -0.5\text{mA}$
- Large Collector Current : $I_C = -500\text{mA (Max.)}$

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

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CBO}	-15	V
Collector-Emitter Voltage	V_{CEO}	-12	V
Emitter-Base Voltage	V_{EBO}	-5	V
Collector Current	I_C	-500	mA
Base Current	I_B	-50	mA
Collector Power Dissipation	P_C	150	mW
Junction Temperature	T_j	125	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55~125	$^\circ\text{C}$

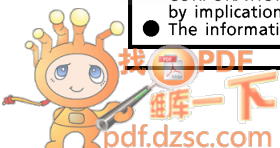


MARKING



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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		I_{CBO}	$V_{CB} = -15V, I_E = 0$	—	—	-0.1	μA
Emitter Cut-off Current		I_{EBO}	$V_{EB} = -5V, I_C = 0$	—	—	-0.1	μA
DC Current Gain		h_{FE} (Note)	$V_{CE} = -2V, I_C = -10mA$	300	—	1000	
Collector-Emitter Saturation Voltage		$V_{CE(sat)} (1)$	$I_C = -10mA, I_B = -0.5mA$	—	-15	-30	mV
		$V_{CE(sat)} (2)$	$I_C = -200mA, I_B = -10mA$	—	-110	-250	
Base-Emitter Saturation Voltage		$V_{BE(sat)}$	$I_C = -200mA, I_B = -10mA$	—	-0.87	-1.2	V
Transition Frequency		f_T	$V_{CE} = -2V, I_C = -10mA$	80	130	—	MHz
Collector Output Capacitance		C_{ob}	$V_{CB} = -10V, I_E = 0, f = 1MHz$	—	4.2	—	pF
Collector-Emitter On Resistance		R_{on}	$I_B = -1mA, V_{in} = -1V_{rms}, f = 1kHz$	—	0.9	—	Ω
Switching Time	Turn-on Time	t_{on}		—	40	—	ns
	Storage Time	t_{stg}		—	280	—	
	Fall Time	t_f		$I_{B1} = -I_{B2} = -5mA$	—	45	

(Note) h_{FE} Classification A : 300~600, B : 500~1000

