

TOSHIBA Transistor Silicon NPN Triple Diffused Mesa Type

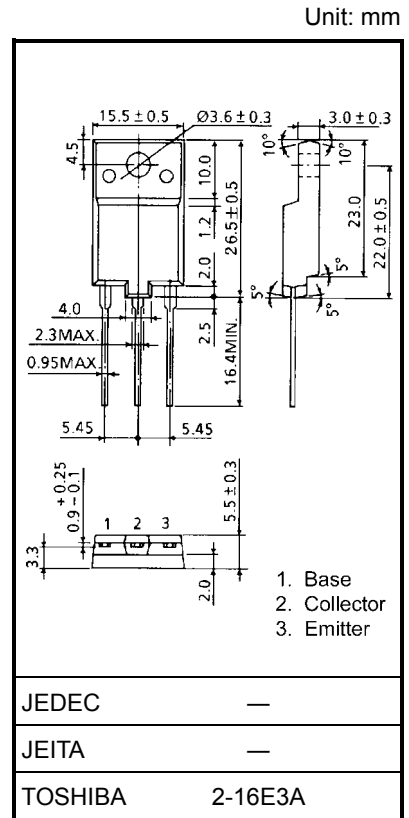
# 2SD2638

Horizontal Deflection Output for Color TV, Digital TV.  
High Speed Switching Applications.

- High voltage:  $V_{CBO} = 1700\text{ V}$
- Low saturation voltage:  $V_{CE(sat)} = 5\text{ V (max)}$
- High speed:  $t_f = 0.8\text{ }\mu\text{s (max)}$

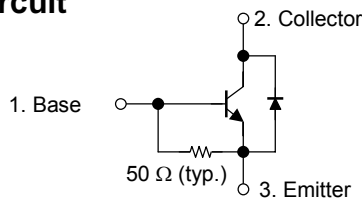
### Maximum Ratings ( $T_c = 25^\circ\text{C}$ )

Characteristics		Symbol	Rating	Unit
Collector-base voltage		$V_{CBO}$	1700	V
Collector-emitter voltage		$V_{CEO}$	750	V
Emitter-base voltage		$V_{EBO}$	5	V
Collector current	DC	$I_C$	7	A
	Pulse	$I_{CP}$	14	
Base current		$I_B$	3.5	A
Collector power dissipation		$P_C$	50	W
Junction temperature		$T_j$	150	$^\circ\text{C}$
Storage temperature range		$T_{stg}$	-55~150	$^\circ\text{C}$



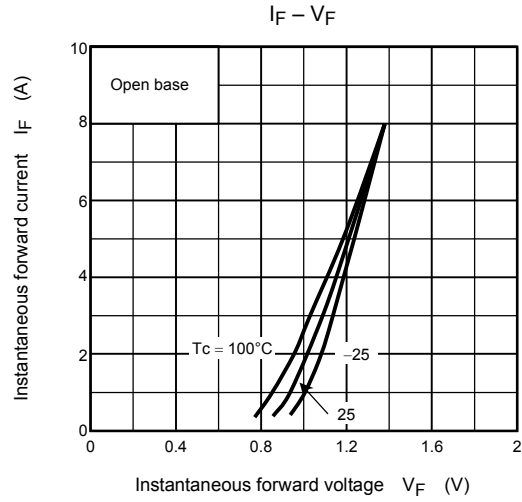
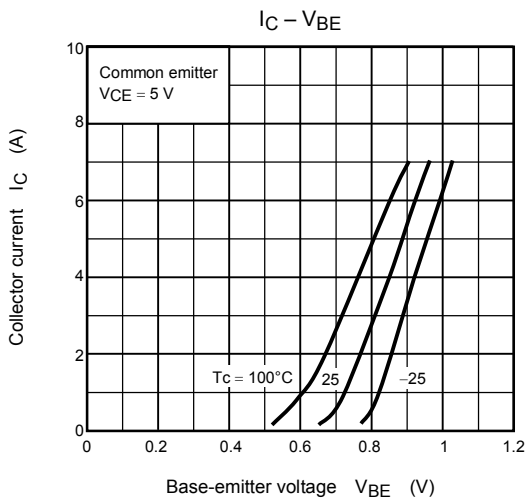
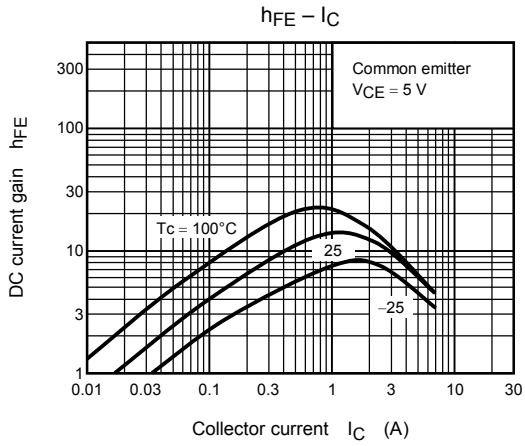
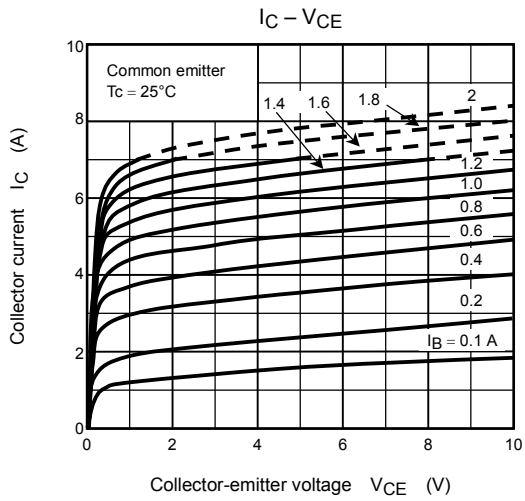
Weight: 5.5 g (typ.)

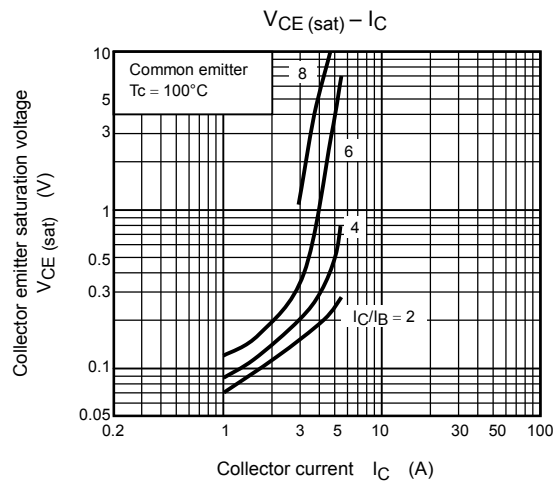
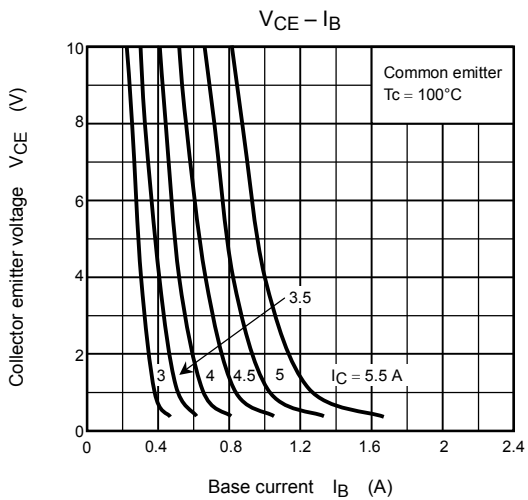
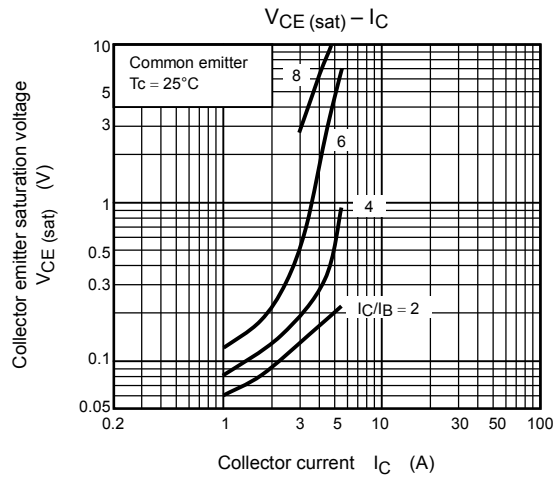
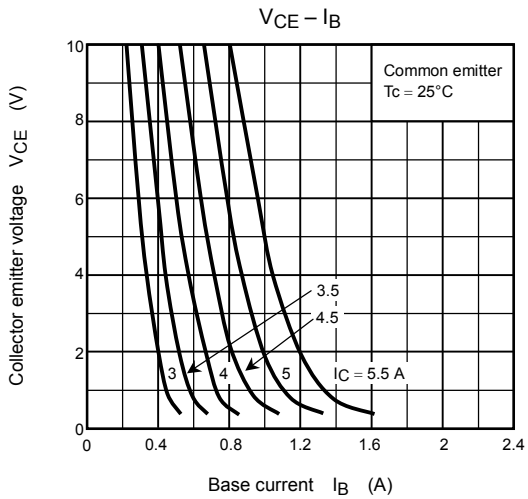
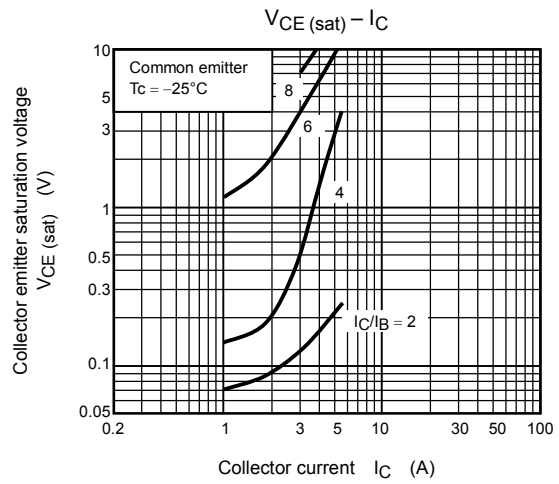
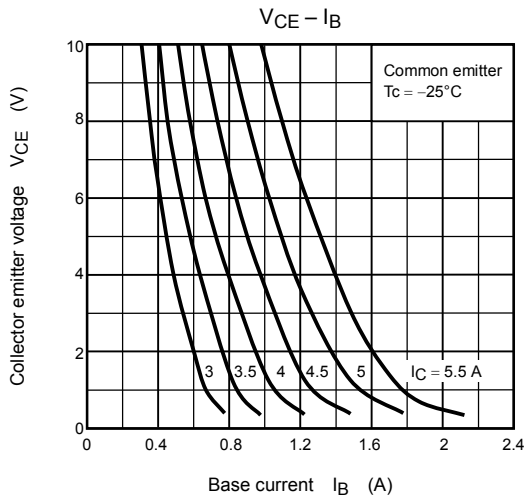
### Equivalent Circuit

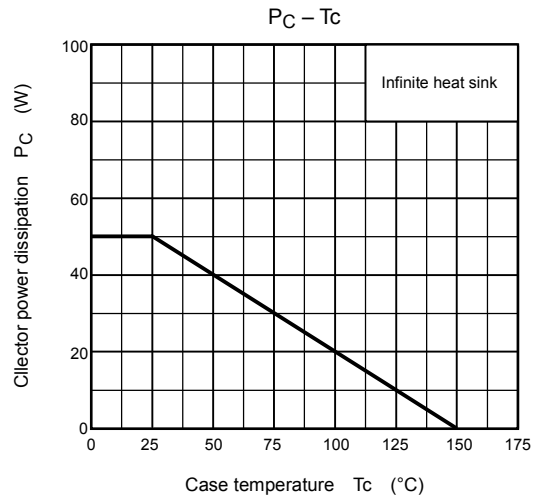
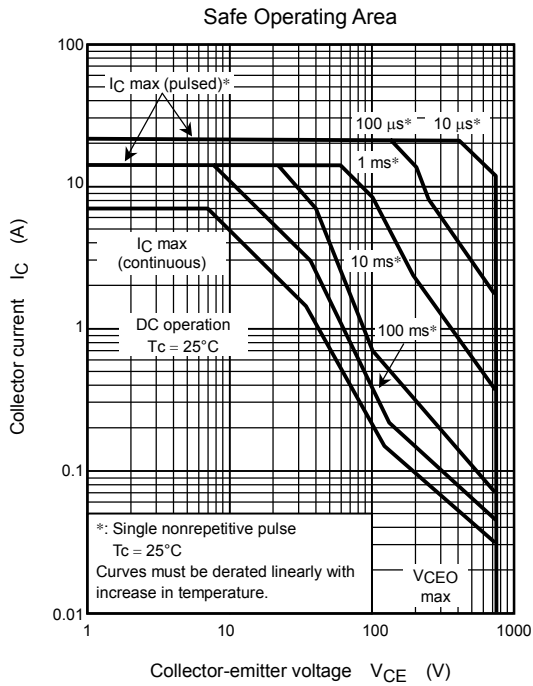
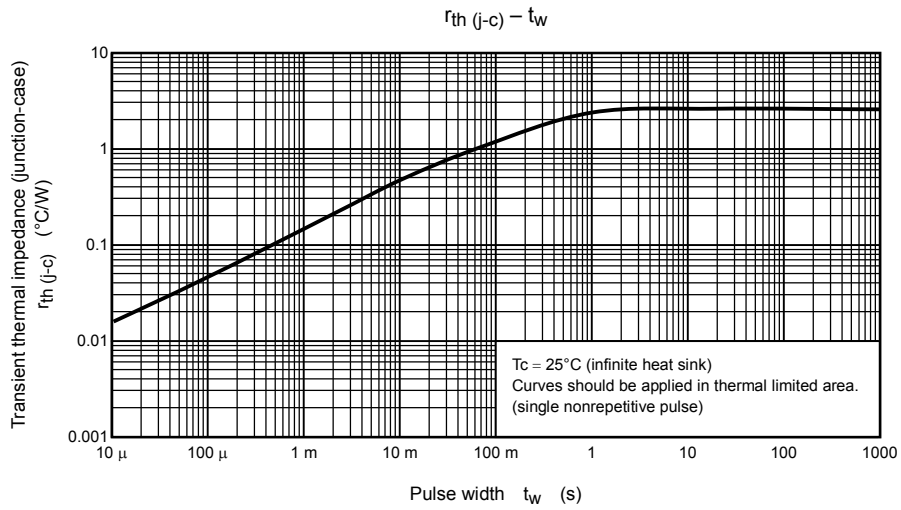


### Electrical Characteristics ( $T_c = 25^\circ\text{C}$ )

Characteristics		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		$I_{EBO}$	$V_{EB} = 5\text{ V}, I_C = 0$	66	—	200	mA
Emitter-base breakdown voltage		$V_{(BR)EBO}$	$I_E = 400\text{ mA}, I_C = 0$	5	—	—	V
DC current gain		$h_{FE(1)}$	$V_{CE} = 5\text{ V}, I_C = 1\text{ A}$	8	—	25	
		$h_{FE(2)}$	$V_{CE} = 5\text{ V}, I_C = 5.5\text{ A}$	4.5	—	7.5	
Collector-emitter saturation voltage		$V_{CE(sat)}$	$I_C = 5.5\text{ A}, I_B = 1.2\text{ A}$	—	—	5	V
Base-emitter saturation voltage		$V_{BE(sat)}$	$I_C = 5.5\text{ A}, I_B = 1.2\text{ A}$	—	1.0	1.5	V
Forward voltage (damper diode)		$V_F$	$I_F = 7\text{ A}$	—	1.3	2	V
Transition frequency		$f_T$	$V_{CE} = 10\text{ V}, I_C = 0.1\text{ A}$	—	2	—	MHz
Collector output capacitance		$C_{ob}$	$V_{CB} = 10\text{ V}, I_E = 0, f = 1\text{ MHz}$	—	125	—	pF
Switching time	Storage time	$t_{stg}$	$I_{CP} = 5.5\text{ A}, I_{B1}(\text{end}) = 1.1\text{ A}, f_H = 15.75\text{ kHz}$	—	7	9	$\mu\text{s}$
	Fall time	$t_f$		—	0.4	0.8	







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