MOSPEC

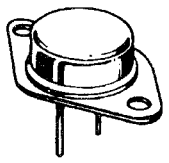
COMPLEMENTARY SILICON HIGH-POWER TRANSISTORS

.. Power Base complementary transistors designed for high power audio, stepping motor and other linear application. These devices can also be used in power switching circuits such as relay or solenoid drivers,inverter dc--to-dc converters,or for inductive loads requiring higher safe operating area than the 2N3055 and MJ2955.

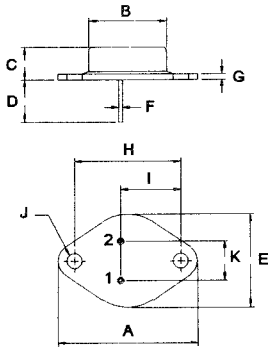
* Current-Gain - Bandwidth-Productor@I_C=1.0A
  f_T = 0.8 MHz (Min)- NPN
  = 2.2 MHz (Min)- PNP
* Safe Operating Area-Rated to 60 V and 120 V, Respectively

NPN	PNP
2N3055A	MJ2955A
MJ15015	MJ15016

15 AMPERE
COMPLEMENTARY SILICON
POWER TRANSISTORS
60 , 120 VOLTS
115 , 180 WATTS



TO-3



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	10.43	11.18

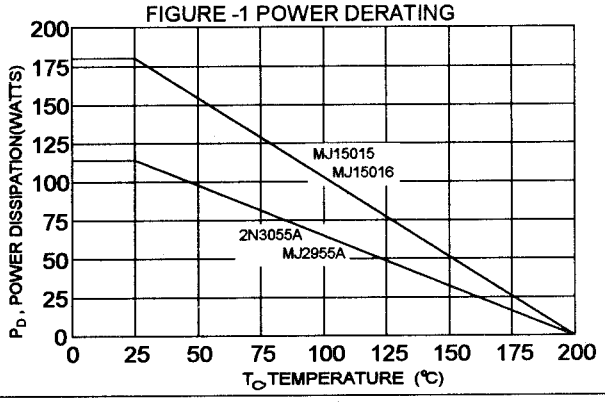
MAXIMUM RATINGS

Characteristic	Symbol	2N3055A MJ2955A	MJ15015 MJ15016	Unit
Collector-Emitter Voltage	V_{CEO}	60	120	V
Collector-Base Voltage	V_{CBO}	100	200	V
Collector-Emitter Voltage Base Reversed Biased	V_{CEV}	100	200	V
Emitter-Base Voltage	V_{EBO}	7.0		V
Collector Current-Continuous	I_C	15		A
Base Current	I_B	7.0		A
Total Power Dissipation @T_C=25°C Derate above 25°C	P_D	115 0.65	180 1.03	W W/°C
Operating and Storage Junction Temperature Range	T_J , T_{STG}	- 65 to +200		°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max		Unit
Thermal Resistance Junction to Case	Rθjc	1.52	0.98	°C/W

FIGURE -1 POWER DERATING



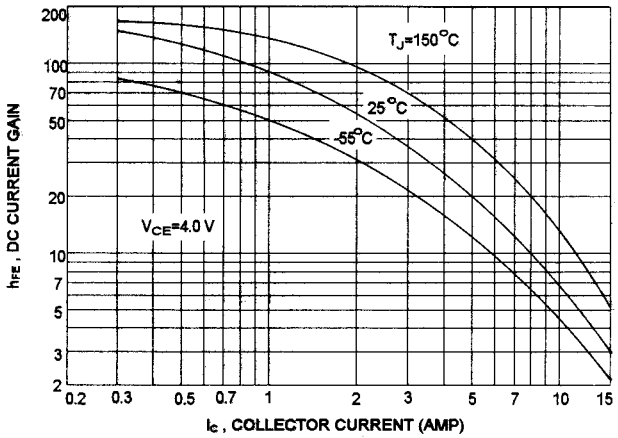
ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted)

Characteristic		Symbol	Min	Max	Unit
OFF CHARACTERISTICS					
Collector - Emitter Sustaining Voltage (1) (I_C = 200 mA, I_B = 0)	2N3055A, MJ2955A MJ15015, MJ15016	$V_{CEO(SUS)}$	60 120		V
Collector Cutoff Current (V_{CE} = 30 V, I_B = 0) (V_{CE} = 60 V, I_B = 0)	2N3055A, MJ2955A MJ15015, MJ15016	I_{CEO}		0.7 0.1	mA
Collector Cutoff Current ($V_{BE(off)}$ = 1.5 V) (V_{CEV} = Rated Value)	2N3055A, MJ2955A MJ15015, MJ15016	I_{CEV}		5.0 1.0	mA
Collector Cutoff Current ($V_{BE(off)}$ = 1.5 V, T_C = 150°C) (V_{CEV} = Rated Value)	2N3055A, MJ2955A MJ15015, MJ15016	I_{CEV}		30 6.0	mA
Emitter Cutoff Current (V_{EB} = 7.0 V , I_C = 0)	2N3055A, MJ2955A MJ15015, MJ15016	I_{EBO}		5.0 0.2	mA
ON CHARACTERISTICS (1)					
DC Current Gain (I_C = 4.0 A , V_{CE} = 2.0 V) (I_C = 4.0 A , V_{CE} = 4.0 V) (I_C = 10 A , V_{CE} = 4.0 V)		hFE	10 20 5.0	70 70	
Collector - Emitter Saturation Voltage (I_C = 4.0 A, I_B=0.4 A) (I_C = 10 A, I_B=3.3 A) (I_C = 15 A, I_B=7.0 A)		$V_{CE(sat)}$		1.1 3.0 5.0	V
Base - Emitter On Voltage (I_C = 4.0 A, V_{CE} = 4.0 V)		$V_{BE(on)}$	0.7	1.8	V
DYNAMIC CHARACTERISTICS					
Current Gain - Bandwidth Product (I_C = 1.0 A , V_{CE} = 4.0 V , f = 1.0 MHz)	2N3055A,MJ15015 MJ2955A,MJ15016	f_T	0.8 2.2	6.0 18	MHz

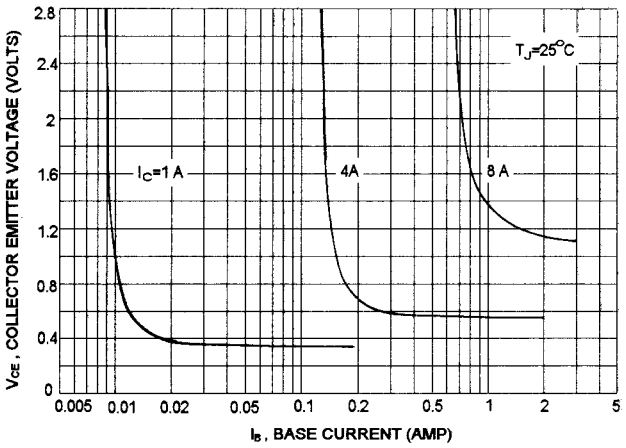
(1) Pulse Test: Pulse width = 300 us , Duty Cycle ≦ 2.0%

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

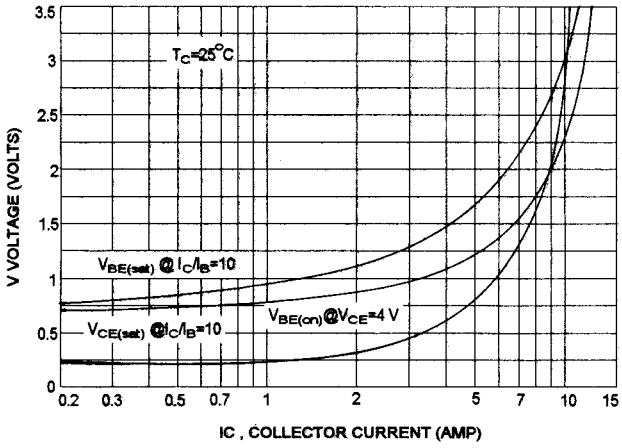
DC CURRENT GAIN



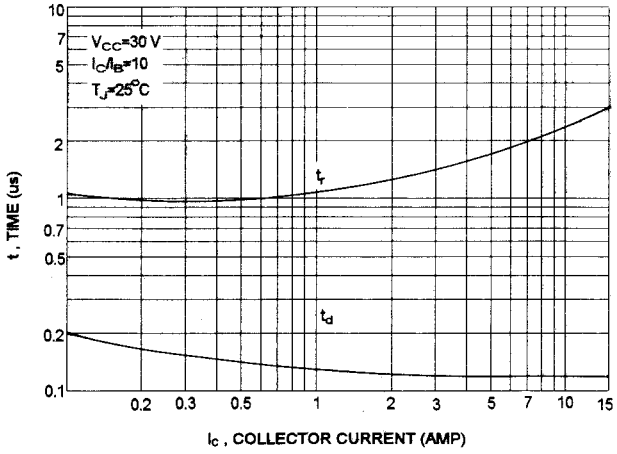
COLLECTOR SATURATION REGION



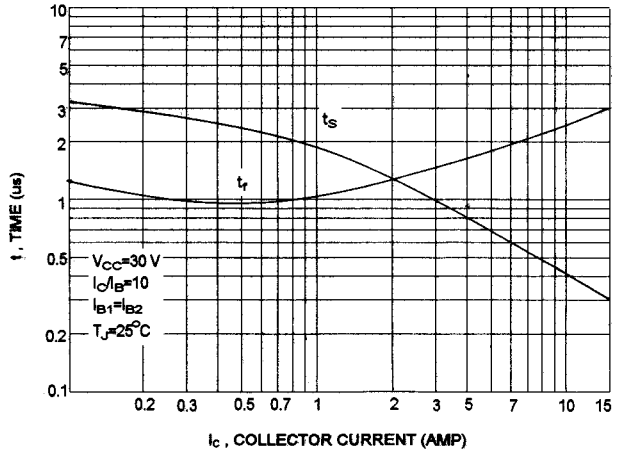
"ON" VOLTAGES



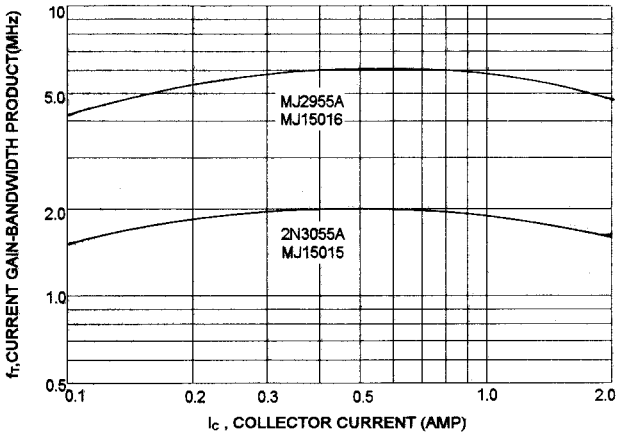
TURN-ON TIME



TURN-OFF TIME

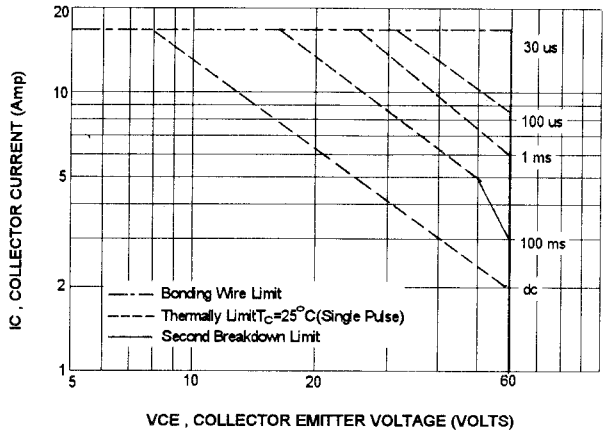


CURRENT GAIN-BANDWIDTH PRODUCT



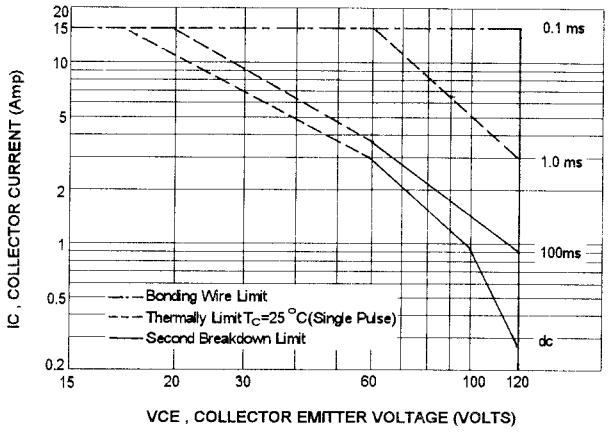
2N3055A , MJ2955A

ACTIVE REGION SAFE OPERATING AREA



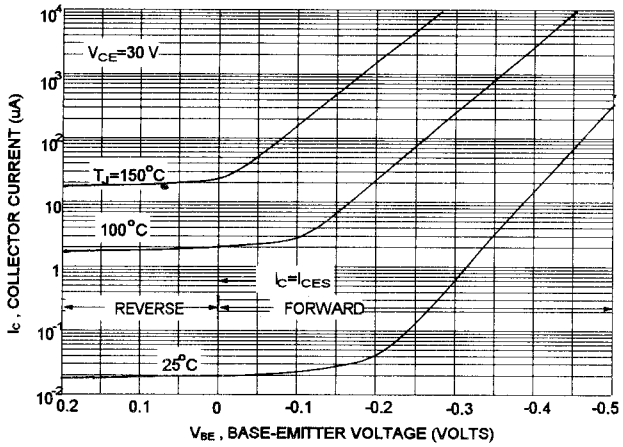
MJ15015 , MJ15016

ACTIVE REGION SAFE OPERATING AREA



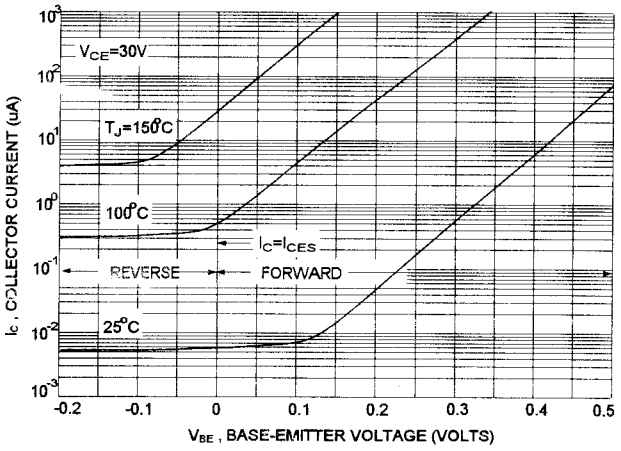
2N3055A,MJ15015

COLLECTOR CUT-OFF REGION



MJ2955A,MJ15016

COLLECTOR CUT-OFF REGION



CAPACITANCES