

TOSHIBA FIELD EFFECT TRANSISTOR SILICON NPN TRIPLE DIFFUSED MESA TYPE

2SC5143

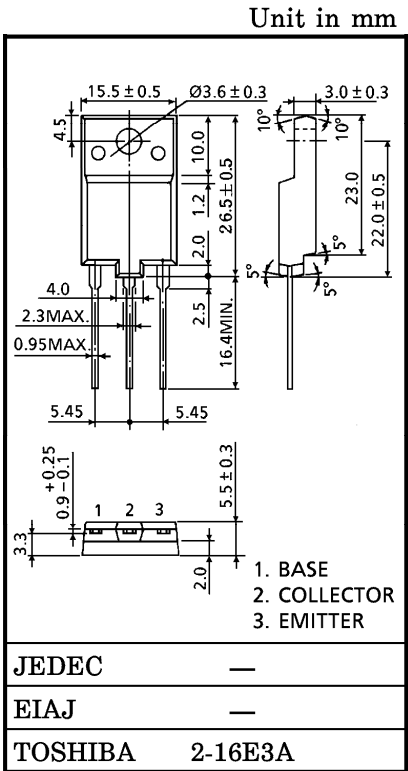
HORIZONTAL DEFLECTION OUTPUT FOR HIGH RESOLUTION
DISPLAY, COLOR TV

HIGH SPEED SWITCHING APPLICATIONS

- High Voltage : $V_{CB0} = 1700\text{ V}$
- Low Saturation Voltage : $V_{CE}(\text{sat}) = 3\text{ V (Max.)}$
- High Speed : $t_f = 0.2\text{ }\mu\text{s (Typ.)}$
- Built-in Damper Type
- Collector Metal (Fin) is Fully Covered with Mold Resin.

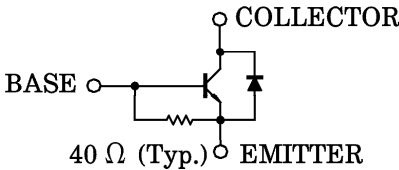
MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CB0}	1700	V
Collector-Emitter Voltage	V_{CEO}	700	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current	DC	I_C	A
	Pulse	I_{CP}	
Base Current	I_B	5	A
Collector Power Dissipation ($T_c = 25^\circ\text{C}$)	P_C	50	W
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	$-55 \sim 150$	$^\circ\text{C}$



Weight : 5.5 g (Typ.)

EQUIVALENT CIRCUIT



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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}	$V_{EB} = 5\text{ V}, I_C = 0$	83	—	250	mA
Emitter-Base Breakdown Voltage		V_{EBO}	$I_E = 400\text{ mA}, I_C = 0$	5	—	—	V
DC Current Gain	$h_{FE}(1)$		$V_{CE} = 5\text{ V}, I_C = 1\text{ A}$	8	—	25	
	$h_{FE}(2)$		$V_{CE} = 5\text{ V}, I_C = 6\text{ A}$	4	—	8.5	
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	$I_C = 6\text{ A}, I_B = 1.5\text{ A}$	—	—	3	V
Base-Emitter Saturation Voltage		$V_{BE(sat)}$	$I_C = 6\text{ A}, I_B = 1.5\text{ A}$	—	0.9	1.2	V
Forward Voltage (Damper Diode)		$-V_F$	$I_F = 6\text{ A}$	—	1.45	1.8	V
Transition Frequency		f_T	$V_{CE} = 10\text{ V}, I_E = 0.1\text{ A}$	—	2	—	MHz
Collector Output Capacitance		C_{ob}	$V_{CB} = 10\text{ V}, I_E = 0, f = 1\text{ MHz}$	—	185	—	pF
Switching Time	Storage Time	t_{stg}	$I_{CP} = 5\text{ A}, I_{B1}(\text{end}) = 1.0\text{ A}$ $f_H = 31.5\text{ kHz}$	—	4	6	μs
	Fall Time	t_f		—	0.2	0.5	

