MOSPEC

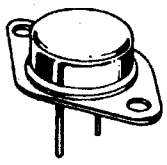
HORIZONTAL DEFLECTION POWER TRANSISTORS

...specifically designed for use in larg screen color deflection circuits.

FEATURES:
* High Voltage: V_{CBO}=1500V
* Low Saturation Voltage :$V_{CE(sat)}$=5.0V(Max.) @ I_C = 4.0 A
* High Speed :t_f =1.0 us(Max.) @ I_{CP} =4.0 A, I_{B1} = 0.8A
* Built-in Damper Type
* Glass Passivated Collector-Base Junction

NPN
2SD870

5 AMPERE
POWER
TRANSISTORS
1500 VOLTS
50 WATTS



TO-3

MAXIMUM RATINGS

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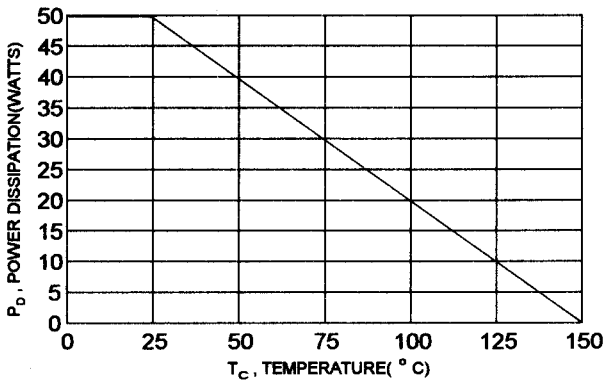
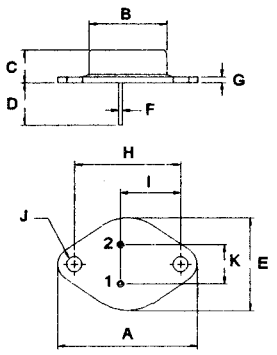
Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	V_{CBO}	1500	V
Collector-Emitter Voltage	V_{CEO}	600	V
Emitter-Base Voltage	V_{EBO}	5.0	V
Collector Current-Continuous	I_C	5.0	A
Base Current	I_B	2.5	A
Total Power Dissipation @T_C=25°C Derate above 25°C	P_D	50 0.4	W W/°C
Operating and Storage Junction Temperature Range	T_J, T_{STG}	- 65 to +150	°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance Junction to Case	Rθjc	2.5	°C/W

FIGURE -1 POWER DERATING





PIN 1.BASE
2.EMITTER
COLLECTOR(CASE)

DIM	MILLIMETERS	
	MIN	MAX
A	38.75	39.96
B	19.28	22.23
C	7.96	9.28
D	11.18	12.19
E	25.20	26.67
F	0.92	1.09
G	1.38	1.62
H	29.90	30.40
I	16.64	17.30
J	3.88	4.36
K	10.67	11.18

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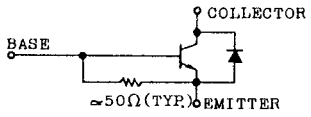
ELECTRICAL CHARACTERISTICS (T_c = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector Cutoff Current (V_{CB}=500 V, I_E= 0)	I_{CBO}		10	uA
Emitter-Base Voltage (I_E = 200 mA, I_C = 0)	V_{EBO}	5.0		V
ON CHARACTERISTICS (1)				
DC Current Gain (I_C = 1.0 A , V_{CE} = 5.0 V)	hFE	8.0		
Collector - Emitter Saturation Voltage (I_C = 4.0 A, I_B = 0.8 A)	$V_{CE(sat)}$		5.0	V
Base - Emitter Saturation Voltage (I_C = 4.0 A, I_B = 0.8 A)	$V_{BE(sat)}$		1.5	V
Forward Voltage (Damper Diode) (IF=5.0 A)	$-V_F$		2.0	V
DYNAMIC CHARACTERISTICS				
Current Gain - Bandwidth Product (I_C = 0.1 A , V_{CE} = 10 V, f = 1.0 MHz)	f_T	3.0(Typ)		MHz
Collector Output Capacitance (V_{CB} =10 V, I_E = 0, f = 1.0 MHz)	Cob	170(Typ)		pF
SWITCHING CHARATERISTICS				
Fall Time	I_C= 4.0A ,I_{B1} (end)=0.8A	tf		1.0	μ s

(1) Pulse Test: Pulse width ≦ 300 μs , Duty Cycle ≦ 2.0%

EQUIVALENT CIRCUIT



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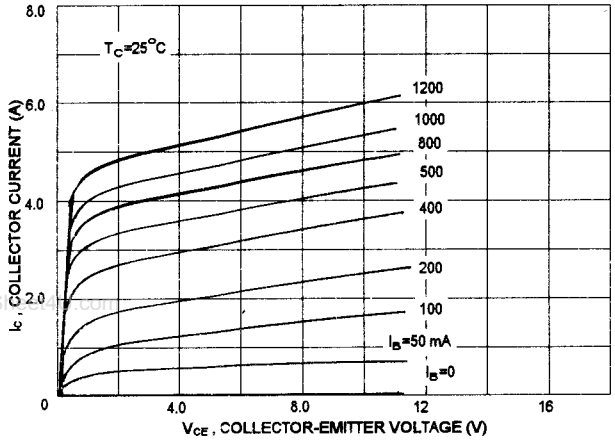
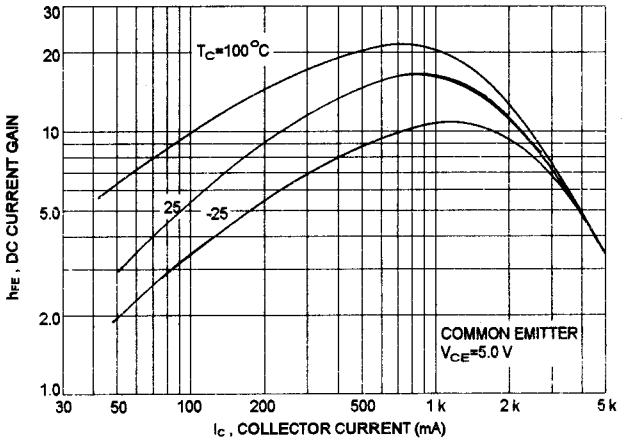
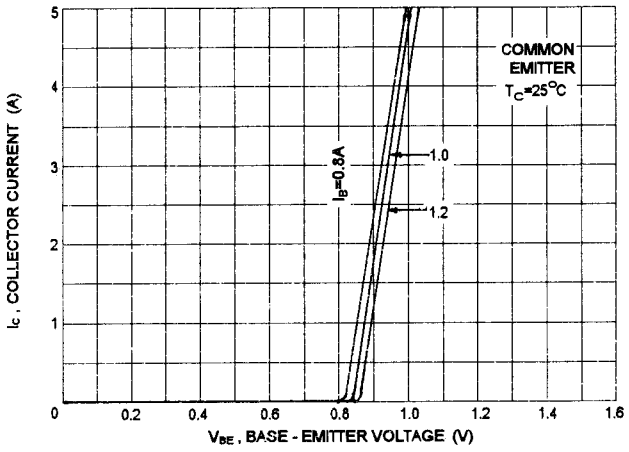
Ic - Vce



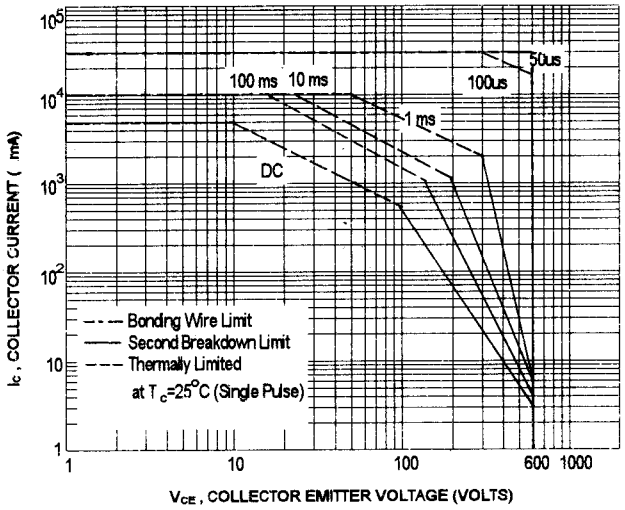
DC CURRENT GAIN



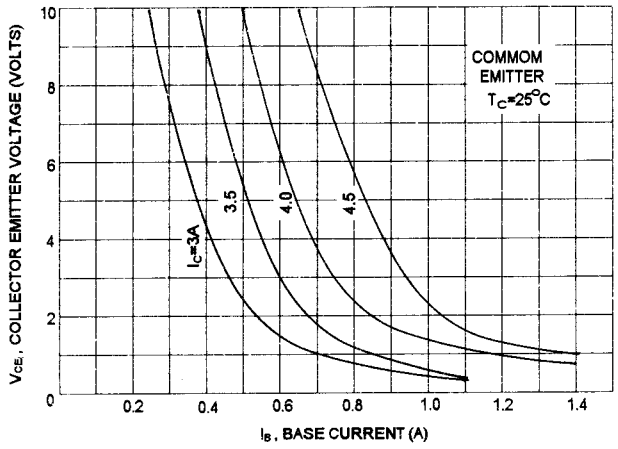
Ic - V_{BE}



ACTIVE-REGION SAFE OPERATING AREA (SOA)



COLLECTOR SATURATION REGION



There are two limitation on the power handling ability of a transistor:average junction temperature and second breakdown safe operating area curves indicate I_C-V_{CE} limits of the transistor that must be observed for reliable operation i.e., the transistor must not be subjected to greater dissipation than curves indicate.

The data of SOA curve is base on $T_{J(PK)}$=150 °C;T_C is variable depending on conditions. second breakdown pulse limits are valid for duty cycles to 10% provided $T_{J(PK)}$≤150°C,At high case temperatures, thermal limita - tion will reduce the power that can be handled to values less than the limitations imposed by second breakdown.

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