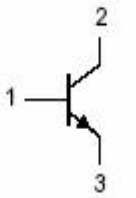
isc Silicon NPN Power Transistor — 2SD1157

DESCRIPTION

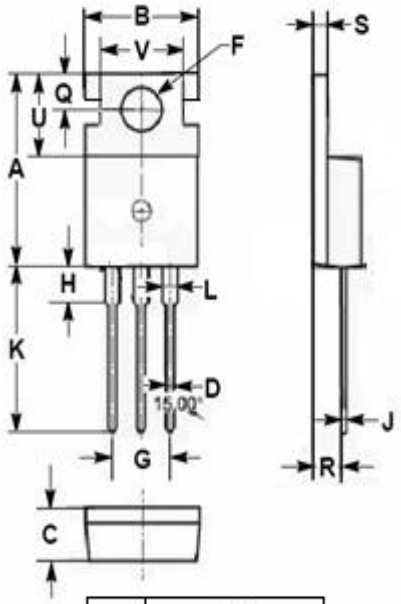
- Collector-Emitter Breakdown Voltage-
  : $V_{(BR)CEO}$= 50V(Min)
- High DC Current Gain-
  : h_{FE}= 250V(Min.) @I_C= 0.5A
- Low Collector Saturation Voltage
- High Reliability
- Minimum Lot-to-Lot variations for robust device performance and reliable operation



PIN 1. BASE
2. COLLECTOR
3. EMITTER
TO-220C package

APPLICATIONS

- Switching regulators
- DC-DC converter
- Solid sate relay
- General purpose power amplifiers



DIM	mm MIN	MAX
A	15.50	15.90
B	9.80	10.20
C	4.20	4.50
D	0.70	0.90
F	3.40	3.70
G	4.98	5.18
H	2.68	2.90
J	0.44	0.60
K	12.80	13.40
L	1.20	1.45
Q	2.70	2.90
R	2.30	2.70
S	1.29	1.35
U	6.45	6.65
V	8.66	8.86

ABSOLUTE MAXIMUM RATINGS(T_a=25℃)

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	80	V
V_{CEO}	Collector-Emitter Voltage	50	V
V_{EBO}	Emitter-Base Voltage	10	V
I_C	Collector Current-Continuous	4	A
I_B	Base Current-Continuous	1	A
P_C	Collector Power Dissipation @ T_C=25℃	25	W
T_J	Junction Temperature	150	℃
T_{stg}	Storage Temperature Range	-55~150	℃

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j\text{-}c}$	Thermal Resistance, Junction to Case	5.0	℃/W

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ELECTRICAL CHARACTERISTICS

T_C=25℃ unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	I_C= 10mA; I_B= 0	50			V
$V_{CEO(SUS)}$	Collector-Emitter Sustaining Voltage	I_C= 50mA; I_B= 0	50			V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	I_C= 0.1mA; I_E= 0	80			V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	I_E= 0.1mA; I_C= 0	10			V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	I_C= 1A; I_B= 50mA			0.5	V
$V_{B\ E(sat)}$	Base-Emitter Saturation Voltage	I_C= 1A; I_B= 50mA			1.5	V
I_{CBO}	Collector Cutoff Current	V_{CB}= 80V; I_E= 0			100	μA
I_{EBO}	Emitter Cutoff Current	V_{EB}= 10V; I_C= 0			100	μA
h_{FE}	DC Current Gain	I_C= 0.5A; V_{CE}= 5V	250			
Switching times						
t_{on}	Turn-on Time	I_C= 2A, I_{B1}= I_{B2}= 0.2A; R_L= 5Ω; P_W= 20 μs; Duty≤2%			0.5	μs
t_{stg}	Storage Time				3.0	μs
t_f	Fall Time				0.8	μs

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