

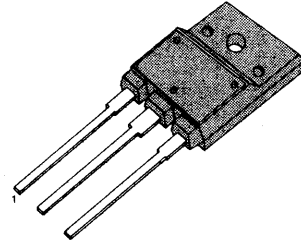
**COLOR TV HORIZONTAL OUTPUT
APPLICATIONS (DAMPER DIODE BUILT IN)**

High Collector-Base Voltage $V_{CB0}=1500V$

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

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	V_{CB0}	1500	V
Collector-Emitter Voltage	V_{CEO}	800	V
Emitter-Base Voltage	V_{EB0}	6	V
Collector Current	I_C	2.5	A
Collector Current (Peak)	I_{Cp}	10	A
Collector Dissipation ($T_C=25^{\circ}C$)	P_C	50	W
Junction Temperature	T_J	150	$^{\circ}C$
Storage Temperature	T_{stg}	-55~150	$^{\circ}C$

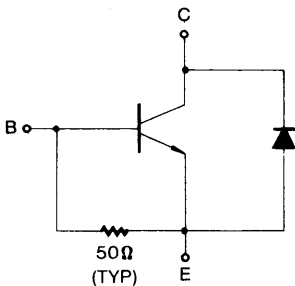
TO-3P(F)



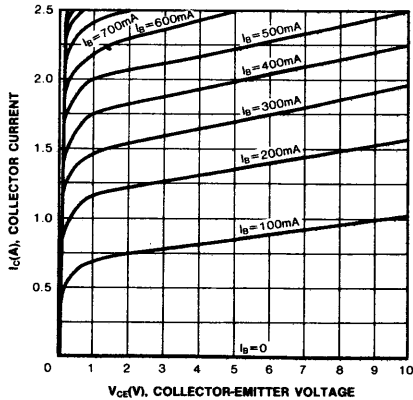
1. Base 2. Collector 3. Emitter

ELECTRICAL CHARACTERISTICS ($T_a=25^{\circ}C$)

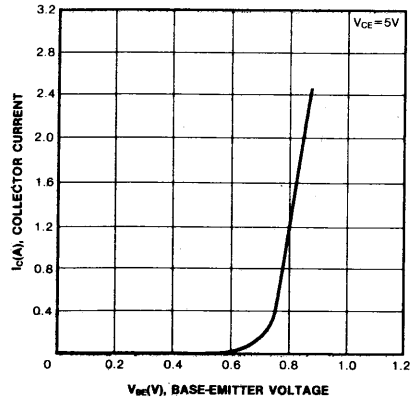
Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Collector Cutoff Current	I_{CBO}	$V_{CB}=800V, I_E=0$			10	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=4V, I_C=0$	40		130	mA
DC Current Gain	h_{FE}	$V_{CE}=5V, I_C=0.5A$	8			
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=2A, I_B=0.6A$			8	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=2A, I_B=0.6A$			1.5	V
Current Gain Bandwidth Product	f_T	$V_{CE}=10V, I_C=0.5A$		3		MHz
Damper Diode Turn On Voltage	V_f	$I_f=2.5A$			2	V
Fall Time	t_f	$I_C=2A, I_{B1}=0.6A$ $I_{B2}=-1.2A, V_{CC}=200V$ $RL=100\Omega$			0.4	μS



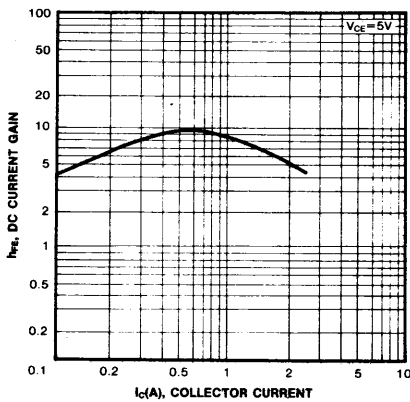
STATIC CHARACTERISTIC



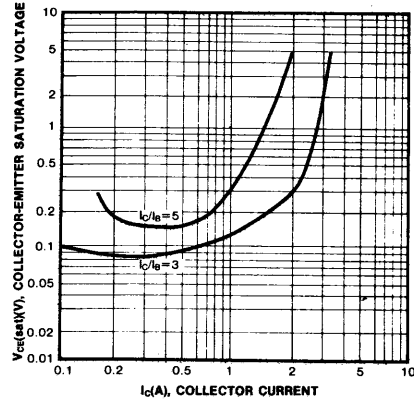
BASE-EMITTER ON VOLTAGE



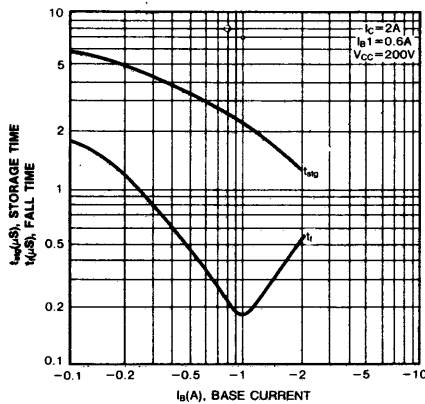
DC CURRENT GAIN



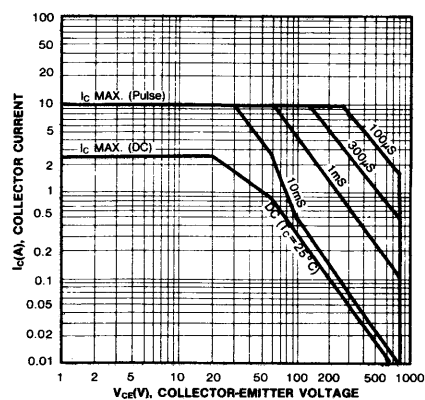
COLLECTOR-EMITTER SATURATION VOLTAGE

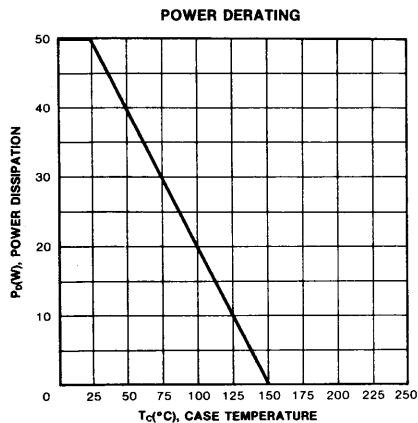
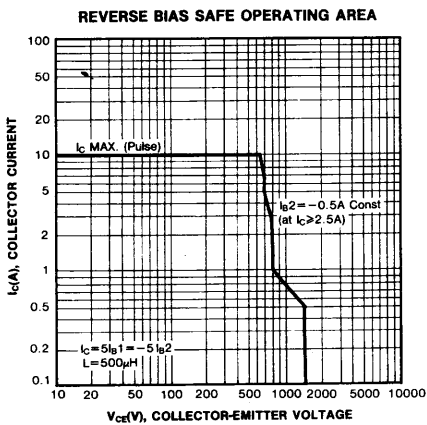


TURN ON TIME



SAFE OPERATING AREA



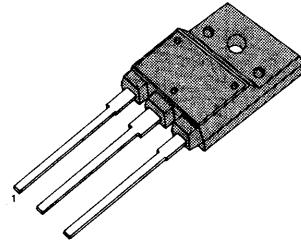


**COLOR TV HORIZONTAL OUTPUT
APPLICATIONS (DAMPER DIODE BUILT IN)**

 High Collector-Base Voltage $V_{CBO} = 1500V$
ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ C$)

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	V_{CBO}	1500	V
Collector-Emitter Voltage	V_{CEO}	800	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current	I_C	3.5	A
Collector Current (Peak)	I_{Cp}	10	A
Collector Dissipation $T_C = 25^\circ C$	P_C	50	W
Junction Temperature	T_J	150	$^\circ C$
Storage Temperature	T_{stg}	$-55 \sim 150$	$^\circ C$

TO-3P(F)

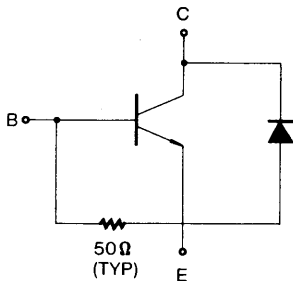


1. Base 2. Collector 3. Emitter

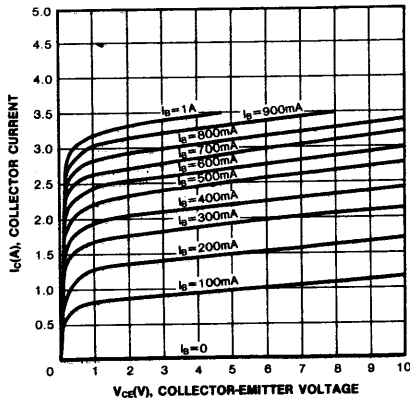
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ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ C$)

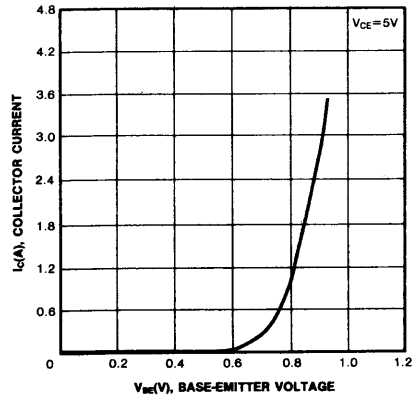
Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Collector Cutoff Current	I_{CBO}	$V_{CB} = 800V, I_E = 0$			10	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 4V, I_C = 0$	40		130	mA
DC Current Gain	h_{FE}	$V_{CE} = 5V, I_C = 0.5A$	8			
Collector Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 2.5A, I_B = 0.8A$			8	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 2.5A, I_B = 0.8A$			1.5	V
Current Gain Bandwidth Product	f_T	$V_{CE} = 10V, I_C = 0.5A$		3		MHz
Damper Diode Turn On Voltage	V_i	$I_i = 3.5A$			2	V
Fall Time	t_f	$I_C = 3A, I_B1 = 0.8A$ $I_B2 = -1.6A, V_{CC} = 200V$ $R_L = 66.7\Omega$			0.4	μS



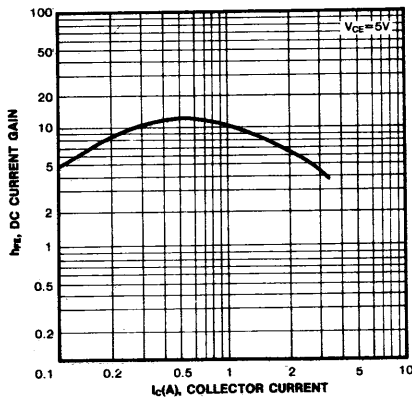
STATIC CHARACTERISTIC



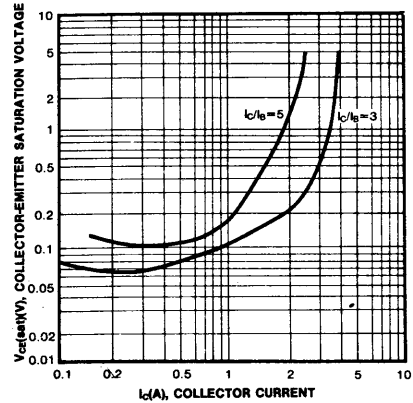
BASE-EMITTER ON VOLTAGE



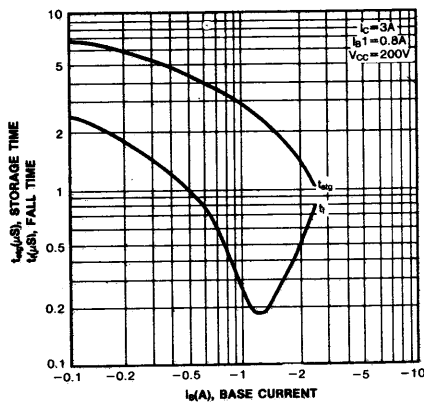
DC CURRENT GAIN



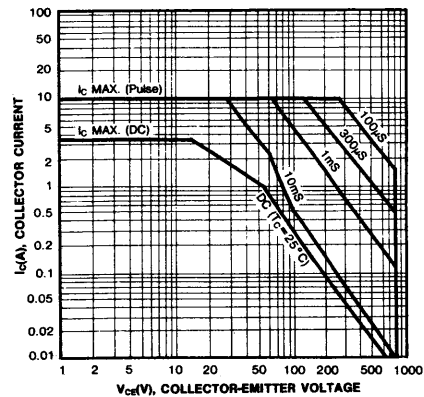
COLLECTOR-EMITTER SATURATION VOLTAGE

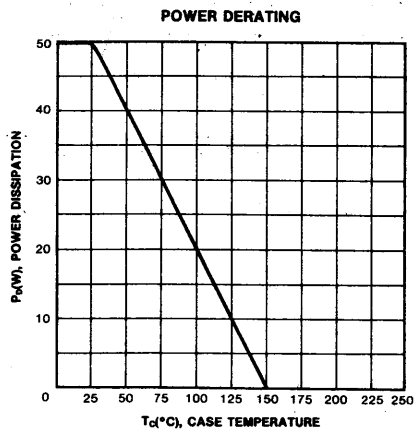
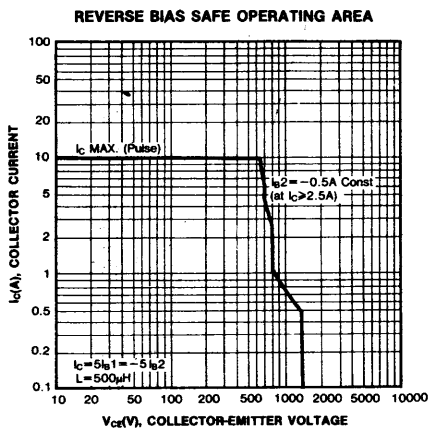


TURN ON TIME



SAFE OPERATING AREA





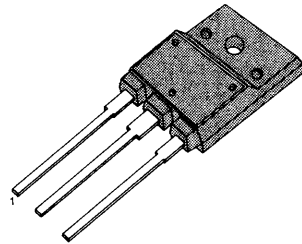
COLOR TV HORIZONTAL OUTPUT APPLICATIONS (DAMPER DIODE BUILT IN)

High Collector-Base Voltage $V_{CB0} = 1500V$

ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ C$)

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	V_{CB0}	1500	V
Collector-Emitter Voltage	V_{CEO}	800	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current	I_C	5	A
Collector Current (Peak)	I_C	16	A
Collector Dissipation ($T_C = 25^\circ C$)	P_C	60	W
Junction Temperature	T_J	150	$^\circ C$
Storage Temperature	T_{stg}	$-55 \sim 150$	$^\circ C$

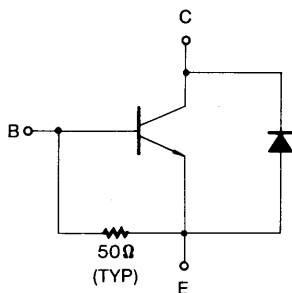
TO-3P(F)



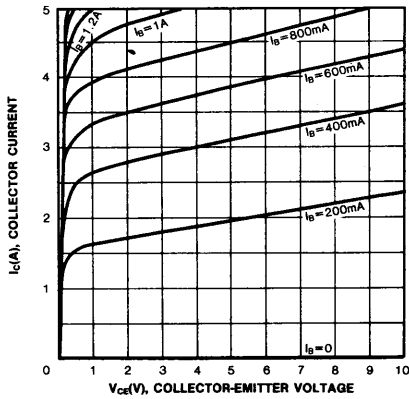
1. Base 2. Collector 3. Emitter

ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ C$)

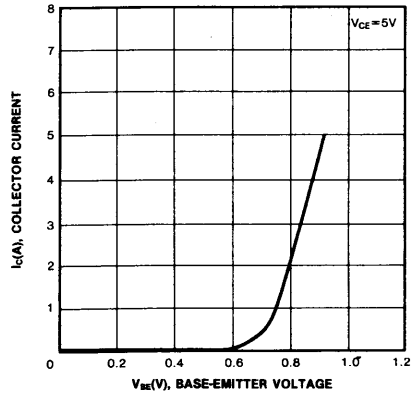
Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Collector Cutoff Current	I_{CBO}	$V_{CB} = 800V, I_E = 0$			10	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 4V, I_C = 0$	40		130	mA
DC Current Gain	h_{FE}	$V_{CE} = 5V, I_C = 1A$	8			
Collector Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 4A, I_B = 0.8A$			5	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 4A, I_B = 0.8A$			1.5	V
Current Gain Bandwidth Product	f_T	$V_{CE} = 10V, I_C = 1A$		3		MHz
Damper Diode Turn On Voltage	V_f	$I_f = 5A$			2	V
Fall Time	t_f	$I_C = 4A, I_{B1} = 0.8A$ $I_{B2} = -1.6A, V_{CC} = 200V$ $R_L = 50\Omega$			0.4	μS



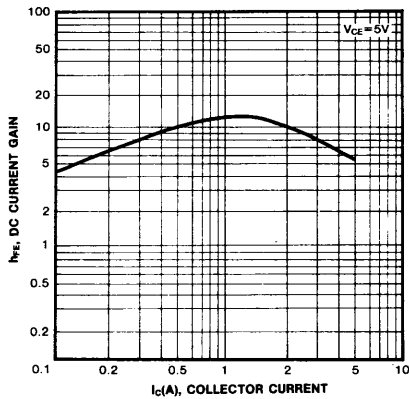
STATIC CHARACTERISTIC



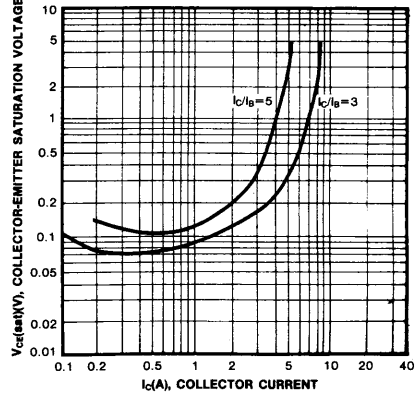
BASE-EMITTER ON VOLTAGE



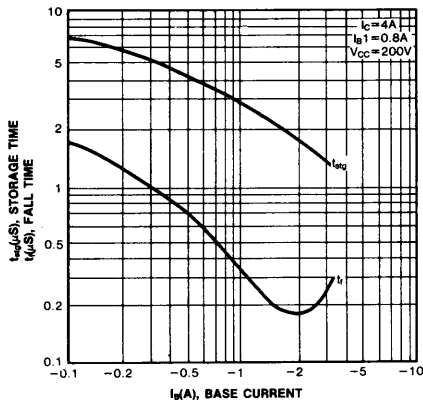
DC CURRENT GAIN



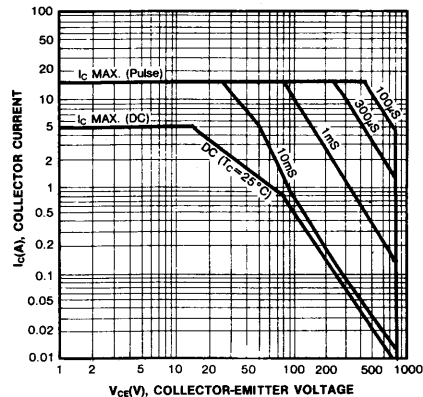
COLLECTOR-EMITTER SATURATION VOLTAGE

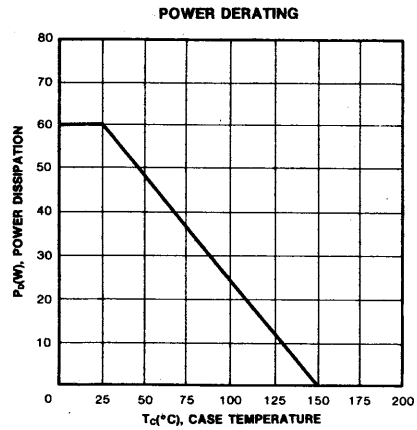
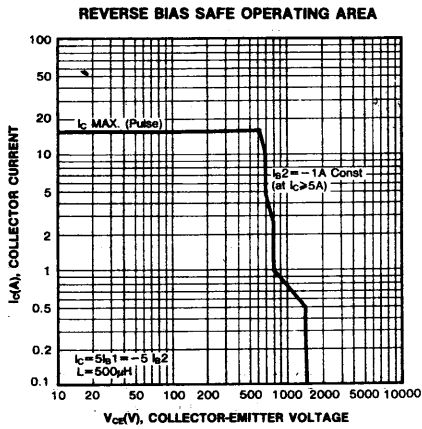


TURN ON TIME



SAFE OPERATING AREA

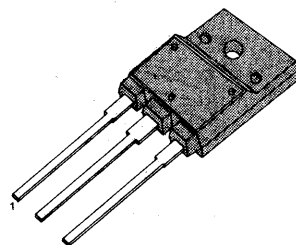




COLOR TV HORIZONTAL OUTPUT
APPLICATIONS (DAMPER DIODE BUILT IN)High Collector-Base Voltage $V_{CB0} = 1500V$ ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ C$)

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	V_{CB0}	1500	V
Collector-Emitter Voltage	V_{CEO}	800	V
Emitter-Base Voltage	V_{EB0}	6	V
Collector Current	I_C	6	A
Collector Current (Peak)	I_{Cp}	16	A
Collector Dissipation ($T_C = 25^\circ C$)	P_C	60	W
Junction Temperature	T_J	150	$^\circ C$
Storage Temperature	T_{stg}	$-55 \sim 150$	$^\circ C$

TO-3P(F)

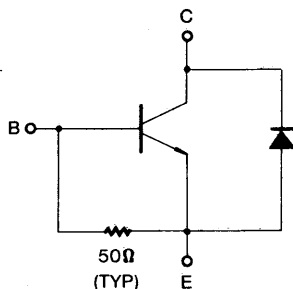


1. Base 2. Collector 3. Emitter

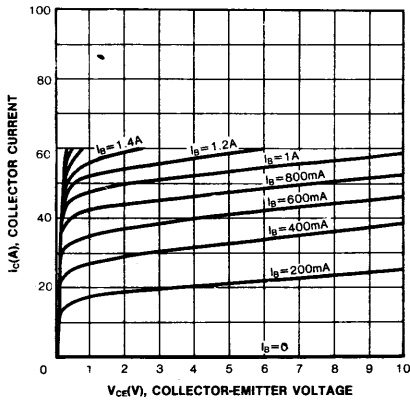
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ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ C$)

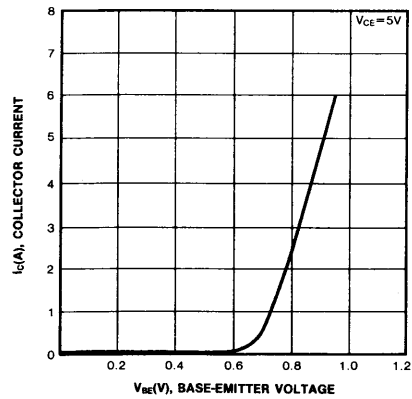
Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Collector Cutoff Current	I_{CBO}	$V_{CB} = 800V, I_E = 0$			10	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 4V, I_C = 0$	40		130	mA
DC Current Gain	h_{FE}	$V_{CE} = 5V, I_C = 1A$	8			
Collector Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 5A, I_B = 1A$			5	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 5A, I_B = 1A$			1.5	V
Current Gain Bandwidth Product	f_T	$V_{CE} = 10V, I_C = 1A$		3		MHz
Damper Diode Turn On Voltage	V_f	$I_f = 6A$			2	V
Fall Time	t_f	$I_C = 5A, I_{B1} = 1A$ $I_{B2} = -2A, V_{CC} = 200V$ $RL = 40\Omega$			0.4	μS



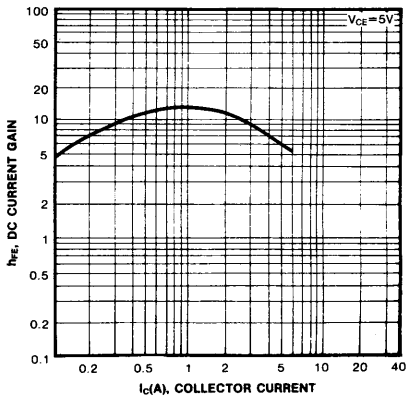
STATIC CHARACTERISTIC



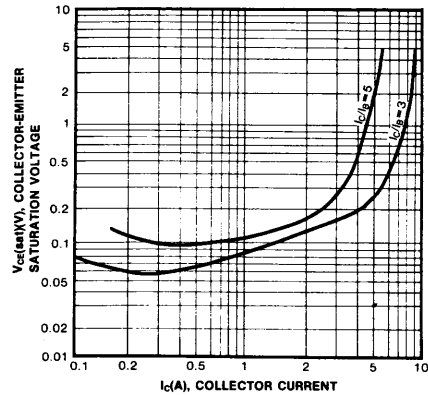
BASE-EMITTER ON VOLTAGE



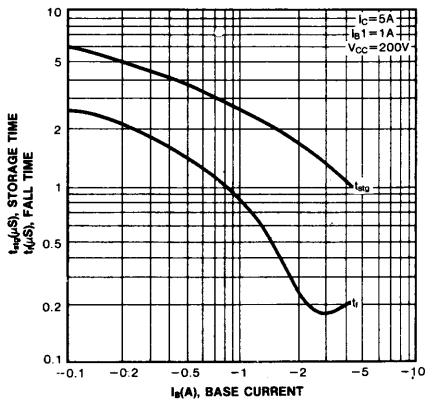
DC CURRENT GAIN



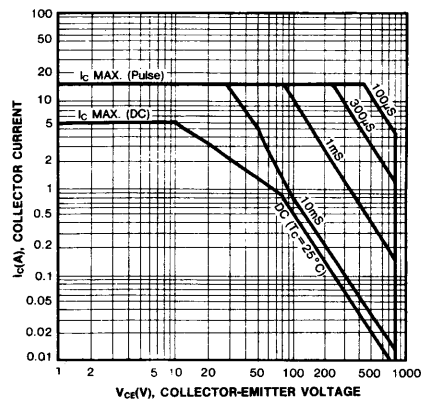
COLLECTOR-EMITTER SATURATION VOLTAGE

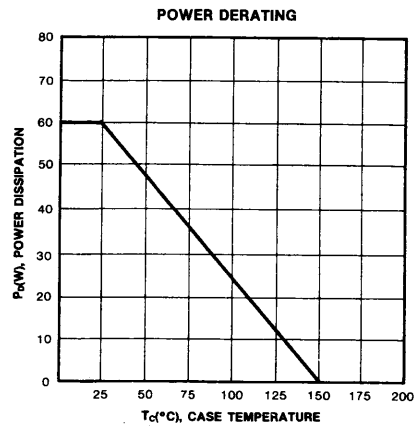
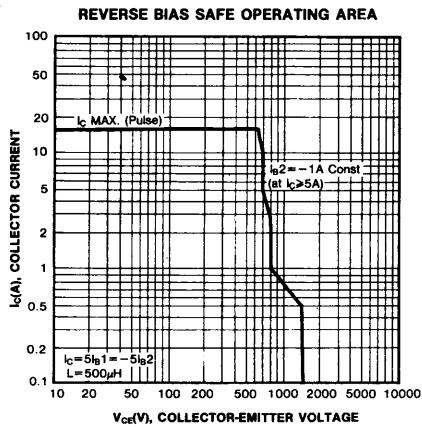


TURN ON TIME



SAFE OPERATING AREA

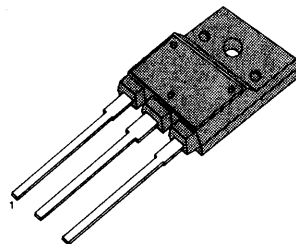




COLOR TV HORIZONTAL OUTPUT
APPLICATIONSHigh Collector-Base Voltage $V_{CBO}=1500V$ ABSOLUTE MAXIMUM RATINGS ($T_a=25^\circ C$)

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	V_{CBO}	1500	V
Collector-Emitter Voltage	V_{CEO}	800	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current	I_C	2.5	A
Collector Current (Peak)	I_C	10	A
Collector Dissipation ($T_C=25^\circ C$)	P_C	50	W
Junction Temperature	T_J	150	$^\circ C$
Storage Temperature	T_{stg}	-55~150	$^\circ C$

TO-3P(F)

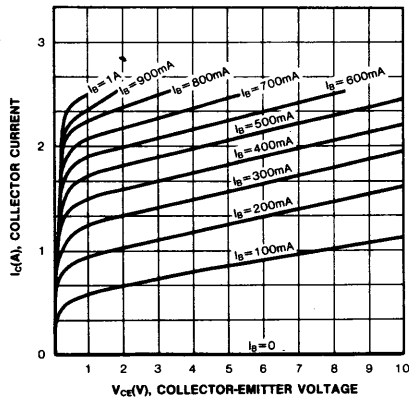


1. Base 2. Collector 3. Emitter

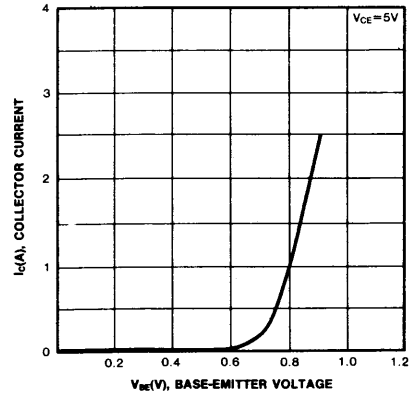
ELECTRICAL CHARACTERISTICS ($T_a=25^\circ C$)

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Collector Cutoff Current	I_{CBO}	$V_{CB}=800V, I_E=0$			10	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=5V, I_C=0$			1	mA
DC Current Gain	h_{FE}	$V_{CE}=5V, I_C=0.5A$	8			
Collector Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=2A, I_B=0.6A$			8	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=2A, I_B=0.6A$			1.5	V
Current Gain Bandwidth Product	f_T	$V_{CE}=10V, I_C=0.5A$		3		MHz
Fall Time	t_f	$I_C=2A, I_{B1}=0.6A$ $I_{B2}=-1.2A, R_L=100\Omega$			0.4	μS

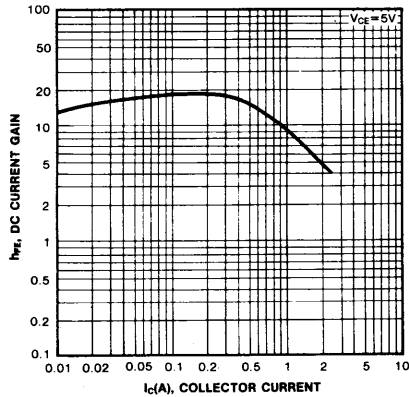
STATIC CHARACTERISTIC



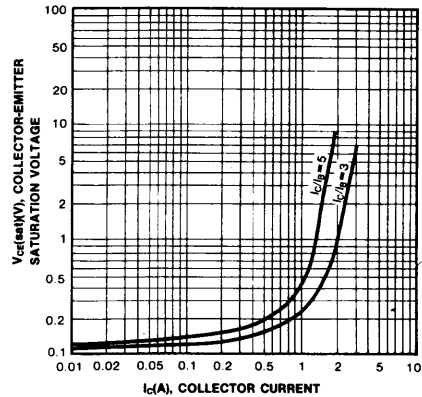
BASE-EMITTER ON VOLTAGE



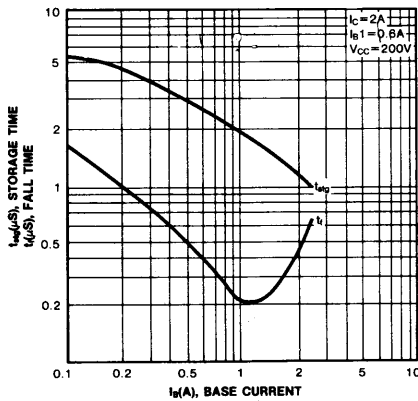
DC CURRENT GAIN



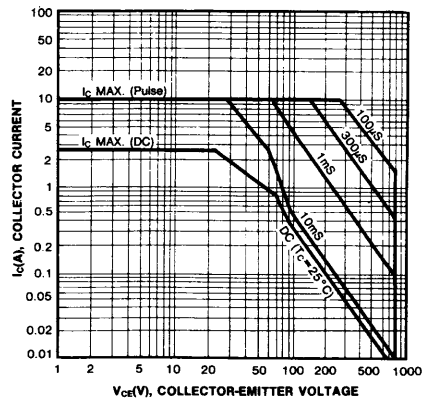
COLLECTOR-EMITTER SATURATION VOLTAGE

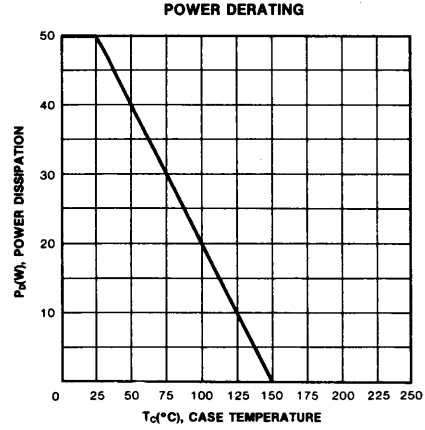
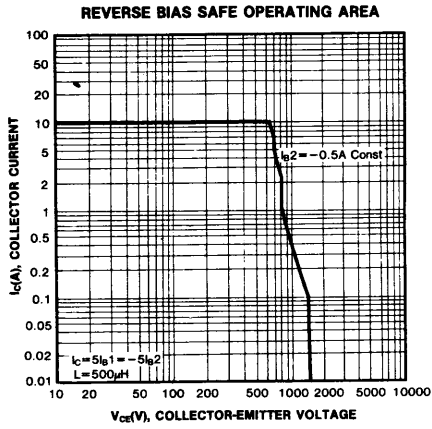


TURN ON TIME



SAFE OPERATING AREA

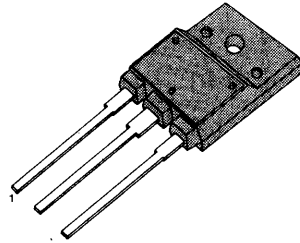




COLOR TV HORIZONTAL OUTPUT
APPLICATIONSHigh Collector-Base Voltage $V_{CBO} = 1500V$ ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ C$)

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	V_{CBO}	1500	V
Collector-Emitter Voltage	V_{CEO}	800	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current	I_C	3.5	A
Collector Current (Peak)	I_{Cp}	10	A
Collector Dissipation ($T_C = 25^\circ C$)	P_C	50	W
Junction Temperature	T_J	150	$^\circ C$
Storage Temperature	T_{stg}	$-55 \sim 150$	$^\circ C$

TO-3P(F)

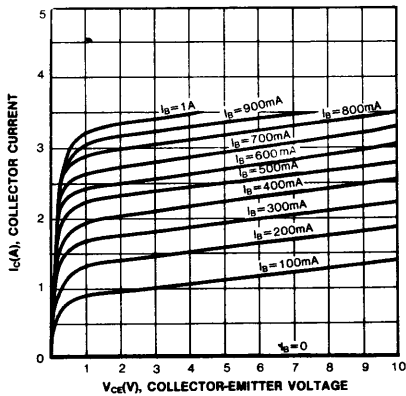


1. Base 2. Collector 3. Emitter

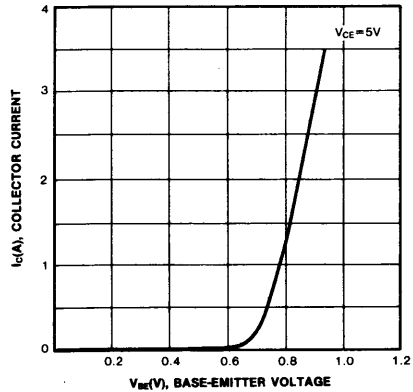
ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ C$)

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Collector Cutoff Current	I_{CBO}	$V_{CB} = 800V, I_E = 0$			10	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 5V, I_C = 0$			1	mA
DC Current Gain	h_{FE}	$V_{CE} = 5V, I_C = 0.5A$	8			
Collector Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 2.5A, I_B = 0.8A$			8	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 2.5A, I_B = 0.8A$			1.5	V
Current Gain Bandwidth Product	f_T	$V_{CE} = 10V, I_C = 0.5A$		3		MHz
Fall Time	t_f	$I_C = 3A, I_{B1} = 0.8A$ $I_{B2} = -1.6A, R_L = 66.7\Omega$			0.4	μS

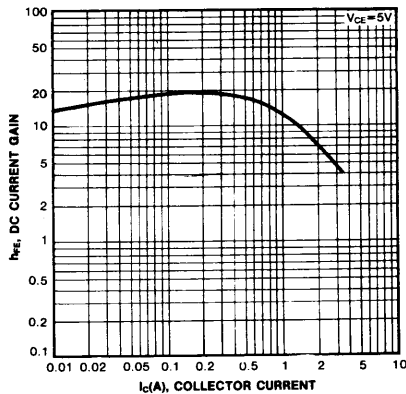
STATIC CHARACTERISTIC



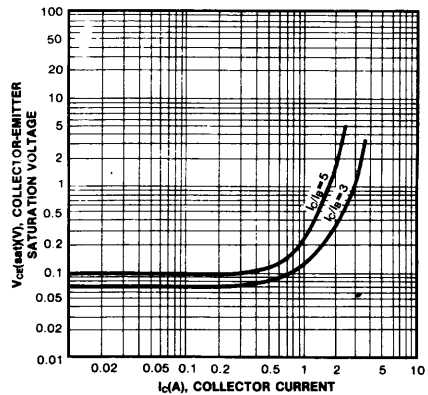
BASE-EMITTER ON VOLTAGE



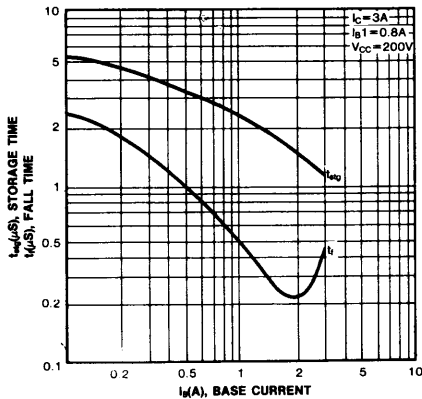
DC CURRENT GAIN



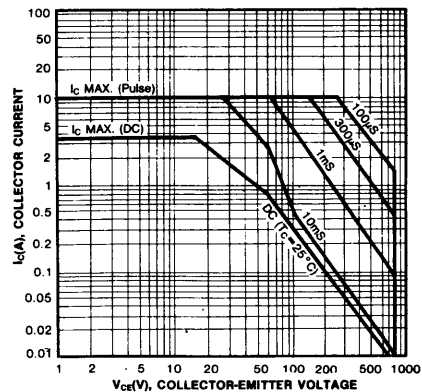
COLLECTOR-EMITTER SATURATION VOLTAGE



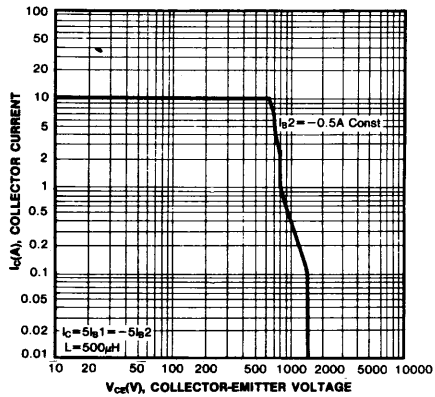
TURN ON TIME



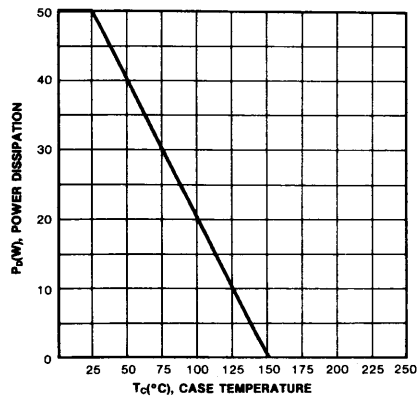
SAFE OPERATING AREA



REVERSE BIAS SAFE OPERATING AREA



POWER DERATING

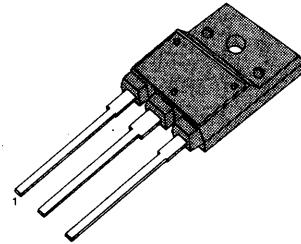


**COLOR TV HORIZONTAL OUTPUT
APPLICATIONS**

 High Collector-Base Voltage $V_{CB0} = 1500V$
ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ C$)

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	V_{CB0}	1500	V
Collector-Emitter Voltage	V_{CEO}	800	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current	I_C	5	A
Collector Current (Peak)	I_{Cp}	16	A
Collector Dissipation ($T_c = 25^\circ C$)	P_C	60	W
Junction Temperature	T_j	150	$^\circ C$
Storage Temperature	T_{stg}	$-55 \sim 150$	$^\circ C$

TO-3P(F)



1. Base 2. Collector 3. Emitter

ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ C$)

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Collector Cutoff Current	I_{CBO}	$V_{CB} = 800V, I_E = 0$			10	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 5V, I_C = 0$			1	mA
DC Current Gain	h_{FE}	$V_{CE} = 5V, I_C = 1A$	8			
Collector Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 4A, I_B = 0.8A$			5	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 4A, I_B = 0.8A$			1.5	V
Current Gain Bandwidth Product	f_T	$V_{CE} = 10V, I_C = 1A$		3		MHz
Fall Time	t_f	$I_C = 4A, I_{B1} = 0.8A$ $I_{B2} = -1.6A, R_L = 50\Omega$			0.4	μS

**NPN TRIPLE DIFFUSED
PLANAR SILICON TRANSISTOR**

The graph shows the relationship between collector current I_C (A) and collector-emitter voltage V_{CE} (V) for the 2N3055 transistor. The curves are labeled with base current I_B values: 1.2A, 1A, 800mA, 600mA, 400mA, 200mA, and $I_B = 0$. The curves show that I_C increases with V_{CE} and is approximately equal to I_B for $V_{CE} > 10V$.

Graph of collector current I_C (mA) versus base-emitter voltage V_{BE} (V) for a 2N4350 JFET at $V_{CE} = -5V$. The curve shows that I_C remains near zero until V_{BE} is approximately 0.6V, after which it increases sharply, reaching 5mA at $V_{BE} = 0.9V$.

A graph showing the DC current gain (h_{FE}) versus the collector current (I_C) for a 2N4350 PNP transistor. The y-axis is logarithmic, ranging from 0.1 to 100. The x-axis is also logarithmic, ranging from 0.02 to 10 A. The curve is labeled $V_{CE} = 5V$. The gain starts at approximately 15 at $I_C = 0.02$ A, peaks at about 20 at $I_C = 0.5$ A, and then decreases to about 5 at $I_C = 5$ A.

I_C (A)	h_{FE}
0.02	15
0.05	18
0.1	19
0.2	19
0.5	20
1	18
2	12
5	5

A graph showing the relationship between base current I_B (A) on the x-axis and storage time $t_{s(p)}(\mu s)$ and fall time $t_{f(p)}(\mu s)$ on the y-axis for a 2N4350 PNP transistor. The x-axis is logarithmic, ranging from 0.1 to 10 A. The y-axis is logarithmic, ranging from 0.2 to 10 μs . Two curves are plotted: $t_{s(p)}$ (storage time) and $t_{f(p)}$ (fall time). The storage time curve starts at approximately 7 μs for $I_B = 0.1$ A and decreases to about 1 μs at $I_B = 5$ A. The fall time curve starts at approximately 3 μs for $I_B = 0.1$ A, decreases to a minimum of about 0.25 μs at $I_B \approx 1.5$ A, and then increases to about 0.5 μs at $I_B = 5$ A. Test conditions are specified as $I_C = 4$ A, $I_{B1} = 0.8$ A, and $V_{CC} = 200$ V.

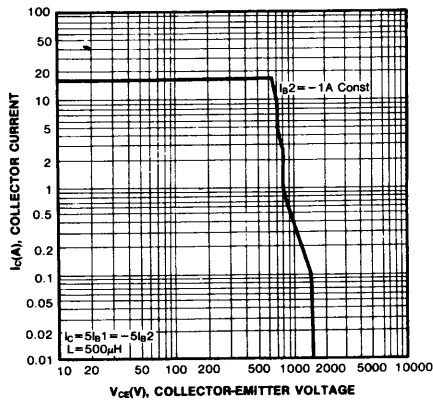
I_B (A)	$t_{s(p)}$ (μs)	$t_{f(p)}$ (μs)
0.1	7	3
0.2	5	2
0.5	3	1
1.0	2	0.5
1.5	1.5	0.25
2.0	1.2	0.3
5.0	1.0	0.5

Graph 1: Collector Current (I_C) vs. Collector-Emitter Voltage (V_{CE})

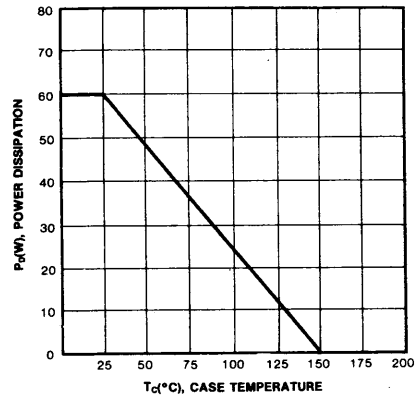
This graph shows the relationship between collector current (I_C) and collector-emitter voltage (V_{CE}) for the 2N4350 JFET. The y-axis represents I_C in Amperes (A) on a logarithmic scale from 0.01 to 100. The x-axis represents V_{CE} in Volts (V) on a logarithmic scale from 1 to 1000. Two curves are plotted: I_C MAX. (Pulse) and I_C MAX. (DC). The pulse curve shows a higher current capability than the DC curve. A note indicates $R_{\theta JA} = 25^\circ\text{C}$.

V_{CE} (V)	I_C MAX. (Pulse) (A)	I_C MAX. (DC) (A)
10	15	5
100	15	1
1000	1	0.01

REVERSE BIAS SAFE OPERATING AREA



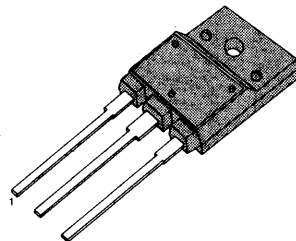
POWER DERATING



COLOR TV HORIZONTAL OUTPUT
APPLICATIONSHigh Collector-Base Voltage $V_{CB0} = 1500V$ ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ C$)

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	V_{CB0}	1500	V
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Collector Dissipation ($T_C = 25^\circ C$)	P_C	60	W
Junction Temperature	T_j	150	$^\circ C$
Storage Temperature	T_{stg}	$-55 \sim 150$	$^\circ C$

TO-3P(F)

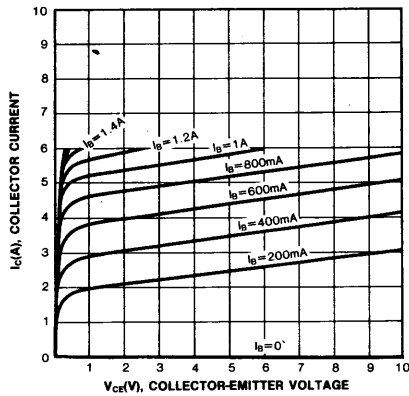


1. Base 2. Collector 3. Emitter

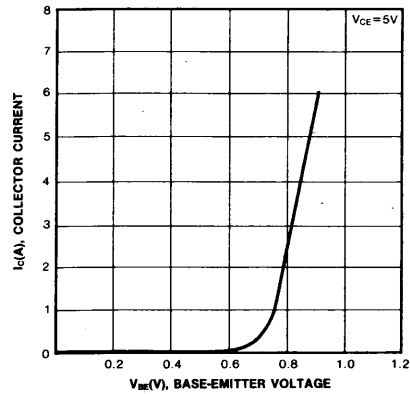
ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ C$)

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Collector Cutoff Current	I_{CBO}	$V_{CB} = 800V, I_E = 0$			10	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 5V, I_C = 0$			1	mA
DC Current Gain	h_{FE}	$V_{CE} = 5V, I_C = 1A$	8			
Collector Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 5A, I_B = 1A$			5	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 5A, I_B = 1A$			1.5	V
Current Gain Bandwidth Product	f_T	$V_{CE} = 10V, I_C = 1A$		3		MHz
Fall Time	t_f	$I_C = 5A, I_{B1} = 1A$ $I_{B2} = -2A, R_L = 40\Omega$			0.4	μS

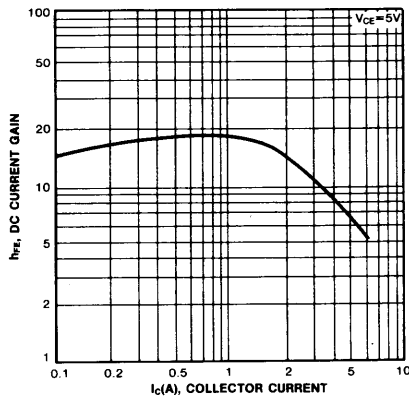
STATIC CHARACTERISTIC



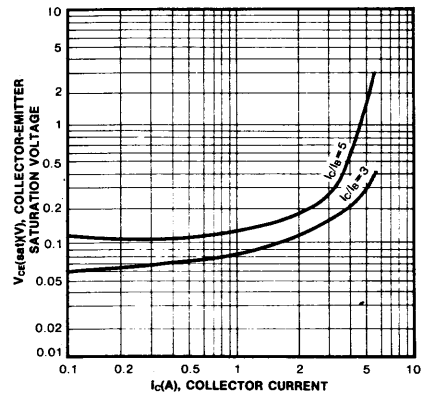
BASE-EMITTER ON VOLTAGE



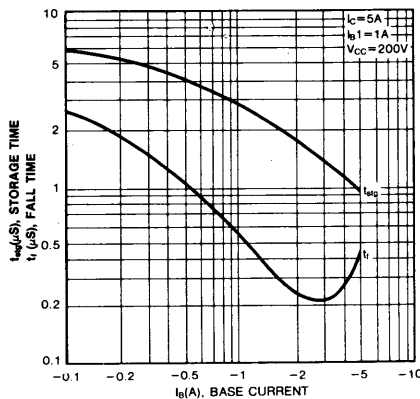
DC CURRENT GAIN



COLLECTOR-EMITTER SATURATION VOLTAGE



TURN ON TIME



SAFE OPERATING AREA

