

TOSHIBA TRANSISTOR SILICON NPN TRIPLE DIFFUSED MESA TYPE

2 S C 5 4 1 1

HORIZONTAL DEFLECTION OUTPUT FOR HIGH RESOLUTION  
DISPLAY, COLOR TV

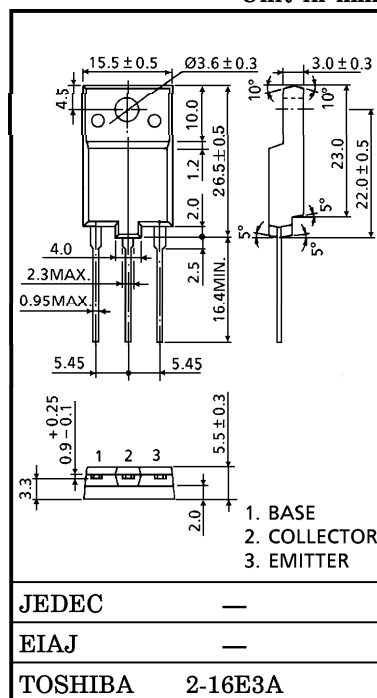
## HIGH SPEED SWITCHING APPLICATIONS

- High Voltage :  $V_{CBO} = 1500\text{ V}$
- Low Saturation Voltage :  $V_{CE(sat)} = 3\text{ V (Max.)}$
- High Speed :  $t_f = 0.15\text{ }\mu\text{s (Typ.)}$
- Collector Metal (Fin) is Fully Covered with Mold Resin.

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Base Voltage		$V_{CBO}$	1500	V
Collector-Emitter Voltage		$V_{CEO}$	600	V
Emitter-Base Voltage		$V_{EBO}$	5	V
Collector Current	DC	$I_C$	14	A
	Pulse	$I_{CP}$	28	
Base Current		$I_B$	7	A
Collector Power Dissipation ( $T_c = 25^\circ\text{C}$ )		$P_C$	60	W
Junction Temperature		$T_j$	150	$^\circ\text{C}$
Storage Temperature Range		$T_{stg}$	$-55 \sim 150$	$^\circ\text{C}$

Unit in mm



Weight : 5.5 g (Typ.)

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## ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		$I_{CBO}$	$V_{CB} = 1500 \text{ V}, I_E = 0$	—	—	1	mA
Emitter Cut-off Current		$I_{EBO}$	$V_{EB} = 5 \text{ V}, I_C = 0$	—	—	10	$\mu\text{A}$
Emitter-Base Breakdown Voltage		$V_{(BR)CEO}$	$I_C = 10 \text{ mA}, I_B = 0$	600	—	—	V
DC Current Gain	$h_{FE(1)}$		$V_{CE} = 5 \text{ V}, I_C = 2 \text{ A}$	10	—	40	
	$h_{FE(2)}$		$V_{CE} = 5 \text{ V}, I_C = 11 \text{ A}$	4	—	8	
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	$I_C = 11 \text{ A}, I_B = 2.75 \text{ A}$	—	—	3	V
Base-Emitter Saturation Voltage		$V_{BE(sat)}$	$I_C = 11 \text{ A}, I_B = 2.75 \text{ A}$	—	1.0	1.5	V
Transition Frequency		$f_T$	$V_{CE} = 10 \text{ V}, I_C = 0.1 \text{ A}$	—	2	—	MHz
Collector Output Capacitance		$C_{ob}$	$V_{CB} = 10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$	—	190	—	pF
Switching Time	Storage Time	$t_{stg}$	$I_{CP} = 8.5 \text{ A}, I_{B1}(\text{end}) = 1.6 \text{ A}$ $f_H = 64 \text{ kHz}$	—	2.5	3.5	$\mu\text{s}$
	Fall Time	$t_f$		—	0.15	0.3	

