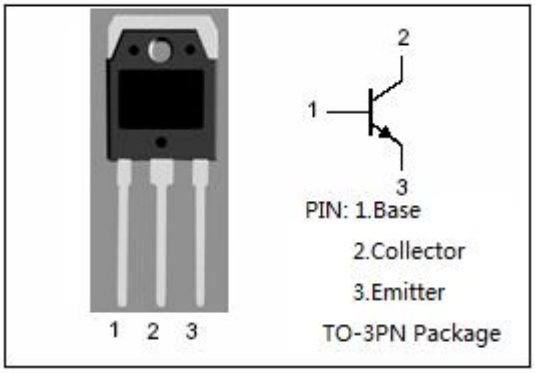
isc Silicon NPN Power Transistors — 2SD1238L

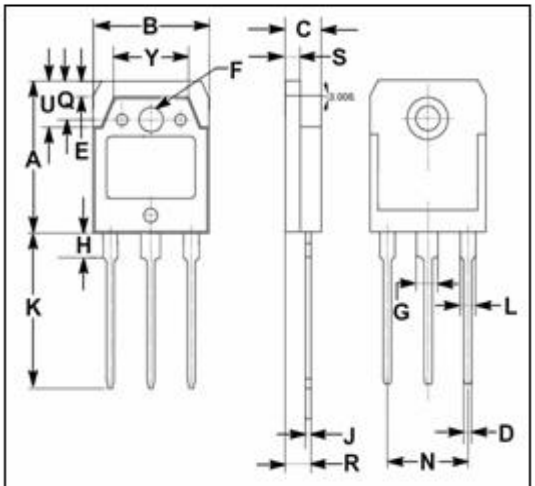
DESCRIPTION

- Low Collector Saturation Voltage
  : $V_{CE(sat)}$= 0.4V(Max)@ I_C= 6A
- Wide Area of Safe Operation
- Complement to Type 2SB922L
- Minimum Lot-to-Lot variations for robust device performance and reliable operation



APPLICATIONS

- Designed for relay drivers , high-speed inverters, converters,and other general high-current switching applications



DIM	mm MIN	MAX
A	19.60	20.30
B	15.50	15.70
C	4.70	4.90
D	0.90	1.10
E	1.90	2.10
F	3.40	3.60
G	2.90	3.20
H	3.20	3.40
J	0.595	0.605
K	19.80	20.70
L	1.90	2.20
N	10.89	10.91
Q	4.90	5.10
R	3.35	3.45
S	1.995	2.100
U	5.90	6.20
Y	9.90	10.10

ABSOLUTE MAXIMUM RATINGS(T_a=25℃)

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	90	V
V_{CEO}	Collector-Emitter Voltage	80	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current-Continuous	12	A
I_{CP}	Collector Current-Pulse	20	A
P_C	Collector Power Dissipation @ T_C=25℃	80	W
T_J	Junction Temperature	150	℃
T_{stg}	Storage Temperature Range	-55~150	℃

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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= 1mA ; R_{BE}= ∞	80			V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	I_C= 1mA ; I_E= 0	90			V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	I_E= 1mA ; I_C= 0	6			V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	I_C= 6A; I_B= 0.6A			0.4	V
I_{CBO}	Collector Cutoff Current	V_{CB}= 80V; I_E= 0			100	μA
I_{EBO}	Emitter Cutoff Current	V_{EB}= 4V; I_C=0			100	μA
h_{FE-1}	DC Current Gain	I_C= 1A ; V_{CE}= 2V	70		280	
h_{FE-2}	DC Current Gain	I_C= 6A ; V_{CE}= 2V	30			
f_T	Current-Gain—Bandwidth Product	I_C= 1A; V_{CE}= 5V		20		MHz
Switching times						
t_{on}	Turn-on Time	I_C= 5A; I_{B1}= I_{B2}= 0.5A R_L= 10Ω ;P_W=20 μs; V_{CC}= 50V		0.2		μs
t_{stg}	Storage Time			1.7		μs
t_f	Fall Time			0.2		μs

◆ **h_{FE-1} Classifications**

Q	R	S
70-140	100-200	140-280

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