2SD1163, 2SD1163A

Silicon NPN Triple Diffused

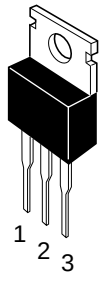
HITACHI

Application

TV horizontal deflection output

Outline

TO-220AB



1. Base
2. Collector (Flange)
3. Emitter

Hitachi semiconductor

Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Rating		Unit
		2SD1163	2SD1163A	
Collector to base voltage	V_{CBO}	300	350	V
Collector to emitter voltage	V_{CEO}	120	150	V
Emitter to base voltage	V_{EBO}	6	6	V
Collector current	I_C	7	7	A
Collector peak current	$I_{C\ (peak)}$	10	10	A
Collector surge current	$I_{C\ (surge)}$	20	20	A
Collector power dissipation	P_C*[1]	40	40	W
Junction temperature	Tj	150	150	°C
Storage temperature	Tstg	–55 to +150	–55 to +150	°C

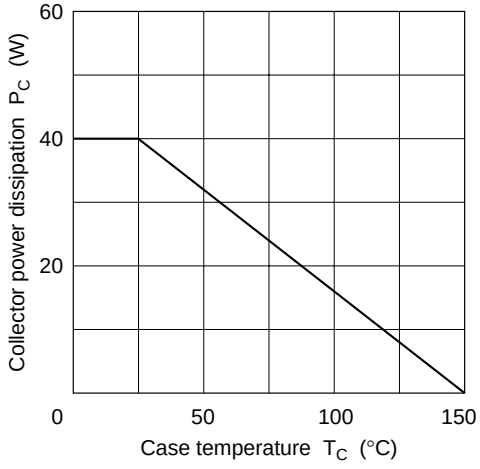
Note: 1. Value at T_C = 25°C.

Electrical Characteristics (Ta = 25°C)

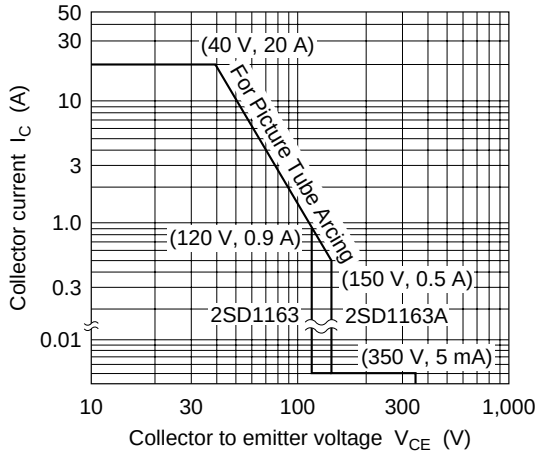
Item	Symbol	2SD1163			2SD1163A			Unit	Test conditions
		Min	Typ	Max	Min	Typ	Max		
Collector cutoff current	I_{CBO}	—	—	5	—	—	—	mA	V_{CB} = 300 V, I_E = 0
		—	—	—	—	—	5	mA	V_{CB} = 350 V, I_E = 0
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	120	—	—	150	—	—	V	I_C = 10 mA, R_{BE} = ∞
Emitter to base breakdown voltage	$V_{(BR)EBO}$	6	—	—	6	—	—	V	I_E = 10 mA, I_C = 0
DC current transfer ratio	h_{FE}	25	—	—	25	—	—		V_{CE} = 5 V, I_C = 5 A*[1]
Collector to emitter saturation voltage	$V_{CE\ (sat)}$	—	—	2.0	—	—	1.0	V	I_C = 5 A, I_B = 0.5 A*[1]
Base to emitter saturation voltage	$V_{BE\ (sat)}$	—	—	1.2	—	—	1.2	V	I_C = 5 A, I_B = 0.5 A*[1]
Fall time	t_f	—	—	0.5	—	—	0.5	µs	I_{CP} = 3.5 A, I_{B1} = 0.45 A

Note: 1. Pulse test.

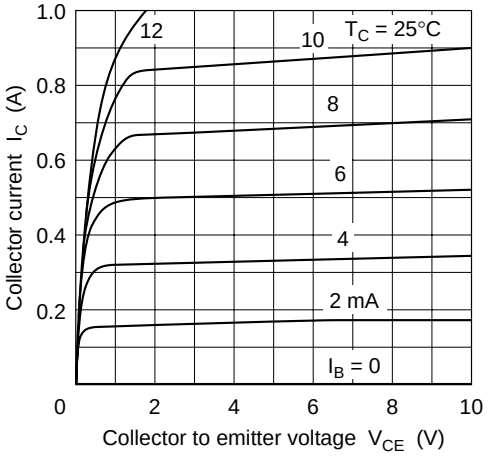
Maximum Collector Dissipation Curve



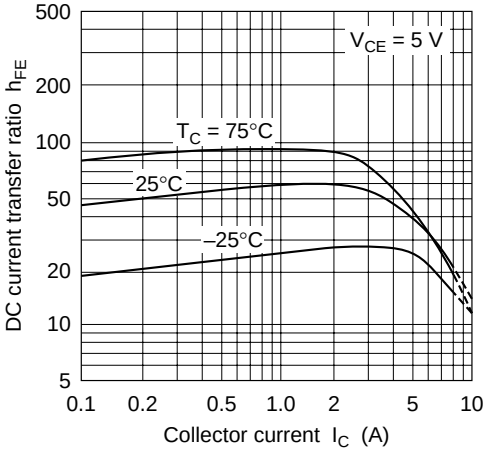
Area of Safe Operation



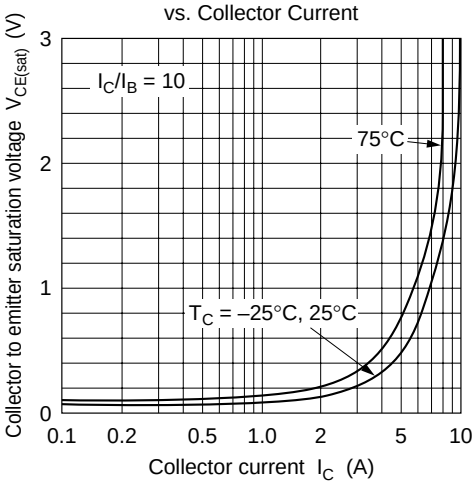
Typical Output Characteristics



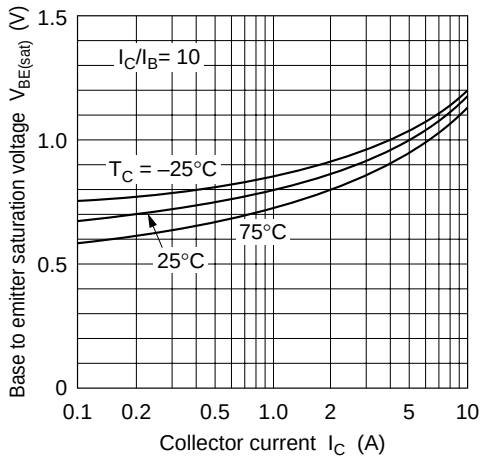
DC Current Transfer Ratio vs. Collector Current



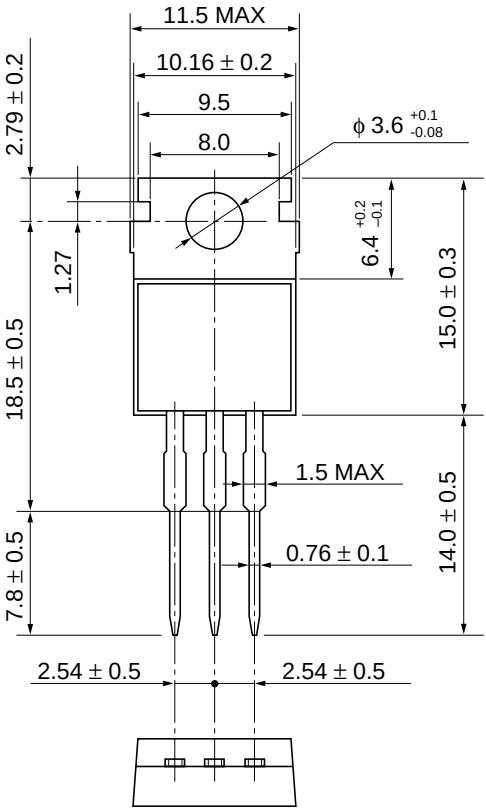
Collector to Emitter Saturation Voltage vs. Collector Current

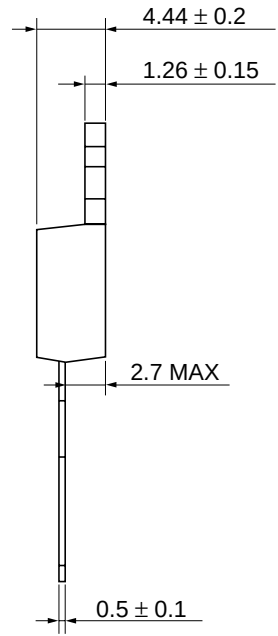


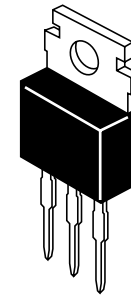
Base to Emitter Saturation Voltage vs. Collector Current



Unit: mm







Hitachi Code	TO-220AB
JEDEC	Conforms
EIAJ	Conforms
Weight (reference value)	1.8 g

Pb Free Plating Product

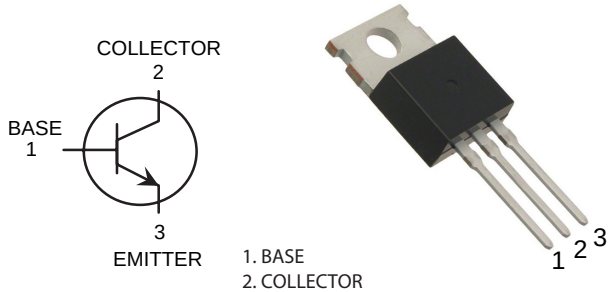
2SD1163/2SD1163A

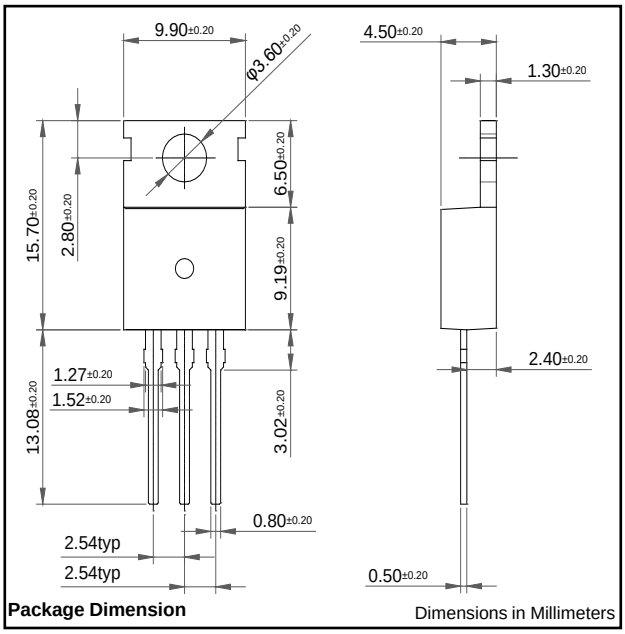
NPN Silicon Epitaxial Power Transistor

FEATURES:

* Medium Power Linear Switching Applications
* Low collector saturation voltage

TV horizontal deflection output





Absolute maximum ratings (Ta=25℃)

SYMBOL	PARAMETER		CONDITIONS	VALUE	UNIT
V_{CBO}	Collector-base voltage	2SD1163	Open emitter	300	V
		2SD1163A		350	
V_{CEO}	Collector-emitter voltage	2SD1163	Open base	120	V
		2SD1163A		150	
V_{EBO}	Emitter-base voltage		Open collector	6	V
I_C	Collector current			7	A
I_{CM}	Collector current-peak			10	A
$I_{C(surge)}$	Collector current-surge			20	A
P_C	Collector power dissipation		T_C=25℃	40	W
T_j	Junction temperature			150	℃
T_{stg}	Storage temperature			-55~150	℃

CHARACTERISTICS

Tj=25℃ unless otherwise specified

SYMBOL	PARAMETER		CONDITIONS	MIN	TYP	MAX	UNIT
$V_{(BR)CEO}$	Collector-emitter breakdown voltage	2SD1163	I_C=10mA ;R_{BE}=∞	120			V
		2SD1163A		150			
$V_{(BR)EBO}$	Emitter-base breakdown voltage		I_E=10mA ;I_C=0	6			V
V_{CEsat}	Collector-emitter saturation voltage	2SD1163	I_C=5A, I_B=0.5A			2.0	V
		2SD1163A				1.0	
V_{BEsat}	Base-emitter saturation voltage		I_C=5A, I_B=0.5A			1.2	V
I_{CBO}	Collector cut-offcurrent	2SD1163	V_{CB}=300V;I_E=0			5	mA
		2SD1163A	V_{CB}=350V;I_E=0			5	mA
h_{FE}	DC current gain		I_C=5A ; V_{CE}=5V	25			

Switching times

t_f	Fall time	I_{CM}=3.5A;I_{B1} =0.45A			0.5	μs