

**TOSHIBA**

**2SA1451A**

TOSHIBA TRANSISTOR SILICON PNP EPITAXIAL TYPE (PCT PROCESS)

# 2SA1451A

HIGH SPEED, HIGH CURRENT SWITCHING APPLICATIONS

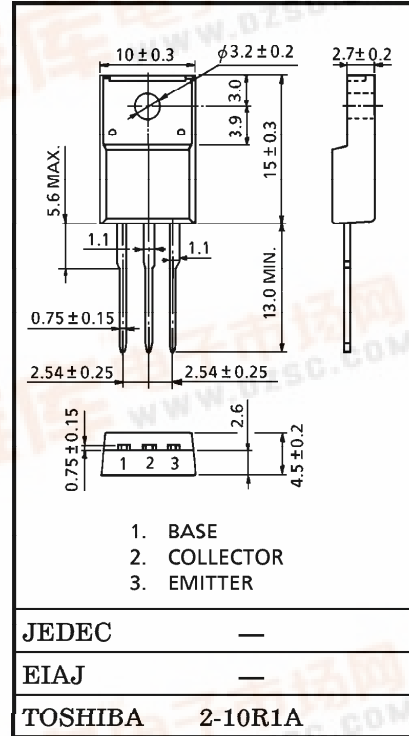
INDUSTRIAL APPLICATIONS

Unit in mm

- Low Collector Saturation Voltage  
:  $V_{CE(sat)} = -0.4V$  (Max.) (at  $I_C = -6A$ )
- High Speed Switching Time :  $t_{stg} = 1.0\mu s$  (Typ.)
- Complementary to 2SC3709A

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

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	$V_{CBO}$	-60	V
Collector-Emitter Voltage	$V_{CEO}$	-50	V
Emitter-Base Voltage	$V_{EBO}$	-6	V
Collector Current	$I_C$	-12	A
Base Current	$I_B$	-2	A
Collector Power Dissipation ( $T_c = 25^\circ C$ )	$P_C$	30	W
Junction Temperature	$T_j$	150	$^\circ C$
Storage Temperature Range	$T_{stg}$	-55~150	$^\circ C$



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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		$I_{CBO}$	$V_{CB} = -60V, I_E = 0$	—	—	-10	$\mu A$
Emitter Cut-off Current		$I_{EBO}$	$V_{EB} = -6V, I_C = 0$	—	—	-10	$\mu A$
Collector-Emitter Breakdown Voltage		$V_{(BR)CEO}$	$I_C = -50mA, I_B = 0$	-50	—	—	V
DC Current Gain		$h_{FE(1)}$ (Note)	$V_{CE} = -1V, I_C = -1A$	70	—	240	
		$h_{FE(2)}$	$V_{CE} = -1V, I_C = -6A$	40	—	—	
Saturation Voltage	Collector-Emitter	$V_{CE(sat)}$	$I_C = -6A, I_B = -0.3A$	—	-0.15	-0.4	V
	Base-Emitter	$V_{BE(sat)}$	$I_C = -6A, I_B = -0.3A$	—	-0.9	-1.2	
Transition Frequency		$f_T$	$V_{CE} = -5V, I_C = -1A$	—	70	—	MHz
Collector Output Capacitance		$C_{ob}$	$V_{CB} = -10V, I_E = 0, f = 1MHz$	—	320	—	pF
Switching Time	Turn-on Time	$t_{on}$		—	0.3	—	$\mu s$
	Storage Time	$t_{stg}$		—	1.0	—	
	Fall Time	$t_f$		$-I_{B1} = I_{B2} = 0.3A$ DUTY CYCLE $\leq 1\%$	—	0.2	

(Note)  $h_{FE(1)}$  Classification    O : 70~140,    Y : 120~240

