

Silicon Complimentary Power Transistor

V_{CEO} 140V, I_c 20A, 250W, TO-3

multicomp PRO

RoHS
Compliant



Features

High DC Current Gain - $h_{FE} = 1000$ (Min.) @ $I_c = 25A$ DC
 $h_{FE} = 400$ (Min.) @ $I_c = 50$ A dc

- Curves to 100 A (Pulsed)
- Diode Protection to Rated I_c
- Monolithic Construction with Built-In Base-Emitter Shunt Resistor
- Junction Temperature to +200°C

APPLICATIONS: For use as output devices in complementary general purpose amplifier applications.

ABSOLUTE MAXIMUM RATINGS (T_a = 25°C)

Rating	Symbol	Value	Units
Collector - Emitter Voltage	V _{CEO}	140	V DC
Collector - Base Voltage	V _{CB0}	140	V DC
Emitter Base Voltage	V _{EBO}	5	V DC
Collector Current - Continuous	I _c	20	A dc
Base Current - Continuous	I _B	5	A dc
Emitter Current - Continuous	I _E	25	A dc
Total Power Dissipation @ TC 25°C Derate above 25°C	P _D	250 1.43	Watts W/°C
Operating and Storage Junction Temperature Range	T _J , T _{stg}	-65°C to +200°C	°C

Thermal Characteristics

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to case	R _{j-c}	0.7	°C/W
Maximum Lead Temperature for Soldering Purposes 1/16 from case for ≤ 10 seconds	T _L	265	°C

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Electrical Characteristics at $T_A = 25^\circ\text{C}$ unless otherwise specified)

Description	Symbol	Min	Max	Units
Off Characteristics				
Collector-Emitter Sustaining Voltage (1) ($I_C = 200\text{mA DC}$, $I_B = 0$)	$V_{CE0(sus)}$	140	-	V DC
Collector Cut Off Current ($V_{CE} = 140\text{V DC}$, $V_{BE(off)} = 1.5\text{V DC}$ ($V_{CE} = 140\text{V DC}$, $V_{BE(off)} = 1.5\text{V DC}$, $T_C = 150^\circ\text{C}$)	I_{CEX}	-	100 2	A DC mA DC
Emitter Cut Off Current ($V_{CE} = 140\text{V DC}$, $I_B = 0$)	I_{CEO}	-	250	A DC
Emitter Cut Off Current ($V_{EB} = 5\text{V DC}$, $I_C = 0$)	I_{EBO}	-	100	A DC
Second Breakdown				
Second Breakdown Collector Current With Base Forward Biased ($V_{CE} = 50\text{V DC}$, $t = 1\text{s}$ (non repetitive)) ($V_{CE} = 100\text{V DC}$, $t = 1\text{s}$ (non repetitive))	$I_{S/b}$	5 1	- -	A DC
On Characteristics				
DC Current Gain ($I_C = 5\text{A DC}$, $V_{CE} = 2\text{V DC}$)	h_{FE}	25	150	
Collector-Emitter Saturation Voltage ($I_C = 5\text{A DC}$, $I_B = 0.5\text{A DC}$)	$V_{CE(sat)}$	-	1	V DC
Base-Emitter on Voltage ($I_C = 5\text{A DC}$, $V_{CE} = 2\text{A DC}$)	$V_{BE(on)}$	-	2	V DC
Dynamic Characteristics				
Current Gain - Bandwidth Product ($I_C = 0.5\text{A DC}$, $V_{CE} = 10\text{V DC}$, $f_{test} = 0.5\text{MHz}$)	f_T	2	-	MHz
Output Capacitance ($V_{CB} = 10\text{V DC}$, $I_E = 0$, $f_{test} = 1\text{MHz}$)	C_{ob}	-	1000	pF

(1) Pulse Test: Pulse Width = 300s, Duty Cycle $\leq 2\%$

Typical Characteristics Curves

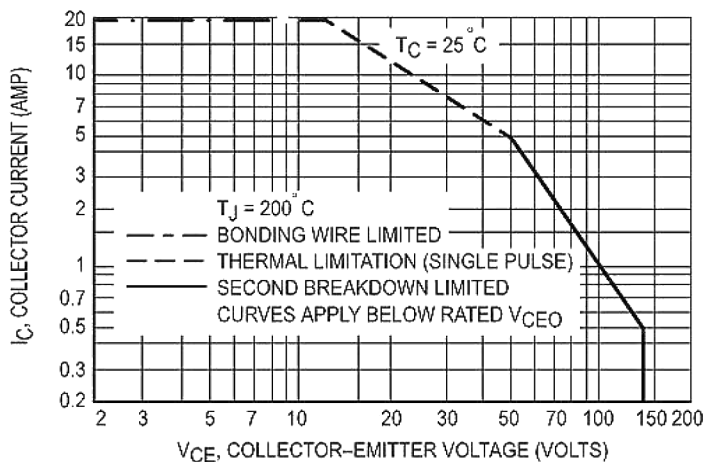


Figure 1. Active-Region Safe Operating Area

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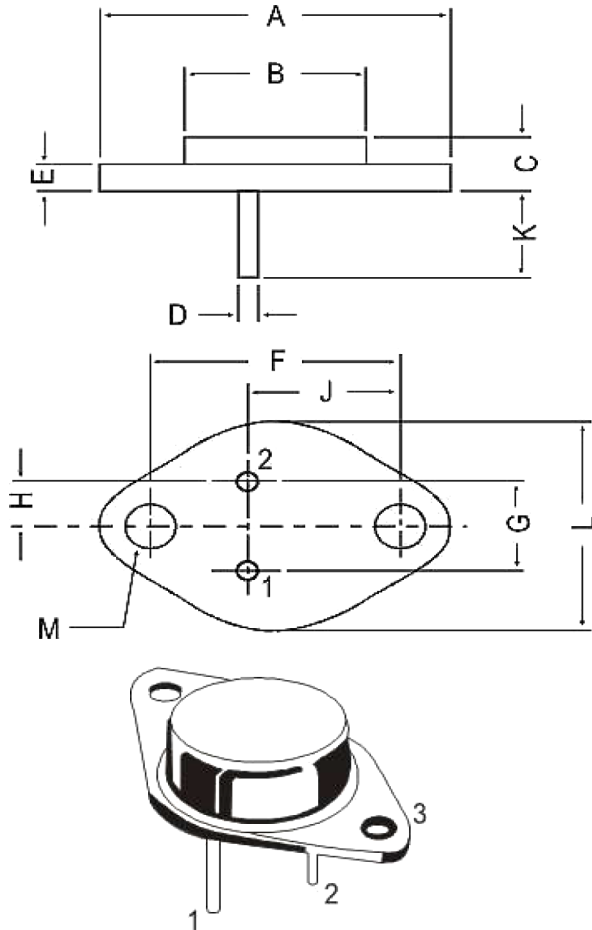
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Package Details



Dimensions : Millimetres

Dim	Min.	Max.
A	-	39.37
B	-	22.22
C	6.35	8.5
D	0.96	1.09
E	-	1.77
F	29.9	30.4
G	10.69	11.18
H	5.2	5.72
J	16.64	17.15
K	11.15	12.25
L	-	26.67
M	3.84	4.19

PIN CONFIGURATION

1. BASE
2. EMITTER
3. COLLECTOR

Part Number Table

Description	Part Number
Silicon High Power Transistor, NPN, 140V, 20A, TO-3	MJ15003
Silicon High Power Transistor, PNP, 140V, 20A, TO-3	MJ15004

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