

TOSHIBA TRANSISTOR SILICON NPN TRIPLE DIFFUSED TYPE

2SD2414(SM)

HIGH CURRENT SWITCHING APPLICATIONS

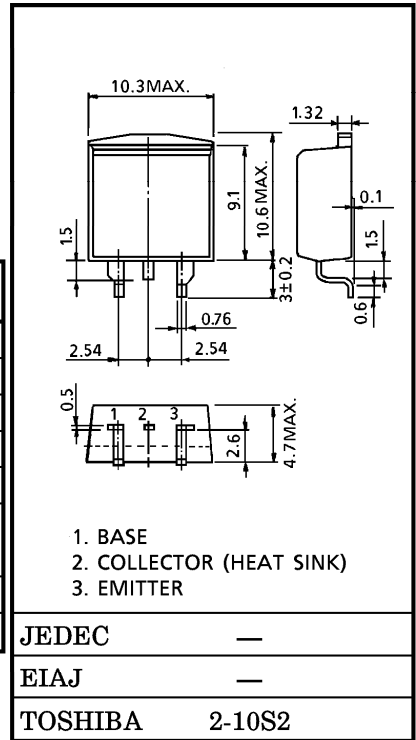
Unit in mm

POWER AMPLIFIER APPLICATIONS

- Low Saturation Voltage
: $V_{CE(sat)} = 0.5 \text{ V (Max.) (at } I_C = 4 \text{ A)}$

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

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CB0}	100	V
Collector-Emitter Voltage	V_{CEO}	80	V
Emitter-Base Voltage	V_{EB0}	5	V
Collector Current	I_C	7	A
Base Current	I_B	1	A
Collector Power Dissipation	P_C	$T_a = 25^\circ\text{C}$	1.5
		$T_c = 25^\circ\text{C}$	40
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55~150	$^\circ\text{C}$



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

Weight : 1.4 g

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Collector Cut-off Current	I_{CBO}	$V_{CB} = 100 \text{ V, } I_E = 0$	—	—	5	μA	
Emitter Cut-off Current	I_{EBO}	$V_{EB} = 5 \text{ V, } I_C = 0$	—	—	5	μA	
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 50 \text{ mA, } I_B = 0$	80	—	—	V	
DC Current Gain	$h_{FE(1)}$	$V_{CE} = 1 \text{ V, } I_C = 1 \text{ A}$	100	—	320		
	$h_{FE(2)}$	$V_{CE} = 1 \text{ V, } I_C = 4 \text{ A}$	30	—	—		
Saturation Voltage	Collector-Emitter $V_{CE(sat)}$	$I_C = 4 \text{ A, } I_B = 0.4 \text{ A}$	—	0.25	0.5	V	
	Base-Emitter $V_{BE(sat)}$	$I_C = 4 \text{ A, } I_B = 0.4 \text{ A}$	—	0.9	1.4	V	
Transition Frequency	f_T	$V_{CE} = 4 \text{ V, } I_C = 1 \text{ A}$	—	10	—	MHz	
Collector Output Capacitance	C_{ob}	$V_{CB} = 10 \text{ V, } I_E = 0, f = 1 \text{ MHz}$	—	200	—	pF	
Switching Time	Turn-on Time	t_{on}			—	0.4	—
	Storage Time	t_{stg}			—	2.5	—
	Fall Time	t_f	$I_{B1} = -I_{B2} = 0.3 \text{ A, } V_{CC} \cong 30 \text{ V}$ DUTY CYCLE $\leq 1\%$		—	0.5	—

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