

TOSHIBA FIELD EFFECT TRANSISTOR SILICON NPN TRIPLE DIFFUSED MESA TYPE

# 2SC5143

HORIZONTAL DEFLECTION OUTPUT FOR HIGH RESOLUTION DISPLAY, COLOR TV

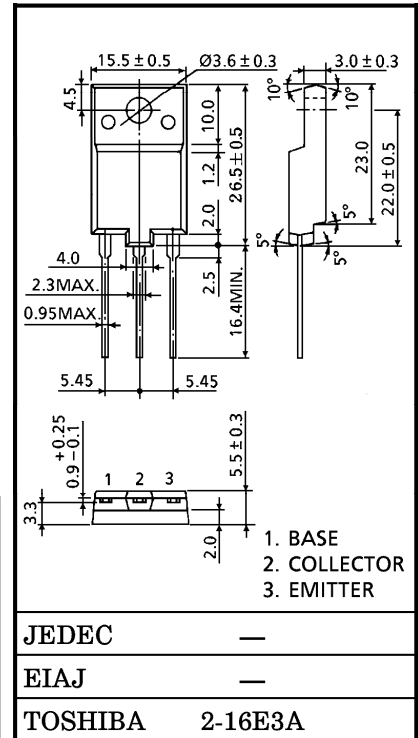
HIGH SPEED SWITCHING APPLICATIONS

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

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

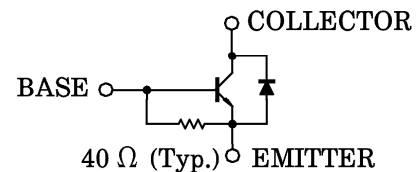
CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	$V_{CB0}$	1700	V
Collector-Emitter Voltage	$V_{CEO}$	700	V
Emitter-Base Voltage	$V_{EBO}$	5	V
Collector Current	DC	$I_C$	10
	Pulse	$I_{CP}$	20
Base Current	$I_B$	5	A
Collector Power Dissipation ( $T_c = 25^\circ\text{C}$ )	$P_C$	50	W
Junction Temperature	$T_j$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-55~150	$^\circ\text{C}$

Unit in mm



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	$t_{stg}$	$I_{CP} = 5 \text{ A}, I_{B1} (end) = 1.0 \text{ A}$	—	4	6	$\mu\text{s}$
	Fall Time	$t_f$	$f_H = 31.5 \text{ kHz}$	—	0.2	0.5	

