

TOSHIBA TRANSISTOR SILICON PNP EPITAXIAL TYPE (PCT PROCESS)

# 2SA1213

POWER AMPLIFIER APPLICATIONS

POWER SWITCHING APPLICATIONS

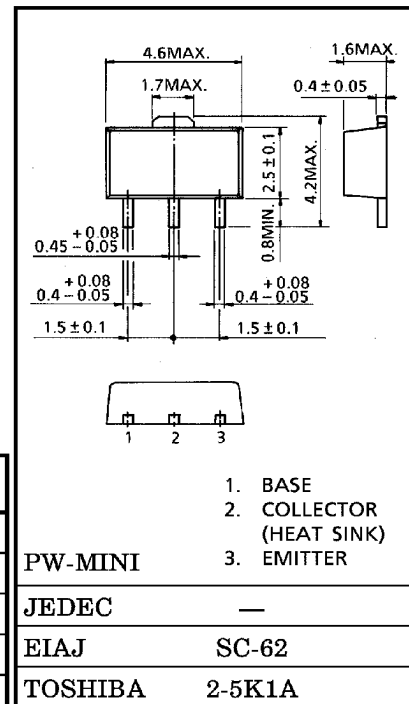
- Low Saturation Voltage :  $V_{CE(sat)} = -0.5V$  (Max.)  
( $I_C = -1A$ )
- High Speed Switching Time:  $t_{stg} = 1.0\mu s$  (Typ.)
- $P_C = 1 \sim 2W$  (Mounted on Ceramic Substrate)
- Small Flat Package
- Complementary to 2SC2873

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

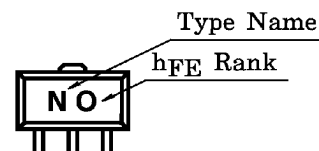
CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	$V_{CBO}$	-50	V
Collector-Emitter Voltage	$V_{CEO}$	-50	V
Emitter-Base Voltage	$V_{EBO}$	-5	V
Collector Current	$I_C$	-2	A
Base Current	$I_B$	-0.4	A
Collector Power Dissipation	$P_C$	500	mW
Collector Power Dissipation	$P_C^*$	1000	mW
Junction Temperature	$T_j$	150	$^\circ C$
Storage Temperature Range	$T_{stg}$	-55~150	$^\circ C$

\* : Mounted on ceramic substrate (250mm<sup>2</sup>×0.8t)

Unit in mm



Marking

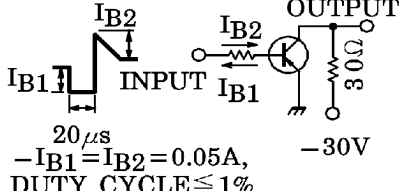


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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		ICBO	V <sub>CB</sub> = -50V, I <sub>E</sub> = 0	—	—	-0.1	μA
Emitter Cut-off Current		IEBO	V <sub>EB</sub> = -5V, I <sub>C</sub> = 0	—	—	-0.1	μA
Collector-Emitter Breakdown Voltage		V (BR) CEO	I <sub>C</sub> = -10mA, I <sub>B</sub> = 0	-50	—	—	V
DC Current Gain	h <sub>FE</sub> (1) (Note)		V <sub>CE</sub> = -2V, I <sub>C</sub> = -0.5A	70	—	240	
	h <sub>FE</sub> (2)		V <sub>CE</sub> = -2V, I <sub>C</sub> = -2.0A	20	—	—	
Collector-Emitter Saturation Voltage		V <sub>CE</sub> (sat)	I <sub>C</sub> = -1A, I <sub>B</sub> = -0.05A	—	—	-0.5	V
Base-Emitter Saturation Voltage		V <sub>BE</sub> (sat)	I <sub>C</sub> = -1A, I <sub>B</sub> = -0.05A	—	—	-1.2	V
Transition Frequency		f <sub>T</sub>	V <sub>CE</sub> = -2V, I <sub>C</sub> = -0.5A	—	120	—	MHz
Collector Output Capacitance		C <sub>ob</sub>	V <sub>CB</sub> = -10V, I <sub>E</sub> = 0, f = 1MHz	—	40	—	pF
Switching Time	Turn-on Time	t <sub>on</sub>		—	0.1	—	μs
	Storage Time	t <sub>stg</sub>		—	1.0	—	
	Fall Time	t <sub>f</sub>		—	0.1	—	

Note : h<sub>FE</sub> (1) Classification     O : 70~140,   Y : 120~240

