

TOSHIBA TRANSISTOR SILICON NPN TRIPLE DIFFUSED MESA TYPE

2SC5144

HORIZONTAL DEFLECTION OUTPUT FOR HIGH RESOLUTION
DISPLAY, COLOR TV

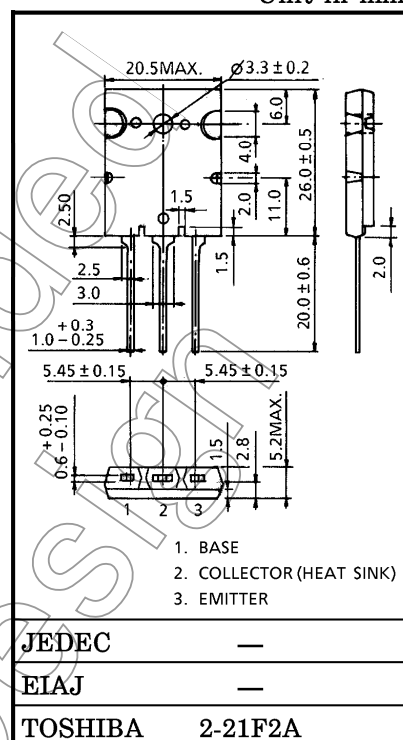
HIGH SPEED SWITCHING APPLICATIONS

- High Speed : $t_f = 0.15 \mu s$ (Typ.)
- High Voltage : $V_{CBO} = 1700 V$
- Low Saturation Voltage : $V_{CE(sat)} = 3 V$ (Max.)

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

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Base Voltage		V_{CBO}	1700	V
Collector-Emitter Voltage		V_{CEO}	600	V
Emitter-Base Voltage		V_{EBO}	5	V
Collector Current	DC	I_C	20	A
	Pulse	I_{CP}	40	A
Base Current		I_B	10	A
Collector Power Dissipation ($T_c = 25^\circ C$)		P_C	200	W
Junction Temperature		T_j	150	$^\circ C$
Storage Temperature Range		T_{stg}	$-55 \sim 150$	$^\circ C$

Unit in mm



JEDEC

EIAJ

TOSHIBA 2-21F2A

Weight : 9.75 g (Typ.)

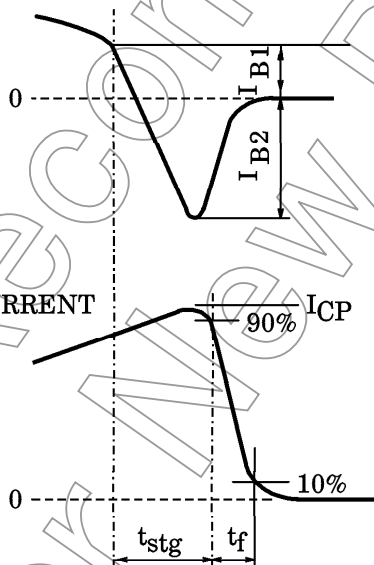
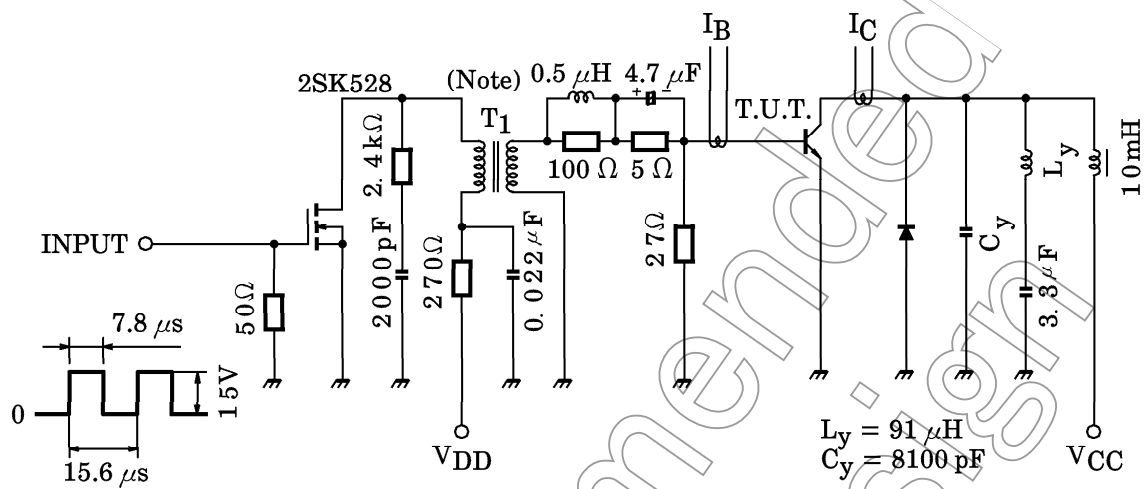
ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ C$)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	I_{CBO}	$V_{CB} = 1700 V, I_E = 0$	—	—	1	mA
Emitter Cut-off Current	I_{EBO}	$V_{EB} = 5 V, I_C = 0$	—	—	10	μA
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 10 mA, I_B = 0$	600	—	—	V
DC Current Gain	$h_{FE}(1)$	$V_{CE} = 5 V, I_C = 2 A$	10	—	30	—
	$h_{FE}(2)$	$V_{CE} = 5 V, I_C = 11 A$	4.5	—	8.5	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 11 A, I_B = 2.75 A$	—	—	3	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 11 A, I_B = 2.75 A$	—	1.0	1.3	V
Transition Frequency	f_T	$V_{CE} = 10 V, I_E = 0.1 A$	—	1.7	—	MHz
Collector Output Capacitance	C_{ob}	$V_{CB} = 10 V, I_E = 0, f = 1 MHz$	—	290	—	pF
Switching Time (Fig.1)	Storage Time	$I_{CP} = 10 A, I_{B1}(end) = 1.8 A$ $f_H = 64 kHz$	—	2.5	4.0	μs
	Fall Time		—	0.15	0.3	

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Fig.1 SWITCHING TIME TEST CIRCUIT



Base Current Gradient

$$dI_B/dt = \frac{I_{B1} + I_{B2}}{t_{stg}} \text{ (A/}\mu\text{s)}$$

(Note) : Leakage Inductance of secondary winding LB is $1.2 \mu\text{H}$.

