

TOSHIBA TRANSISTOR SILICON NPN TRIPLE DIFFUSED MESA TYPE

# 2SC5590

HORIZONTAL DEFLECTION OUTPUT FOR SUPER HIGH RESOLUTION DISPLAY, COLOR TV FOR MULTI-MEDIA & HDTV

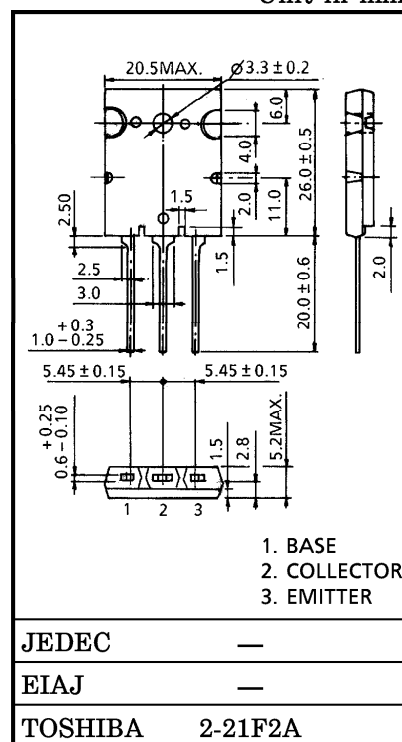
HIGH SPEED SWITCHING APPLICATIONS

- High Voltage :  $V_{CBO} = 1700\text{ V}$
- Low Saturation Voltage :  $V_{CE(sat)} = 3\text{ V (Max.)}$
- High Speed :  $t_f(2) = 0.1\ \mu\text{s (Typ.)}$

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

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	$V_{CBO}$	1700	V
Collector-Emitter Voltage	$V_{CEO}$	800	V
Emitter-Base Voltage	$V_{EBO}$	5	V
Collector Current	DC	$I_C$	16
	Pulse	$I_{CP}$	32
Base Current	$I_B$	8	A
Collector Power Dissipation ( $T_c = 25^\circ\text{C}$ )	$P_C$	200	W
Junction Temperature	$T_j$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-55~150	$^\circ\text{C}$

Unit in mm



Weight : 9.75 g (Typ.)

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## ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Collector Cut-off Current	$I_{CBO}$	$V_{CB} = 1700\text{ V}, I_E = 0$	—	—	1	mA	
Emitter Cut-off Current	$I_{EBO}$	$V_{EB} = 5\text{ V}, I_C = 0$	—	—	100	$\mu\text{A}$	
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 10\text{ mA}, I_B = 0$	800	—	—	V	
DC Current Gain	$h_{FE(1)}$	$V_{CE} = 5\text{ V}, I_C = 2\text{ A}$	22	—	45	—	
	$h_{FE(2)}$	$V_{CE} = 5\text{ V}, I_C = 9\text{ A}$	6.5	—	12		
	$h_{FE(3)}$	$V_{CE} = 5\text{ V}, I_C = 12\text{ A}$	4.8	—	8		
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 12\text{ A}, I_B = 3\text{ A}$	—	—	3	V	
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 12\text{ A}, I_B = 3\text{ A}$	—	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	$C_{ob}$	$V_{CB} = 10\text{ V}, I_E = 0, f = 1\text{ MHz}$	—	240	—	pF	
Switching Time	Storage Time	$t_{stg(1)}$	$I_{CP} = 9\text{ A}, I_{B1}(\text{end}) = 1.1\text{ A}$	—	3.5	4	$\mu\text{s}$
	Fall Time	$t_f(1)$	$f_H = 32\text{ kHz}$	—	0.25	0.35	
	Storage Time	$t_{stg(2)}$	$I_{CP} = 6.5\text{ A}, I_{B1}(\text{end}) = 1\text{ A}$	—	1.8	2	$\mu\text{s}$
	Fall Time	$t_f(2)$	$f_H = 100\text{ kHz}$	—	0.1	0.15	

