MOSPEC

COMPLEMENTARY SILICON PLASTIC
POWER TRANSISTORS

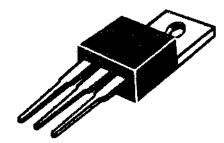
... designed for use in general-purpose amplifier and switching applications.

NPN	PNP
2N6486	2N6489
2N6487	2N6490
2N6488	2N6491

15 AMPERE
COMPLEMENTARY SILICON
POWER TRANSISTORS
40-80 Volts
75 Watts

FEATURES:

* Collector-Emitter Sustaining Voltage-
  $V_{CEO(SUS)}$ = 40 V (Min) -2N6486, 2N6489
  = 60 V (Min) -2N6487, 2N6490
  = 80 V (Min) -2N6488, 2N6491
* DC Current Gain Specified to 15 Ampers
  hFE = 20-150 @ I_C =5.0 A
  = 5.0(Min) @ I_C=15A



TO-220

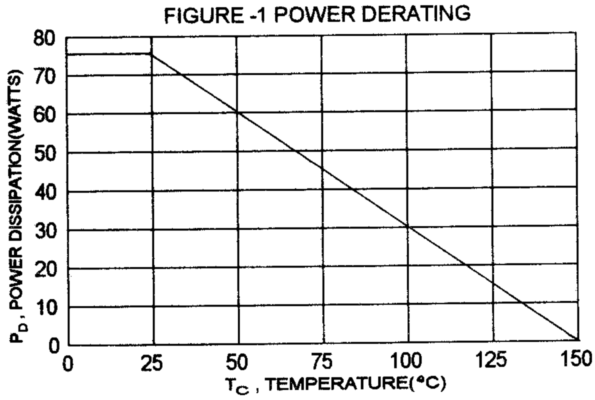
MAXIMUM RATINGS

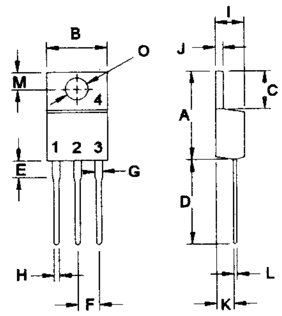
Characteristic	Symbol	2N6486 2N6489	2N6487 2N6490	2N6488 2N6491	Unit
Collector-Emitter Voltage	V_{CEO}	40	60	80	V
Collector-Base Voltage	V_{CBO}	50	70	90	V
Emitter-Base Voltage	V_{EBO}		5.0		V
Collector Current - Continuous	I_C		15		A
Base Current	I_B		5.0		A
Total Power Dissipation@T_C = 25°C Derate above 25°C	P_D		75 0.6		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	1.67	°C/W

FIGURE -1 POWER DERATING





PIN 1.BASE
2.COLLECTOR
3.EMITTER
4.COLLECTOR(CASE)

DIM	MILLIMETERS	
	MIN	MAX
A	14.68	15.31
B	9.78	10.42
C	5.01	6.52
D	13.06	14.62
E	3.57	4.07
F	2.42	3.66
G	1.12	1.36
H	0.72	0.96
I	4.22	4.98
J	1.14	1.38
K	2.20	2.97
L	0.33	0.55
M	2.48	2.98
O	3.70	3.90

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

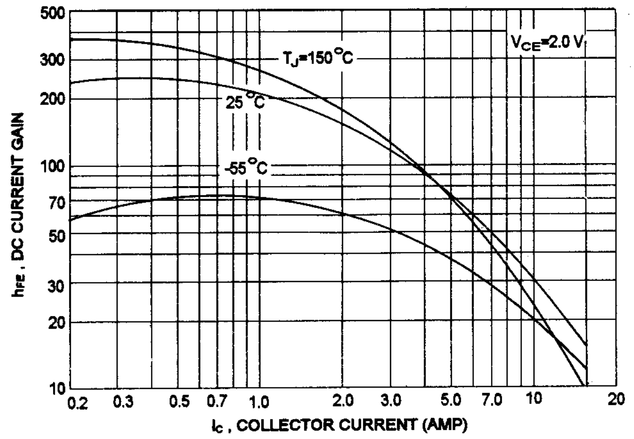
Characteristic		Symbol	Min	Max	Unit
OFF CHARACTERISTICS					
Collector - Emitter Sustaining Voltage (1) (I_C = 100 mA, I_B = 0)	2N6486, 2N6489 2N6487, 2N6490 2N6488, 2N6491	$V_{CEO(SUS)}$	40 60 80		V
Collector Cutoff Current (V_{CE} = 20 V, I_B = 0) (V_{CE} = 30 V, I_B = 0) (V_{CE} = 40 V, I_B = 0)	2N6486, 2N6489 2N6487, 2N6490 2N6488, 2N6491	I_{CEO}		1.0 1.0 1.0	mA
Collector Cutoff Current (V_{CE} = 45 V, $V_{BE(off)}$ = 1.5 V) (V_{CE} = 65 V, $V_{BE(off)}$ = 1.5 V) (V_{CE} = 85 V, $V_{BE(off)}$ = 1.5 V) (V_{CE} = 40 V, $V_{BE(off)}$ = 1.5 V, T_C = 125°C) (V_{CE} = 60 V, $V_{BE(off)}$ = 1.5 V, T_C = 125°C) (V_{CE} = 80 V, $V_{BE(off)}$ = 1.5 V, T_C = 125°C)	2N6486, 2N6489 2N6487, 2N6490 2N6488, 2N6491 2N6486, 2N6489 2N6487, 2N6490 2N6488, 2N6491	I_{CEX}		0.5 0.5 0.5 5.0 5.0 5.0	mA
Emitter Cutoff Current (V_{EB} = 5.0 V , I_C = 0)		I_{EBO}		1.0	mA
ON CHARACTERISTICS (1)					
DC Current Gain (I_C = 5.0 A, V_{CE} = 4.0 V) (I_C = 15 A, V_{CE} = 4.0 V)		hFE	20 5.0	150	
Collector-Emitter Saturation Voltage (I_C = 5.0 A, I_B = 0.5 A) (I_C = 15 A, I_B = 5.0 A)		$V_{CE(sat)}$		1.3 3.5	V
Base-Emitter On Voltage (I_C = 5.0 A, V_{CE} = 4.0 V) (I_C = 15 A, V_{CE} = 4.0 V)		$V_{BE(on)}$		1.3 3.5	V
DYNAMIC CHARACTERISTICS					
Current-Gain-Bandwidth Product (2) (I_C = 1.0 A, V_{CE} = 4.0 V, f = 1.0 MHz)		f_T	5.0		MHz
Small-Signal Current Gain (I_C = 1.0 A, V_{CE} =4.0 V, f = 1.0 KHz)		h_{fe}	15		

(1) Pulse Test: Pulse width = 300 μs , Duty Cycle $\leq$ 2.0%

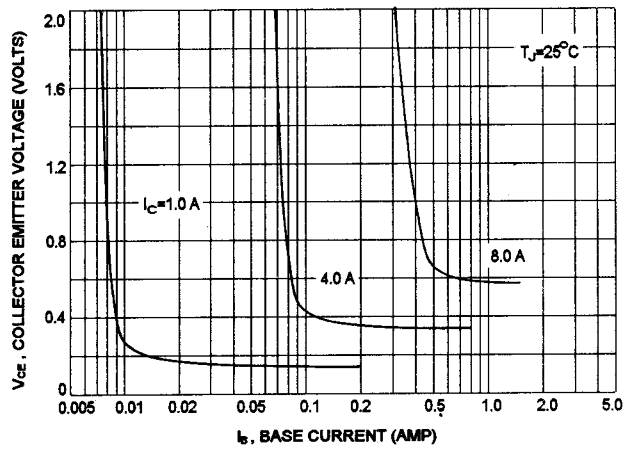
(2) $f_T = |h_{fe}| \cdot f_{test}$

NPN 2N6486, 2N6487, 2N6488

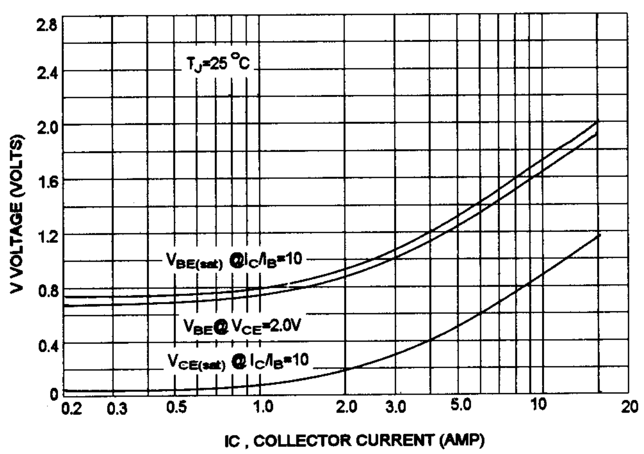
DC CURRENT GAIN



COLLECTOR SATURATION REGION

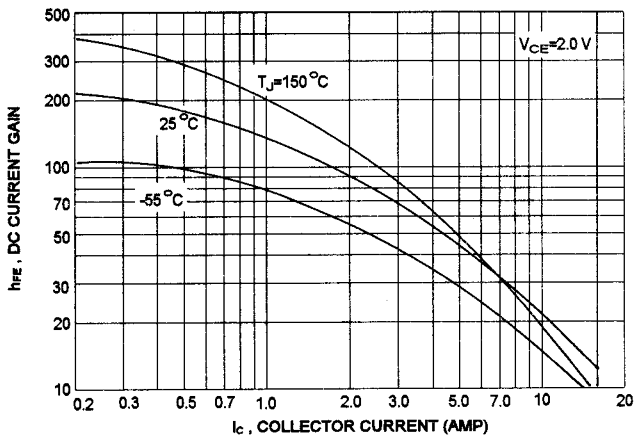


"ON" VOLTAGES

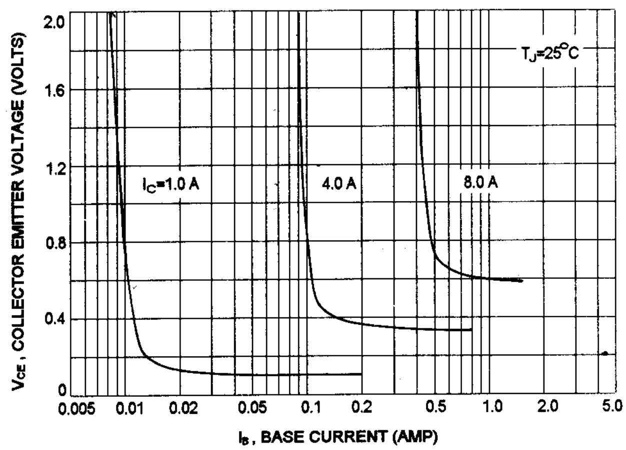


PNP 2N6489, 2N6490, 2N6491

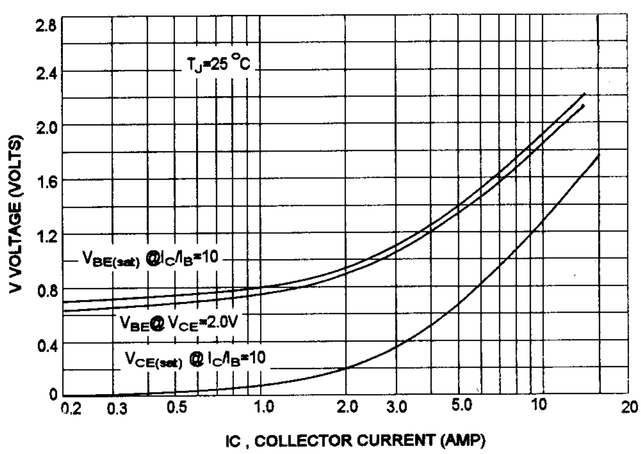
DC CURRENT GAIN



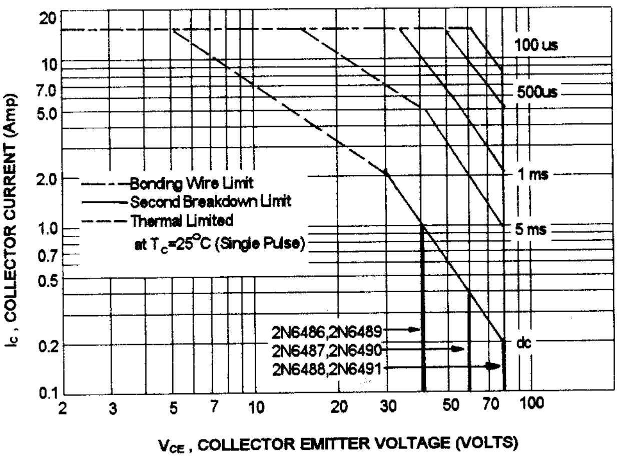
COLLECTOR SATURATION REGION



"ON" VOLTAGES



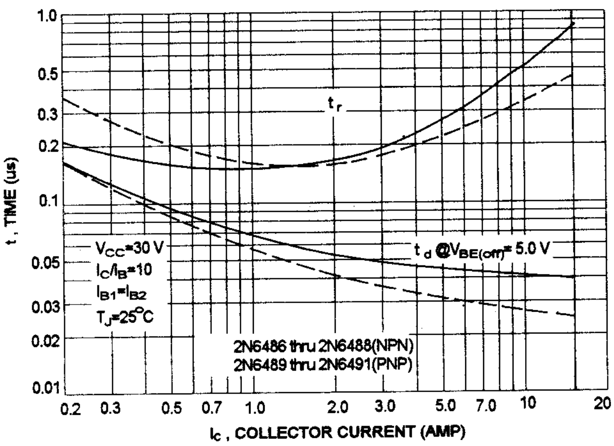
ACTIVE-REGION SAFE OPERATING AREA (SOA)



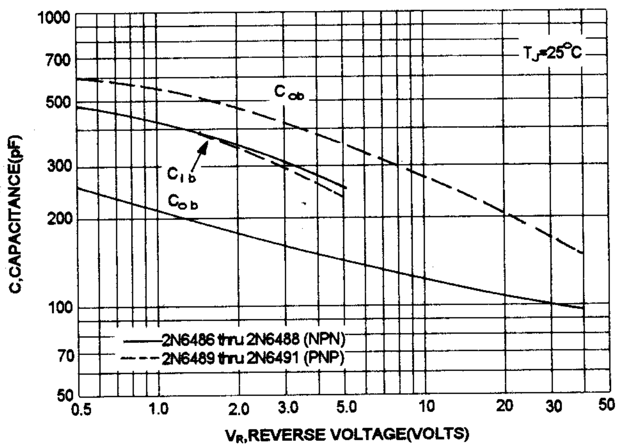
There are two limitation on the power handling ability of a transistor:average junction temperature and second breakdown safe operating area curves indicate I_C-V_{CE} limits of the transistor that must be observed for reliable operation i.e., the transistor must not be subjected to greater dissipation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

TURN-ON TIME



CAPACITANCES



TURN-OFF TIME