

TOSHIBA TRANSISTOR SILICON NPN TRIPLE DIFFUSED MESA TYPE

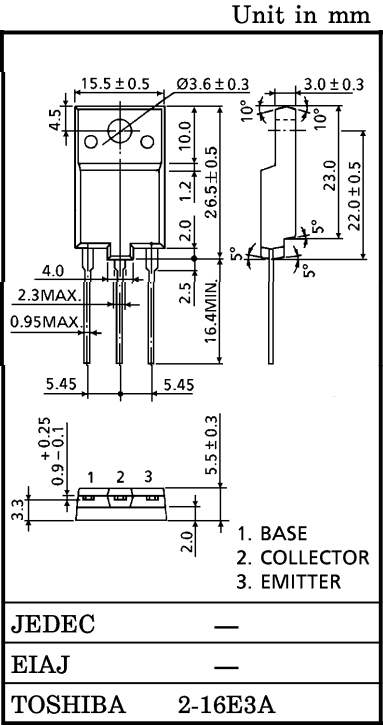
2SD2499

HORIZONTAL DEFLECTION OUTPUT FOR COLOR TV

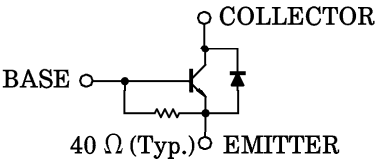
- High Voltage : $V_{CBO} = 1500\text{ V}$
- Low Saturation Voltage : $V_{CE(sat)} = 5\text{ V (Max.)}$
- High Speed : $t_f = 0.3\text{ }\mu\text{s (Typ.)}$
- Built-in Damper Type
- Collector Metal (Fin) is Fully Covered with Mold Resin.

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

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Base Voltage		V_{CBO}	1500	V
Collector-Emitter Voltage		V_{CEO}	600	V
Emitter-Base Voltage		V_{EBO}	5	V
Collector Current	DC	I_C	6	A
	Pulse	I_{CP}	12	
Base Current		I_B	3	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}	$-55\sim 150$	$^\circ\text{C}$



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}	$V_{CB} = 1500\text{ V}, I_E = 0$	—	—	1	mA
Emitter Cut-off Current		I_{EBO}	$V_{EB} = 5\text{ V}, I_C = 0$	67	—	200	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	—
		$h_{FE}(2)$	$V_{CE} = 5\text{ V}, I_C = 4\text{ A}$	5	—	9	
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	$I_C = 4\text{ A}, I_B = 0.8\text{ A}$	—	—	5	V
Base-Emitter Saturation Voltage		$V_{BE(sat)}$	$I_C = 4\text{ A}, I_B = 0.8\text{ A}$	—	1.05	1.3	V
Forward Voltage (Damper Diode)		$-V_F$	$I_F = 6\text{ A}$	—	1.6	2.0	V
Transition Frequency		f_T	$V_{CE} = 10\text{ V}, I_E = 0.1\text{ A}$	—	2	—	MHz
Collector Output Capacitance		C_{ob}	$V_{CB} = 10\text{ V}, I_E = 0, f = 1\text{ MHz}$	—	95	—	pF
Switching Time (Fig.1)	Storage Time	t_{stg}	$I_{CP} = 4\text{ A}, I_{B1}(\text{end}) = 0.8\text{ A}$ $f_H = 15.75\text{ kHz}$	—	7.5	11	μs
	Fall Time	t_f		—	0.3	0.6	

Fig.1 SWITCHING TIME TEST CIRCUIT

