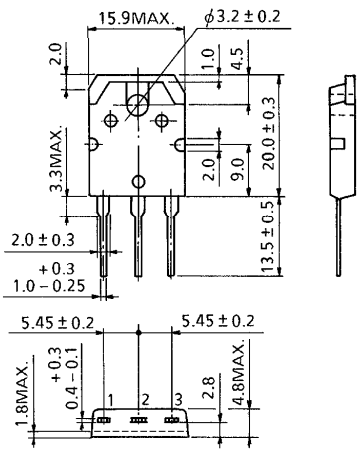
TOSHIBA TRANSISTOR SILICON NPN DOUBLE DIFFUSED TYPE (PCT PROCESS)

2SD1092

POWER REGULATOR FOR LINE OPERATED TV.

Unit in mm

- Excellent Wide Safe Operating Area. (80W·s at Tc=25°C)
- Included Avalanche Diode : $V_Z = 55^{+15V}_{-10V}$
- High DC Current Gain : h_{FE}=500 (Min.) (Tc=25°C)
- High Collector Power Dissipation Capability : 80W at 25°C Case Temperature



1. BASE
2. COLLECTOR (HEAT SINK)
3. EMITTER

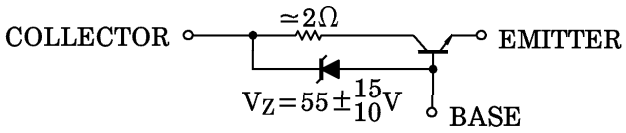
JEDEC	—
EIAJ	—
TOSHIBA	2-16B1A

Weight : 4.6g

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Base Voltage		V_{CBO}	55^{+15}_{-10}	V
Collector-Emitter Voltage		V_{CEO}	55^{+15}_{-10}	V
Emitter-Base Voltage		V_{EBO}	5	V
Collector Current	DC	I_C	4	A
	Pulse	I_{CP}	20	A
Collector Power Dissipation (Tc=25°C)		P_C	80	W
Junction Temperature		T_j	150	°C
Storage Temperature Range		T_{stg}	−55~150	°C

EQUIVALENT CIRCUIT



ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=10mA, I_E=0	45	55	70	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=100mA, I_B=0	45	55	70	V
Emitter Cut-off Current	I_{EBO}	V_{EB}=5V, I_C=0	—	—	10	μA
DC Current Gain	h_{FE}	V_{CE}=5V, I_C=500mA	500	1000	2500	
Collector-Emitter Saturation Voltage	$V_{CE(sat)(1)}$	I_C=500mA, I_B=2mA	—	—	2.0	V
Collector-Emitter Saturation Voltage	$V_{CE(sat)(2)}$	I_C=1.0A, I_B=20mA	—	—	3.0	V
Base-Emitter Voltage	V_{BE}	V_{CE}=5V, I_C=500mA	0.50	0.65	0.80	V
Allowable Energy (Tc=25°C)	E_T	Application circuit	80	—	—	W·s

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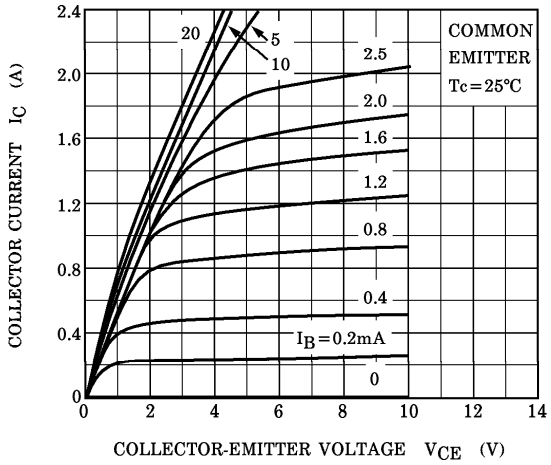
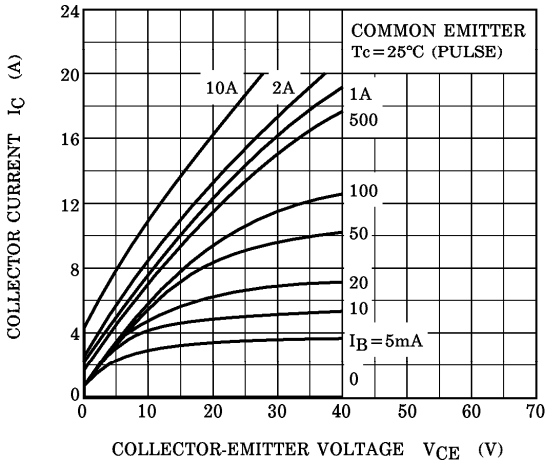
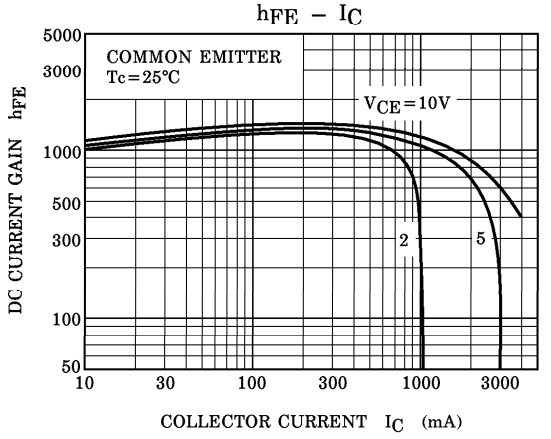
I_C – V_{CE} (LOW VOLTAGE REGION)



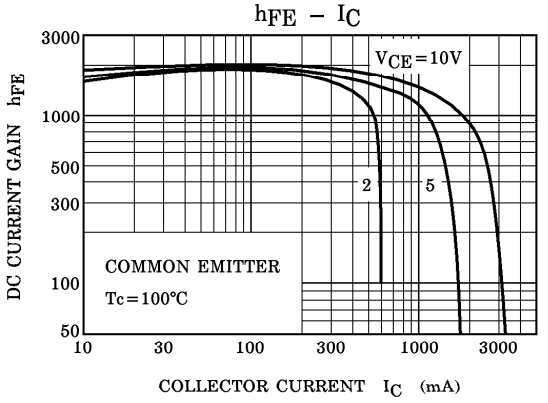
I_C – V_{CE} (HIGH CURRENT REGION)



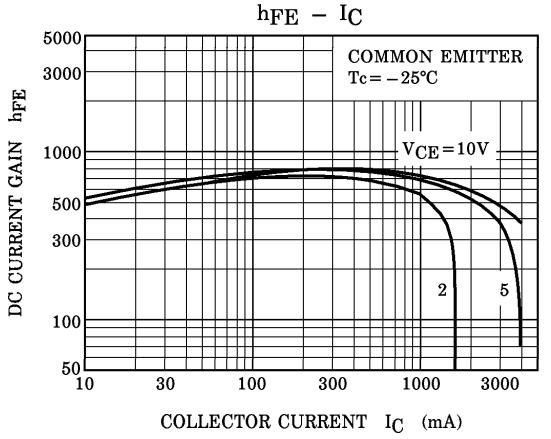
h_{FE} – I_C



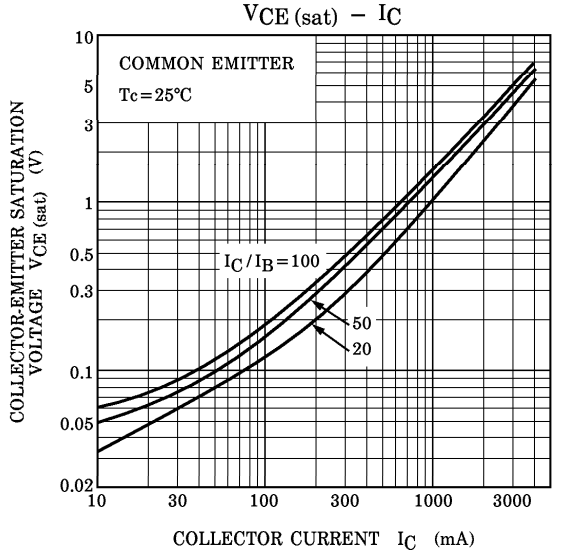
h_{FE} – I_C



h_{FE} – I_C



$V_{CE\,(sat)}$ – I_C



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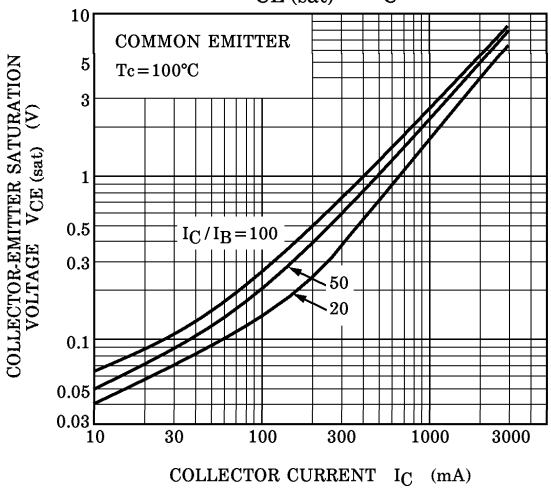
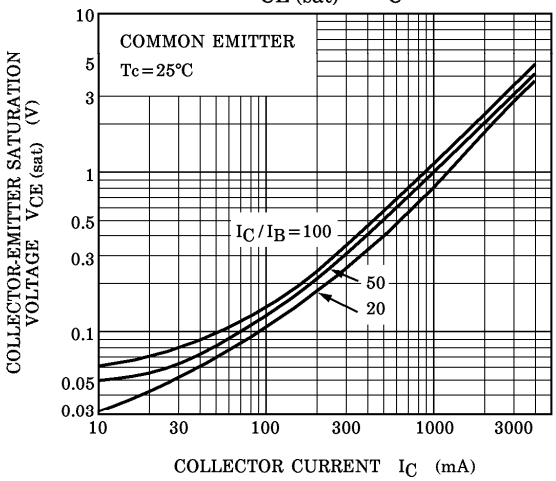
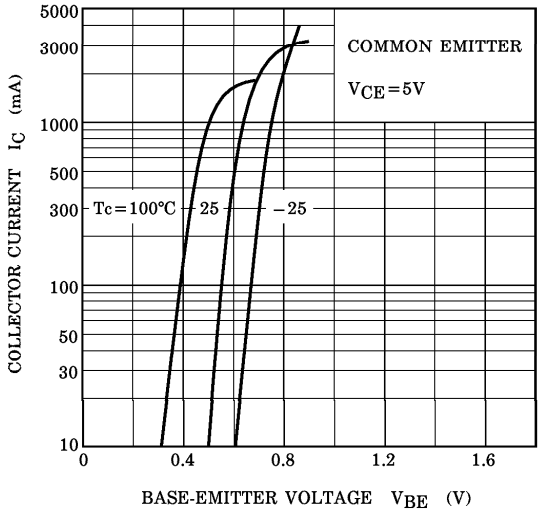
$V_{CE\,(sat)}$ – I_C



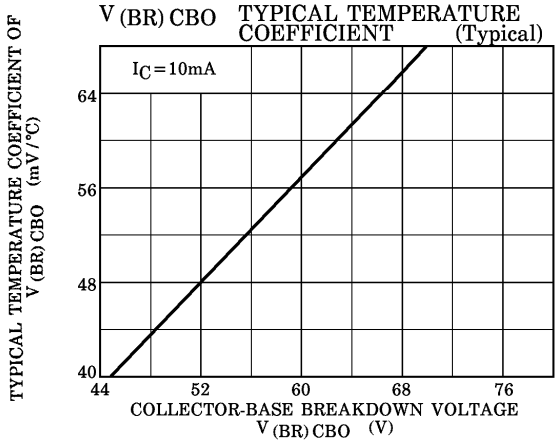
$V_{CE\,(sat)}$ – I_C



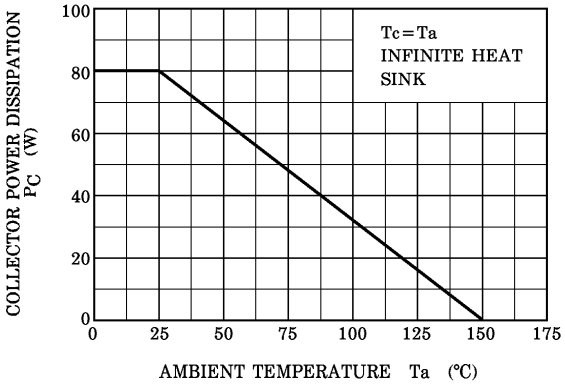
I_C – V_{BE}



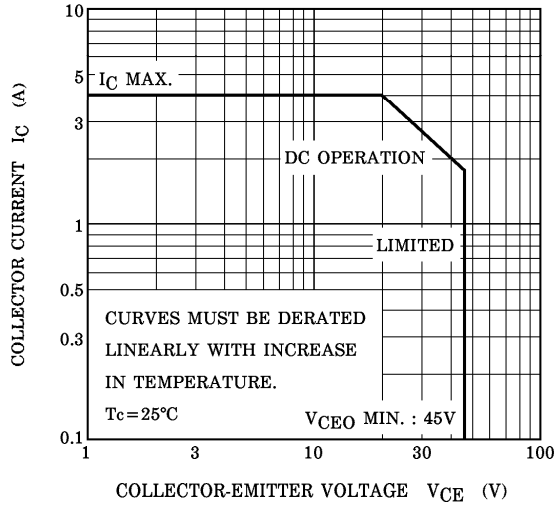
$V_{(BR)\,CBO}$ TYPICAL TEMPERATURE COEFFICIENT (Typical)



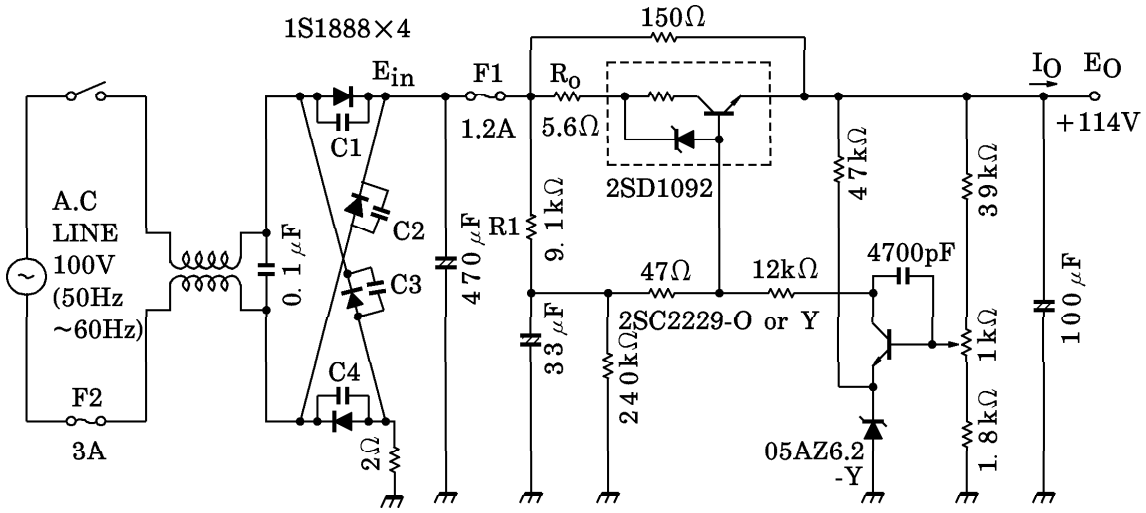
P_C – Ta



SAFE OPERATION AREA (DC)

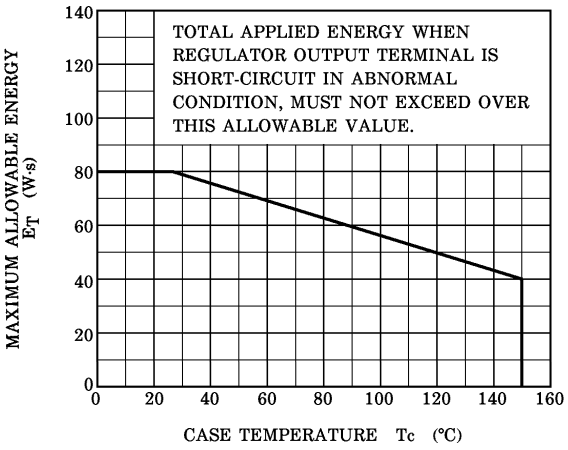


APPLICATION CIRCUIT

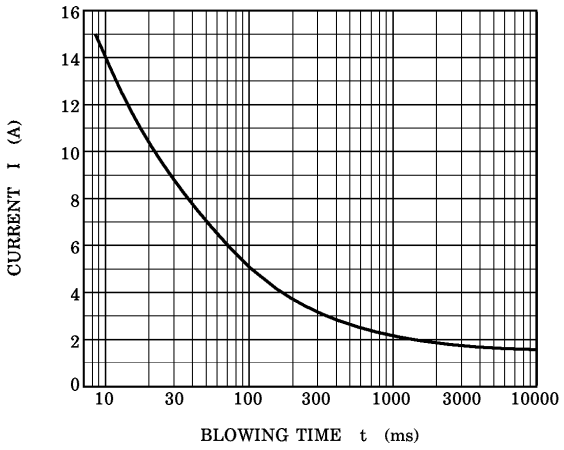


C1, C2, C3, C4 : 0.0047μF

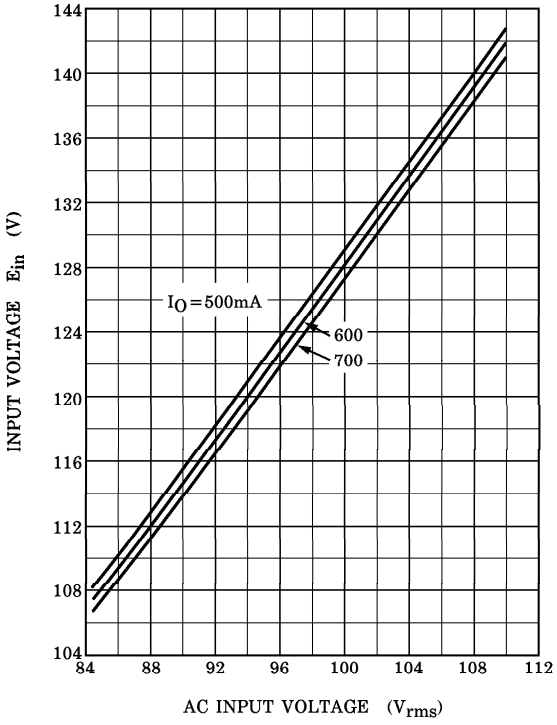
E_T – Tc



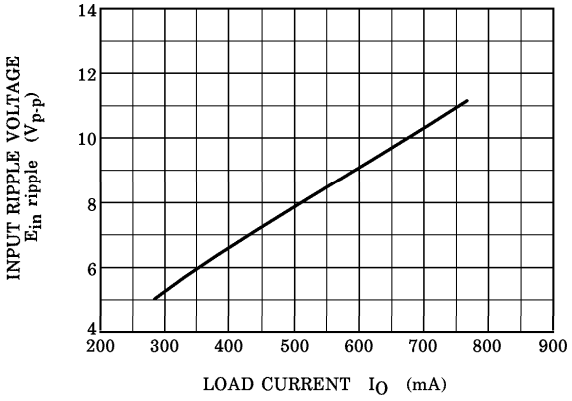
FUSE F_1 : I – t



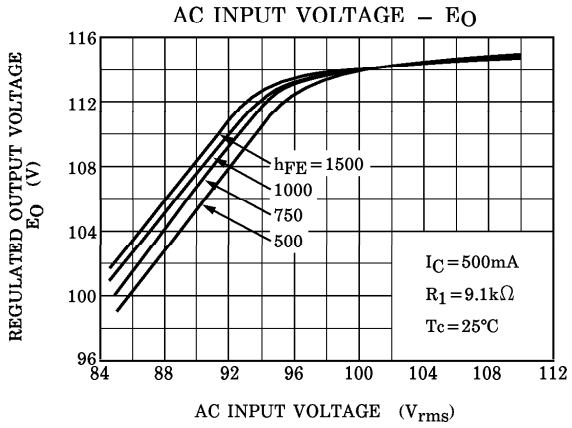
AC INPUT VOLTAGE – E_{in}



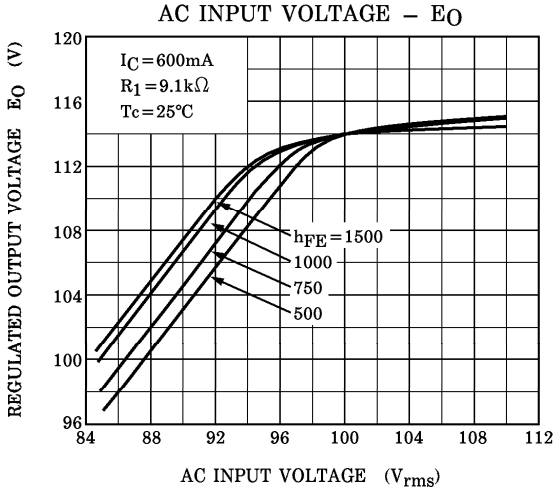
I_O – E_{in} ripple



AC INPUT VOLTAGE – E_O



AC INPUT VOLTAGE – E_O



AC INPUT VOLTAGE – E_O