

# S2055N

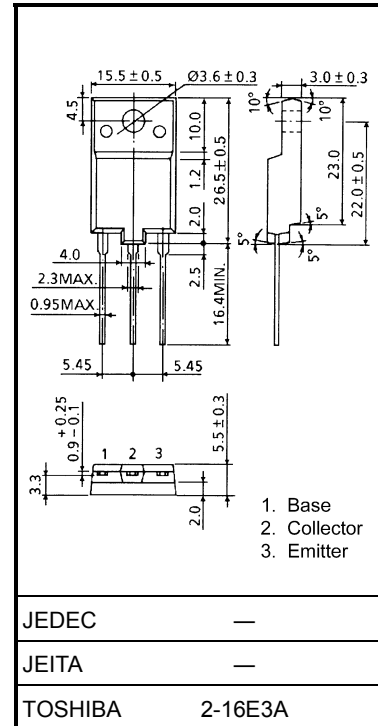
## COLOR TV HORIZONTAL OUTPUT APPLICATIONS

Unit: mm

- High Voltage :  $V_{CES} = 1500\text{ V}$
- Low Saturation Voltage :  $V_{CE(sat)} = 5\text{ V (Max.)}$
- High Speed :  $t_f = 0.3\mu\text{s (Typ.)}$
- Built-in Damper Type
- Collector Metal (Fin) is Fully Covered with Mold Resin.

### ABSOLUTE MAXIMUM RATINGS ( $T_c = 25^\circ\text{C}$ )

CHARACTERISTICS	SYMBOL	RATING	UNIT
Collector-Emitter Voltage	$V_{CES}$	1500	V
Emitter-Base Voltage	$V_{EBO}$	5	V
Collector Current	DC	$I_C$	8 A
	Pulse	$I_{CP}$	15 A
Base Current	$I_B$	4	A
Collector Power Dissipation	$P_C$	50	W
Junction Temperature	$T_j$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-55~150	$^\circ\text{C}$
Thermal Resistance	$R_{th(j-c)}$	2.5	$^\circ\text{C} / \text{W}$

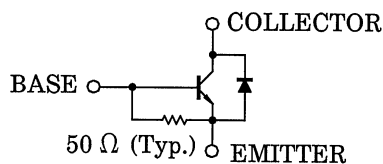


Weight: 5.5 g (typ.)

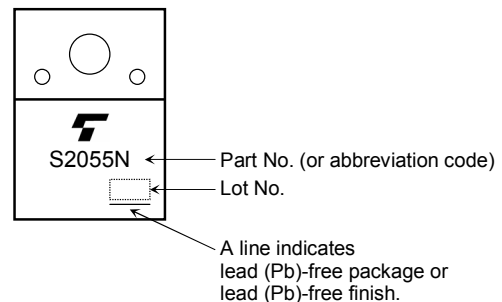
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings.

Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/Derating Concept and Methods) and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

### EQUIVALENT CIRCUIT

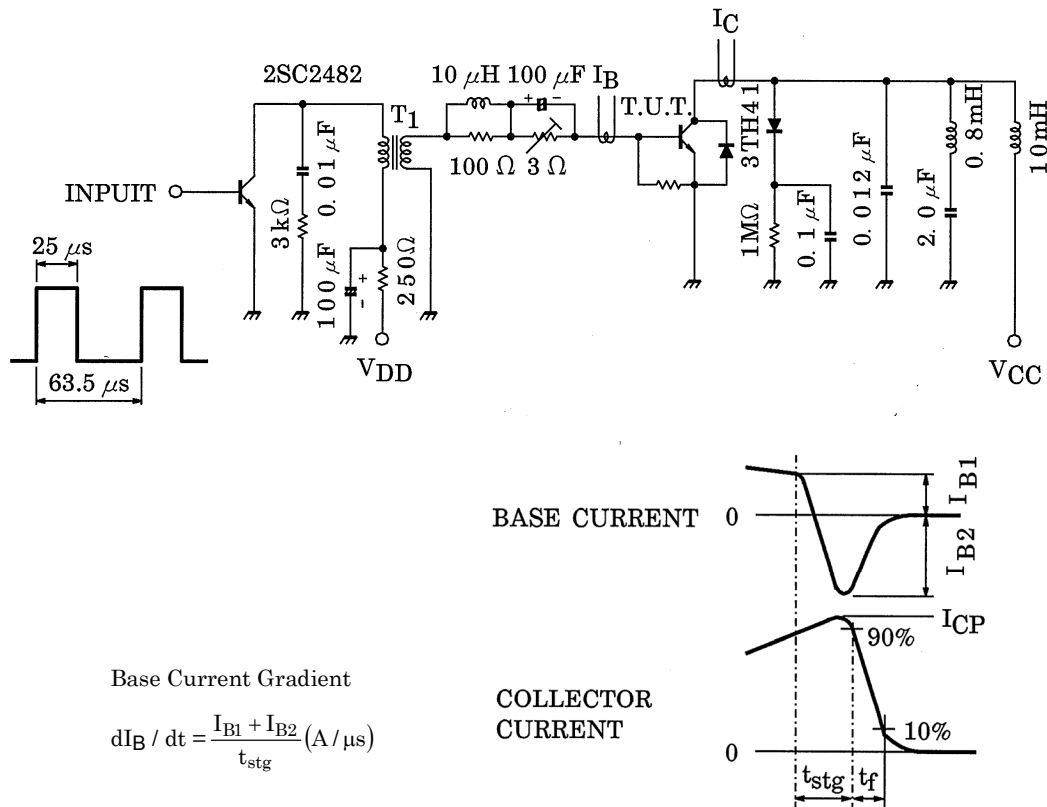


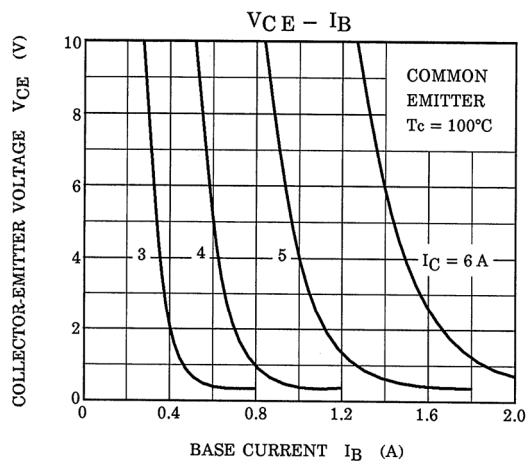
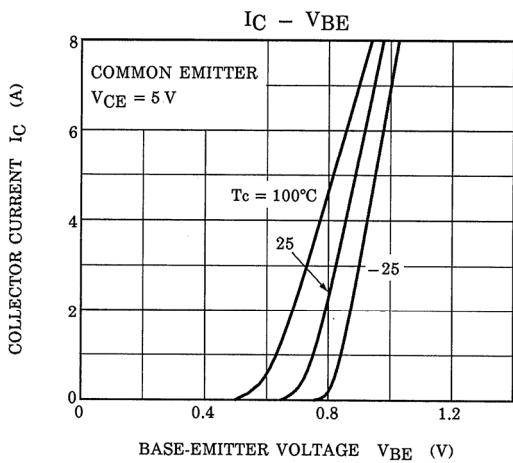
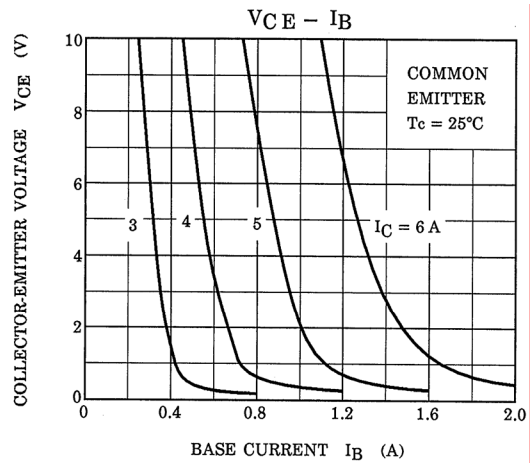
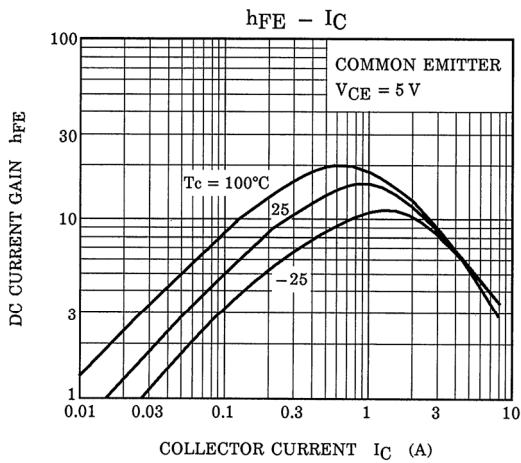
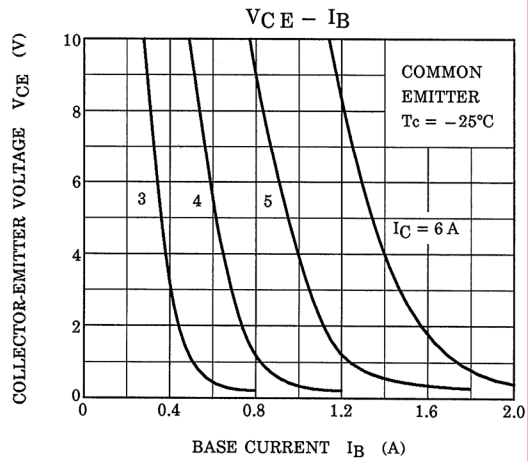
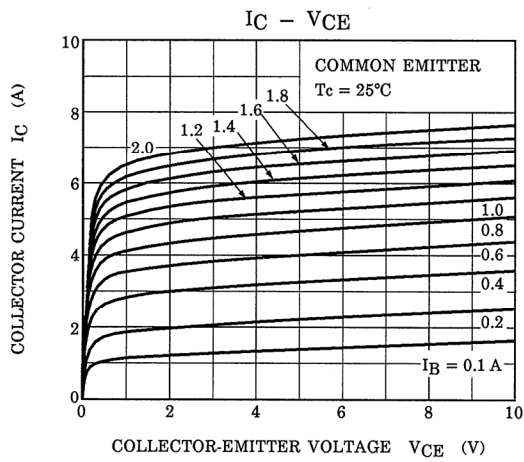
### MARKING

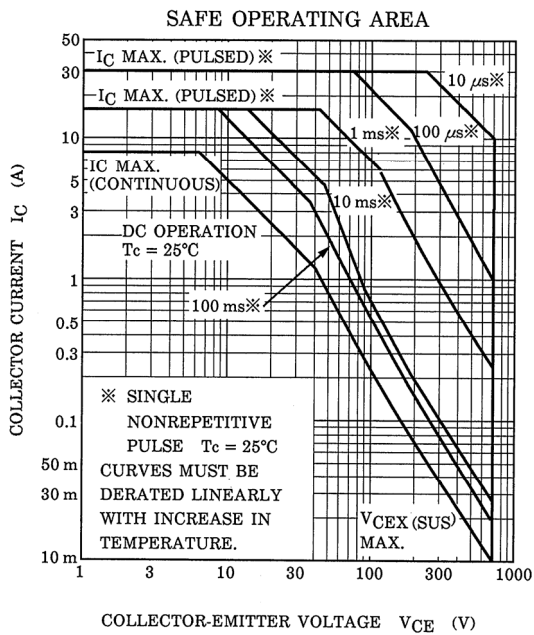
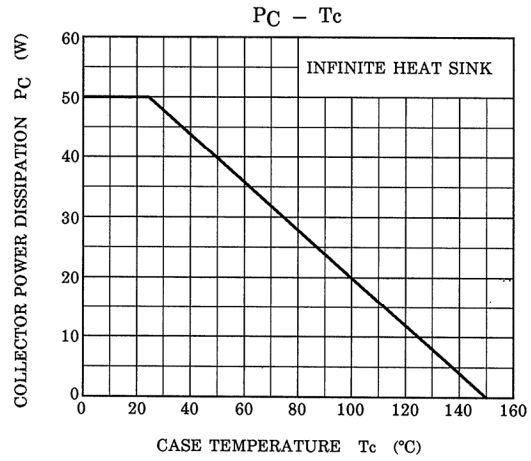
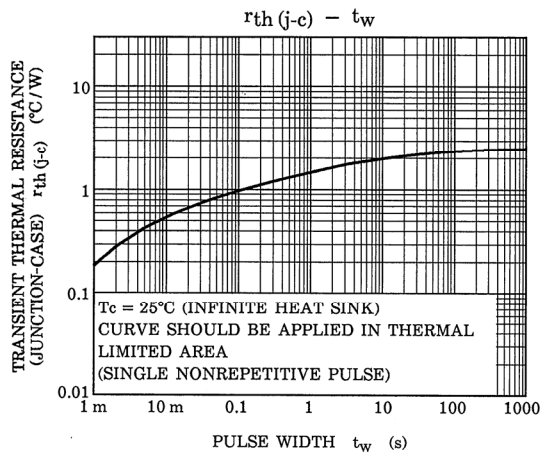


## ELECTRICAL CHARACTERISTICS (Tc = 25°C)

CHARACTERISTICS	SYMBOL	TEST CONDITION	MIN	TYP.	MAX	UNIT
Collector Cut-off Current	$I_{CBO}$	$V_{CB} = 1500 \text{ V}, V_{BE} = 0$	—	—	1	mA
Emitter-Base Breakdown Voltage	$V_{(BR) EBO}$	$I_E = 0.4 \text{ A}, I_C = 0$	5	—	—	V
DC Current Gain	$h_{FE} (1)$	$V_{CE} = 5 \text{ V}, I_C = 1 \text{ A}$	8	—	25	—
	$h_{FE} (2)$	$V_{CE} = 5 \text{ V}, I_C = 4.5 \text{ A}$	4.5	—	9	
Collector-Emitter Saturation Voltage	$V_{CE} (sat)$	$I_C = 4.5 \text{ A}, I_B = 2 \text{ A}$	—	—	1	V
		$I_C = 4.5 \text{ A}, I_B = 1 \text{ A}$	—	—	5	
Base-Emitter Saturation Voltage	$V_{BE} (sat)$	$I_C = 4.5 \text{ A}, I_B = 1 \text{ A}$	—	0.9	1.2	V
Forward Voltage(Damper Diode)	$V_F$	$I_F = 6 \text{ A}$	—	1.6	2.0	V
Collector-Emitter Sustain Voltage	$V_{CEX} (sus)$	$L = 40 \text{ mH}, I_C = 0.5 \text{ A}$ $V_{BE} = -1.7 \text{ V}$	700	—	—	V
Transition Frequency	$f_T$	$V_{CE} = 10 \text{ V}, I_C = 0.1 \text{ A}$	—	2	—	MHz
Collector Output Capacitance	$C_{ob}$	$V_{CB} = 10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$	—	95	—	pF
Switching Time (Fig. 1)	Storage Time	$I_{CP} = 4.5 \text{ A}, I_{B1} (end) = 1 \text{ A}$	—	7.5	11	$\mu\text{s}$
	Fall Time	$f_H = 15.75 \text{ kHz}$	—	0.3	0.6	







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