

isc Silicon NPN Power Transistor

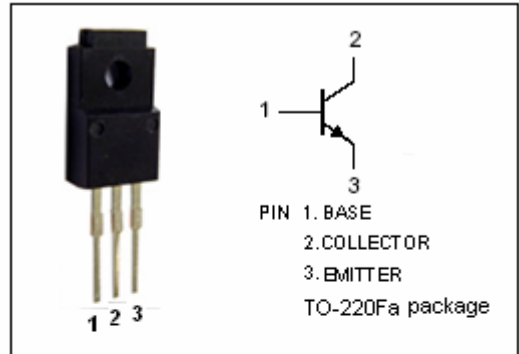
BU306F/307F

DESCRIPTION

- Collector-Emitter Sustaining Voltage-  
:  $V_{CEO(SUS)} = 300V(\text{Min})$ - BU306F  
400V(Min)- BU307F
- Collector Current-8A

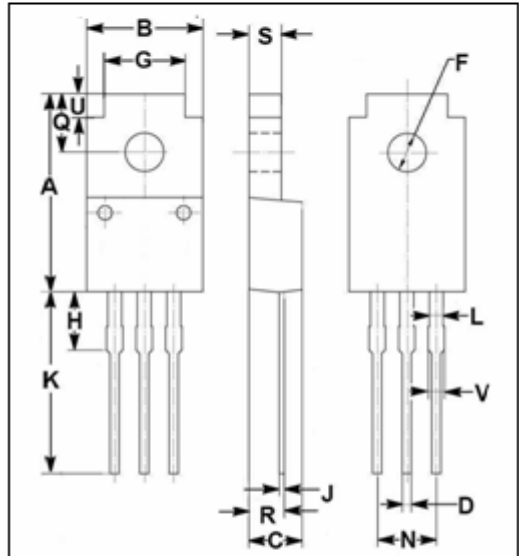
APPLICATIONS

- Designed for use in switching regulators, inverters, motor controls, solenoid/relay drivers and deflection circuits.



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

SYMBOL	PARAMETER	VALUE	UNIT	
$V_{CBO}$	Collector-Base Voltage	BU306F	600	V
		BU307F	700	
$V_{CEO}$	Collector-Emitter Voltage	BU306F	300	V
		BU307F	400	
$V_{EBO}$	Emitter-Base Voltage	9	V	
$I_C$	Collector Current-Continuous	8	A	
$I_{CM}$	Collector Current-Peak	16	A	
$I_B$	Base Current	4	A	
$I_{BM}$	Base Current-Peak	8	A	
$P_C$	Collector Power Dissipation @ $T_C=25^{\circ}C$	20	W	
$T_J$	Junction Temperature	150	$^{\circ}C$	
$T_{stg}$	Storage Temperature Range	-65~150	$^{\circ}C$	



DIM	mm	
	MIN	MAX
A	16.85	17.15
B	9.90	10.10
C	4.35	4.65
D	0.75	0.80
F	3.20	3.40
G	6.90	7.10
H	5.15	5.45
J	0.45	0.75
K	13.35	13.65
L	1.10	1.30
N	4.98	5.18
Q	4.85	5.15
R	2.95	3.25
S	2.70	2.90
U	1.75	2.05
V	1.30	1.50

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j-c}$	Thermal Resistance, Junction to Case	6.12	$^{\circ}C/W$

## isc Silicon NPN Power Transistor

## BU306F/307F

## 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	$I_C=0.1\text{A}; I_B=0; L=25\text{mH}$	300			V
			400			
$V_{CE(sat)-1}$	Collector-Emitter Saturation Voltage	$I_C=2\text{A}; I_B=0.4\text{A}$			1.0	V
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage	$I_C=5\text{A}; I_B=1\text{A}$ $I_C=5\text{A}; I_B=1\text{A}; T_J=100^\circ\text{C}$			1.5 2.0	V
$V_{CE(sat)-3}$	Collector-Emitter Saturation Voltage	$I_C=8\text{A}; I_B=2\text{A}$			3.0	V
$V_{BE(sat)-1}$	Base-Emitter Saturation Voltage	$I_C=2\text{A}; I_B=0.4\text{A}$			1.2	V
$V_{BE(sat)-2}$	Base-Emitter Saturation Voltage	$I_C=5\text{A}; I_B=1\text{A}$ $I_C=5\text{A}; I_B=1\text{A}; T_J=100^\circ\text{C}$			1.6 1.5	V
$I_{CES}$	Collector Cutoff Current	$V_{CE}=V_{CESmax}; V_{BE}=-1.5\text{V}$ $V_{CE}=V_{CESmax}; V_{BE}=-1.5\text{V}; T_J=100^\circ\text{C}$			1 5	mA
$I_{EBO}$	Emitter Cutoff Current	$V_{EB}=9\text{V}; I_C=0$			1	mA
$h_{FE-1}$	DC Current Gain	$I_C=0.5\text{A}; V_{CE}=5\text{V}$	15		50	
$h_{FE-2}$	DC Current Gain	$I_C=2\text{A}; V_{CE}=5\text{V}$	8		40	
$h_{FE-3}$	DC Current Gain	$I_C=5\text{A}; V_{CE}=5\text{V}$	6		30	
$C_{OB}$	Output Capacitance	$I_E=0; V_{CB}=10\text{V}$		80		pF
$f_T$	Current-Gain—Bandwidth Product	$I_C=0.5\text{A}; V_{CE}=10\text{V}; f_{test}=1.0\text{MHz}$		4		MHz

## Switching Times ; Resistive Load

$t_d$	Delay Time	$I_C=5\text{A}; I_{B1}=-I_{B2}=1\text{A};$ $V_{CC}=125\text{V}; t_p=25\mu\text{s}$			0.1	$\mu\text{s}$
$t_r$	Rise Time				1.0	$\mu\text{s}$
$t_s$	Storage Time			3.0		$\mu\text{s}$
$t_f$	Fall Time				0.7	$\mu\text{s}$