MOSPEC

COMPLEMENTARY SILICON HIGH-VOLTAGE HIGH-POWER TRANSISTORS

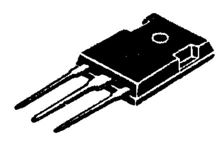
... designed for use in high power audio amplifier applications and high voltage switching regulator circuits.

FEATURES:

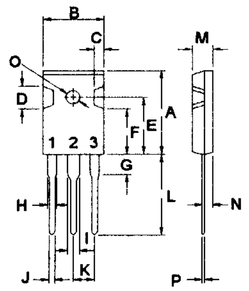
* Collector-Emitter Sustaining Voltage -
  $V_{CEO(sus)}$= 100V(Min)- MJE4340,MJE4350
  120V(Min)- MJE4341,MJE4351
  140V(Min)- MJE4342,MJE4352
  160V(Min)-MJE4343,MJE4353
* DC Current Gain hFE=8.0 (Min)@I_C= 16A
* Current Gain-Bandwidth Product f_T=1.0 MHz (Min)@ I_C=1.0A

NPN	PNP
MJE4340	MJE4350
MJE4341	MJE4351
MJE4342	MJE4352
MJE4343	MJE4353

16 AMPERE
COMPLEMENTARY SILICON
POWER TRANSISTORS
100 -160 VOLTS
125 WATTS



TO-247(3P)



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

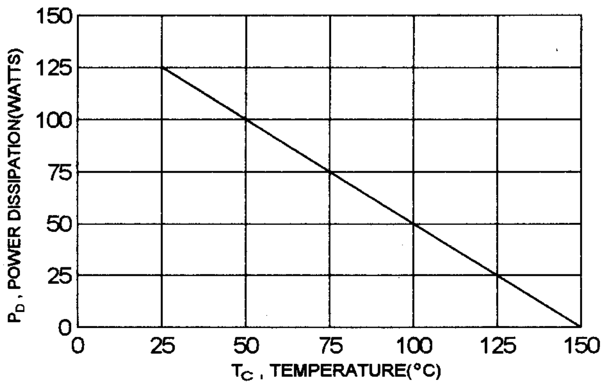
MAXIMUM RATINGS

Characteristic	Symbol	MJE4340 MJE4350	MJE4341 MJE4351	MJE4342 MJE4352	MJE4343 MJE4353	Unit
Collector-Emitter Voltage	V_{CEO}	100	120	140	160	V
Collector-Base Voltage	V_{CBO}	100	120	140	160	V
Emitter-Base Voltage	V_{EBO}	7.0				V
Collector Current - Continuous - Peak	I_C	16 20				A
Base Current	I_B	5.0				A
Total Power Dissipation@T_C = 25°C Derate above 25°C	P_D	125 1.0				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	1.0	°C/W

FIGURE -1 POWER DERATING

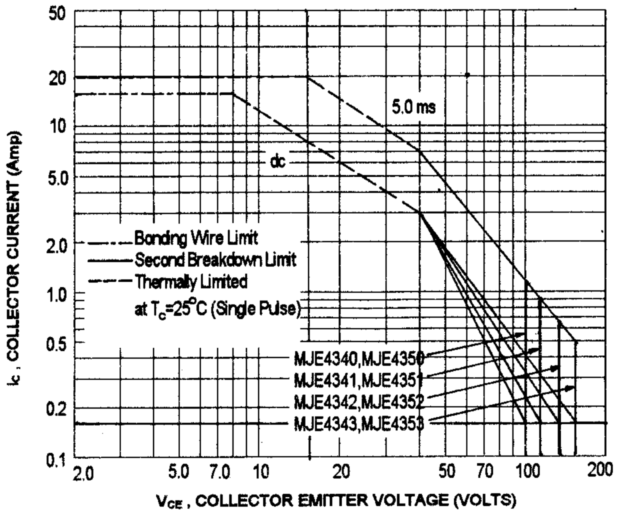


ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted)

Characteristic		Symbol	Min	Max	Unit
OFF CHARACTERISTICS					
Collector-Emitter Sustaining Voltage(1) (I_C= 100 mA, I_B= 0)	MJE4340,MJE4350 MJE4341,MJE4351 MJE4342,MJE4352 MJE4343,MJE4353	$V_{CEO(sus)}$	100 120 140 160		V
Collector Cutoff Current (V_{CE}= 50 V, I_B= 0) (V_{CE}= 60 V, I_B= 0) (V_{CE}= 70 V, I_B= 0) (V_{CE}= 80 V, I_B= 0)	MJE4340,MJE4350 MJE4341,MJE4351 MJE4342,MJE4352 MJE4343,MJE4353	I_{CEO}		0.75 0.75 0.75 0.75	mA
Collector Cutoff Current (V_{CE}= Rated V_{CBO},$V_{EB(off)}$= 1.5 V) (V_{CE}= Rated V_{CBO},$V_{EB(off)}$= 1.5 V,T_c=150 °C)		I_{CEX}		1.0 5.0	mA
Collector Cutoff Current (V_{CB}= Rated V_{CB}, I_E= 0)		I_{CBO}		0.75	mA
Emitter Cutoff Current (V_{EB}= 7.0V,I_C= 0)		I_{EBO}		1.0	mA
ON CHARACTERISTICS (1)					
DC Current Gain (I_C = 8.0 A, V_{CE} = 2.0 V,) (I_C = 16 A, V_{CE} = 4.0 V,)		hFE	15 8.0		
Collector-Emitter Saturation Voltage (I_C = 8.0 A, I_B = 800 mA) (I_C = 16 A, I_B = 2.0 A)		$V_{CE(sat)}$		2.0 3.5	V
Base-Emitter Saturation Voltage (I_C = 16 A, I_B = 2.0 A)		$V_{BE(sat)}$		3.9	V
Base-Emitter On Voltage (I_C =16 A, V_{CE}= 4.0V)		$V_{BE(on)}$		3.9	V
DYNAMIC CHARACTERISTICS					
Current Gain - Bandwidth Product (2) (I_C = 1.0A , V_{CE} = 20 V , f = 0.5 MHz)		f_T	1.0		MHz
Output Capacitance (V_{CB} = 10 V , I_E = 0 , f = 0.1 MHz)		C_{ob}		800	pF

(1) Pulse Test: Pulse width ≦ 300 us , Duty Cycle ≦ 2.0 %
(2) $f_T = |h_{fe}| \circ f_{TEST}$

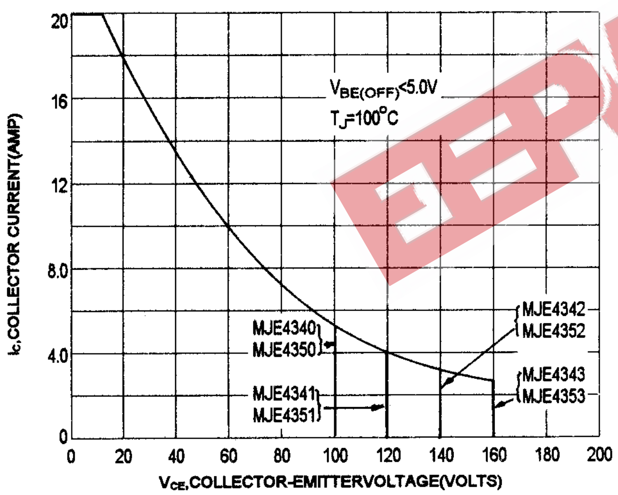
ACTIVE-REGION SAFE OPERATING AREA (SOA)



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 $T_{J(PK)} \leq 150°C$,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.

REVERSE BIAS SAFE OPERATING AREA



For inductive loads. high voltage and high current must be sustained simultaneously during turn-off, in most cases. with the base to emitter junction reverse biased. Under these conditions the collector voltage must be held to a safe level at or below a specific value of collector current. This can be accomplished by several means such as active clamping, RC snubbing, load line shapping, etc. the safe level for these devices is specificed as Reverse Bias Safe Operating Area and represents the voltage current conditions during reverse biased turn-off. This rating is verified under clamped conditions so that the device is never subjected to an avalanche mode. Left -figure gives RBSOA characteristics.

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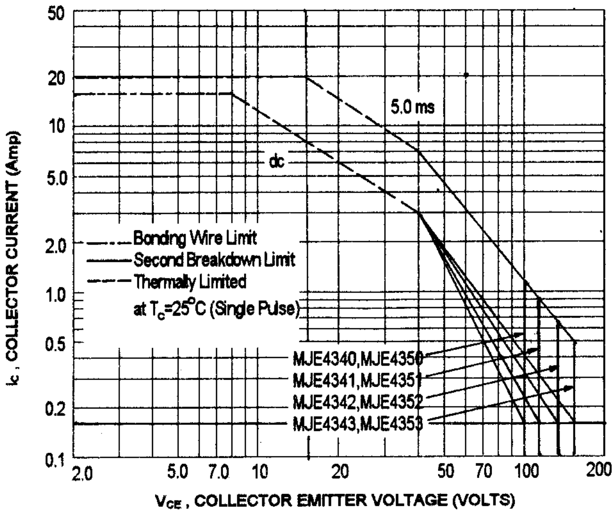

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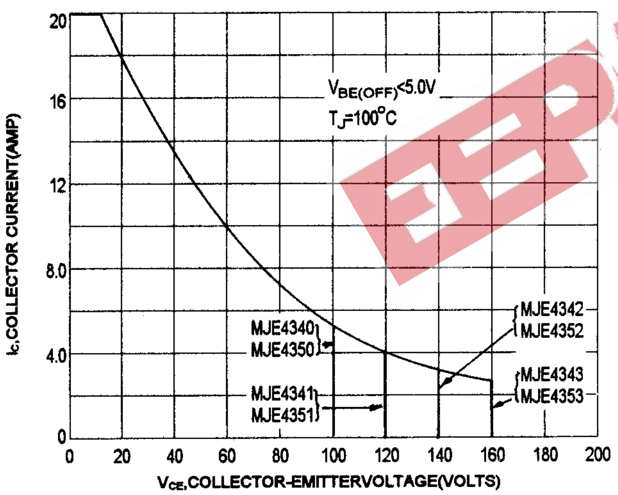

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