

## TO-220-3L Plastic-Encapsulate Transistors

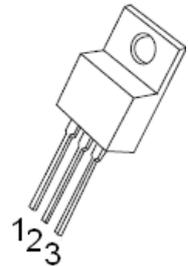
### 2SD2012 TRANSISTOR (NPN)

#### FEATURES

- High DC Current Gain
- Low Saturation Voltage
- High Power Dissipation

TO-220-3L

1. BASE
2. COLLECTOR
3. EMITTER



#### MAXIMUM RATINGS (T<sub>a</sub>=25°C unless otherwise noted)

Symbol	Parameter	Value	Unit
V <sub>CBO</sub>	Collector-Base Voltage	60	V
V <sub>CEO</sub>	Collector-Emitter Voltage	60	V
V <sub>EBO</sub>	Emitter-Base Voltage	7	V
I <sub>C</sub>	Collector Current	3	A
P <sub>C</sub>	Collector Power Dissipation	2	W
R <sub>θJA</sub>	Thermal Resistance From Junction To Ambient	63	°C/W
T <sub>j</sub>	Junction Temperature	150	°C
T <sub>stg</sub>	Storage Temperature	-55~+150	°C

#### ELECTRICAL CHARACTERISTICS (T<sub>a</sub>=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	V <sub>(BR)CBO</sub>	I <sub>C</sub> =100μA, I <sub>E</sub> =0	60			V
Collector-emitter breakdown voltage	V <sub>(BR)CEO</sub> *	I <sub>C</sub> =50mA, I <sub>B</sub> =0	60			V
Emitter-base breakdown voltage	V <sub>(BR)EBO</sub>	I <sub>E</sub> =100μA, I <sub>C</sub> =0	7			V
Collector cut-off current	I <sub>CBO</sub>	V <sub>CB</sub> =60V, I <sub>E</sub> =0			100	μA
Emitter cut-off current	I <sub>EBO</sub>	V <sub>EB</sub> =7V, I <sub>C</sub> =0			100	μA
DC current gain	h <sub>FE(1)</sub>	V <sub>CE</sub> =5V, I <sub>C</sub> =0.5A	100		320	
	h <sub>FE(2)</sub>	V <sub>CE</sub> =5V, I <sub>C</sub> =2A	20			
	h <sub>FE(3)</sub>	V <sub>CE</sub> =5V, I <sub>C</sub> =3A	60			
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> =2A, I <sub>B</sub> =0.2A			1	V
Base-emitter voltage	V <sub>BE</sub>	V <sub>CE</sub> =5V, I <sub>C</sub> =0.5A			1	V
Collector output capacitance	C <sub>ob</sub>	V <sub>CB</sub> =10V, I <sub>E</sub> =0, f=1MHz		35		pF
Transition frequency	f <sub>T</sub>	V <sub>CE</sub> =5V, I <sub>C</sub> =0.5A		3		MHz

\*Pulse test