

isc Silicon NPN Power Transistor

IRF03-E

DESCRIPTION

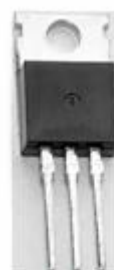
- Low Collector Saturation Voltage
: $V_{CE(sat)} = 0.5V(\text{Max}) @ I_C = 3A$
- Collector-Emitter Breakdown Voltage-
: $V_{(BR)CEO} = 120V (\text{Min})$
- Good Linearity of h_{FE}

APPLICATIONS

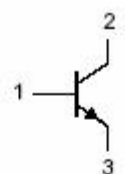
- Designed for use in humidifier , DC/DC converter and general purpose applications

ABSOLUTE MAXIMUM RATINGS($T_a = 25^\circ\text{C}$)

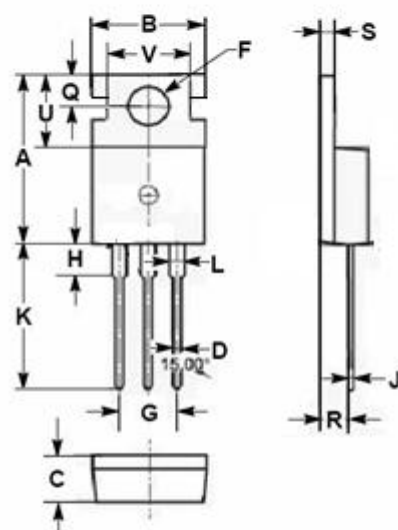
SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	200	V
V_{CEO}	Collector-Emitter Voltage	120	V
V_{EBO}	Emitter-Base Voltage	8	V
I_C	Collector Current-Continuous	7	A
I_{CM}	Collector Current-Pulse	14	A
I_B	Base Current-Continuous	3	A
P_C	Collector Power Dissipation @ $T_C = 25^\circ\text{C}$	50	W
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{stg}	Storage Temperature Range	-55~150	$^\circ\text{C}$



1 2 3



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



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

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ELECTRICAL CHARACTERISTICS

 $T_C=25^{\circ}\text{C}$ unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	$I_C=50\text{mA}$; $I_B=0$	120			V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=3\text{A}$; $I_B=0.3\text{A}$			0.5	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=3\text{A}$; $I_B=0.3\text{A}$			1.2	V
I_{CBO}	Collector Cutoff Current	$V_{CB}=200\text{V}$; $I_E=0$			100	μA
I_{EBO}	Emitter Cutoff Current	$V_{EB}=8\text{V}$; $I_C=0$			100	μA
h_{FE}	DC Current Gain	$I_C=3\text{A}$; $V_{CE}=4\text{V}$	70		220	
f_T	Current-Gain—Bandwidth Product	$I_E=-0.5\text{A}$; $V_{CE}=12\text{V}$	20			MHz
C_{OB}	Output Capacitance	$I_E=0$; $V_{CB}=10\text{V}$; $f_{test}=1.0\text{MHz}$		110		pF

Switching times

t_{on}	Turn-on Time	$I_C=3\text{A}$; $I_{B1}=0.3\text{A}$; $I_{B2}=-0.6\text{A}$ $R_L=16.7\Omega$; $V_{CC}=50\text{V}$			0.5	μs
t_{stg}	Storage Time				3.0	μs
t_f	Fall Time				0.5	μs

◆ h_{FE} Classifications

O	Y	G
70-120	100-200	160-220