MOSPEC

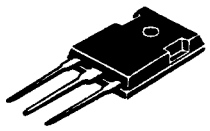
HIGH-VOLTAGE HIGH POWER TRANSISTORS

.... designsd for use in high power amplifier,and switching application.

NPN
2SD1313

FEATURES:
* High Power Dissipation
  P_D= 200W(T_C= 25°C)
* High Collector Current- I_C= 25A(DC)
* High Speed Switching - t_f=0.5 us(Typ) @ I_C= 15A
* Low Saturation Voltage- $V_{CE(sat)}$= 1.0V(Max) @I_C= 15A

25 AMPERE
POWER
TRANSISTORS
350 VOLTS
200 WATTS



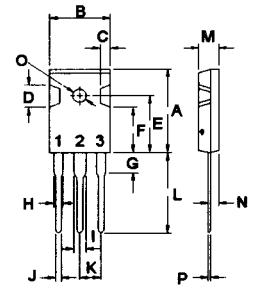
TO-247(3P)

MAXIMUM RATINGS

Characteristic	Symbol	2SD1313	Unit
Collector-Emitter Voltage	V_{CEO}	350	V
Collector-Base Voltage	V_{CBO}	800	V
Emitter-Base Voltage	V_{EBO}	7.0	V
Collector Current - Continuous	I_C	25	A
Base Current	I_B	10	A
Total Power Dissipation @T_C = 25°C Derate above 25 °C	P_D	200 1.6	W W/°C
Operating and Storage Junction Temperature Range	T_J , T_{STG}	-55 to +150	°C

THERMAL CHARACTERISTICS

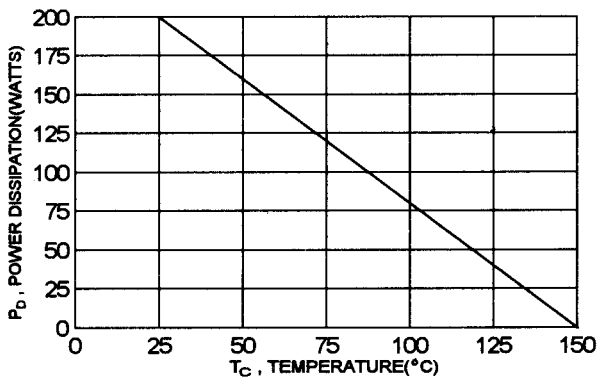
Characteristic	Symbol	Max	Unit
Thermal Resistance Junction to Case	Rθjc	0.625	°C/W



PIN 1.BASE
2.COLLECTOR
3.EMITTER

DIM	MILLIMETERS	
	MIN	MAX
A	20.63	22.38
B	15.38	16.20
C	1.90	2.70
D	5.10	6.10
E	14.81	15.22
F	11.72	12.84
G	4.20	4.50
H	1.82	2.46
I	2.92	3.23
J	0.89	1.53
K	5.26	5.66
L	18.50	21.50
M	4.68	5.36
N	2.40	2.80
O	3.25	3.65
P	0.55	0.70

FIGURE -1 POWER DERATING

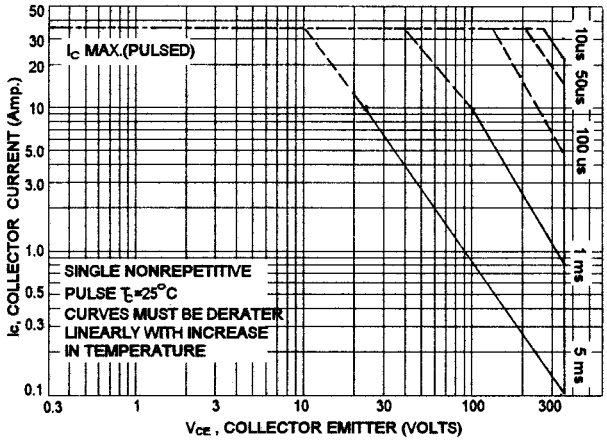


ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted)

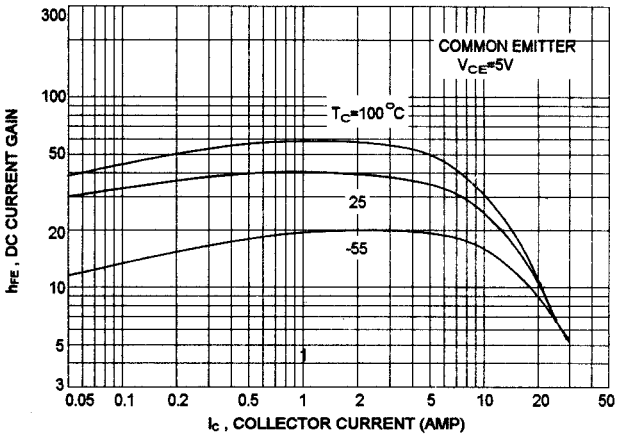
Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Breakdown Voltage (I_C= 10 mA, I_B= 0)	$V_{(BR)CEO}$	350		V
Collector Cutoff Current (V_{CB} =800 V, I_E= 0)	I_{CBO}		1.0	mA
Emitter Cutoff Current (V_{EB}=7.0 V, I_C= 0)	I_{EBO}		1.0	mA
ON CHARACTERISTICS (1)				
DC Current Gain (I_C =1.0 A, V_{CE} = 5.0 V) (I_C= 25 A ,V_{CE} = 5.0 V)	hFE	15 4.0		
Collector-Emitter Saturation Voltage (I_C = 15 A, I_B =3.0 A)	$V_{CE(sat)}$		1.0	V
Base-Emitter Saturation Voltage (I_C =15 A, I_B = 3.0 A)	$V_{BE(sat)}$		1.7	V
DYNAMIC CHARACTERISTICS				
Current-Gain-Bandwidth Product (I_C = 1.0 A, V_{CE} = 10 V, f = 1.0 MHz)	f_T	5.0(typ)		MHz
SWITCHING CHARACTERISTICS				
Turn-on Time	V_{CC} = 200 V, I_C= 10 A I_{B1} = -I_{B2} = 2.0 A PW= 20 us	t_{on}		1.0 us
Storage Time		t_s		4.0 us
Fall Time		t_f		0.8 us

(1) Pulse Test: Pulse Width =300 us,Duty Cycle ≦ 2.0%

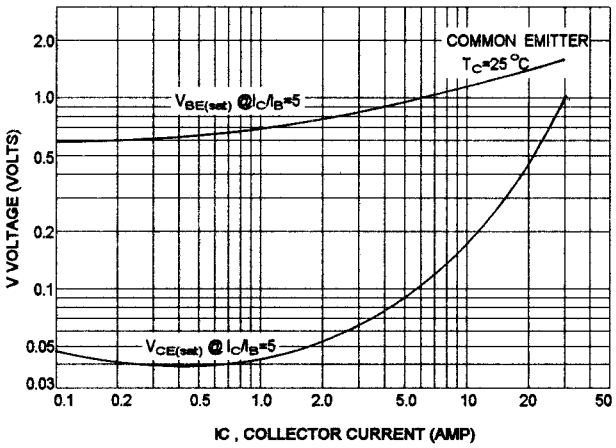
ACTIVE REGION SAFE OPERATING AREA



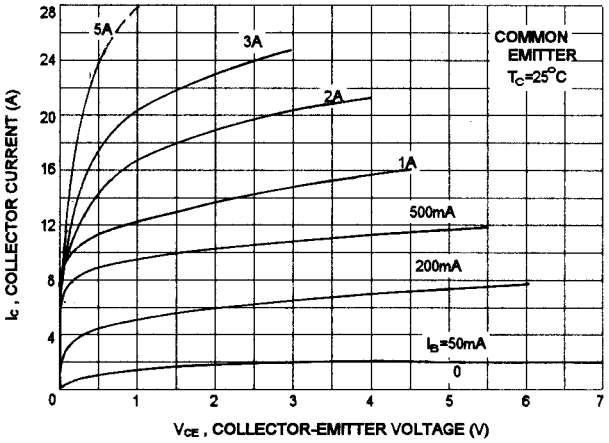
DC CURRENT GAIN



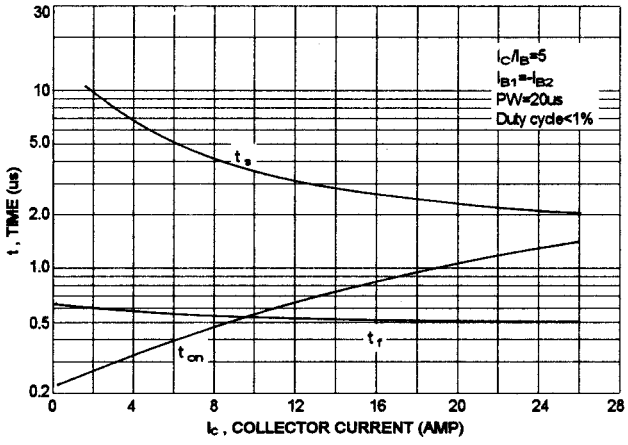
"ON" VOLTAGES



Ic - V_{CE}



SWITCHING TIME



Ic - V_{BE}

