

isc Silicon NPN Power Transistor

2SC3749

**DESCRIPTION**

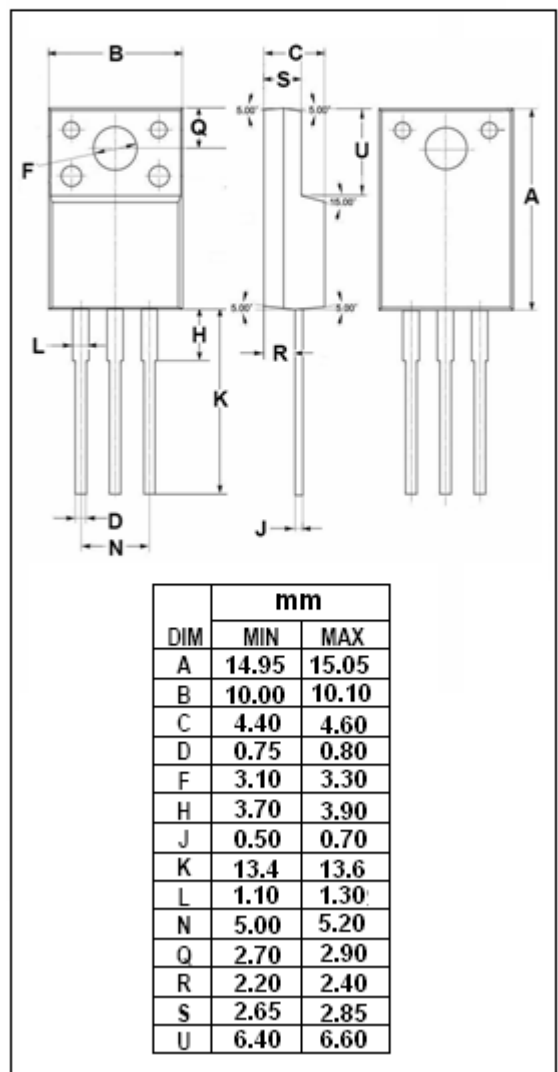
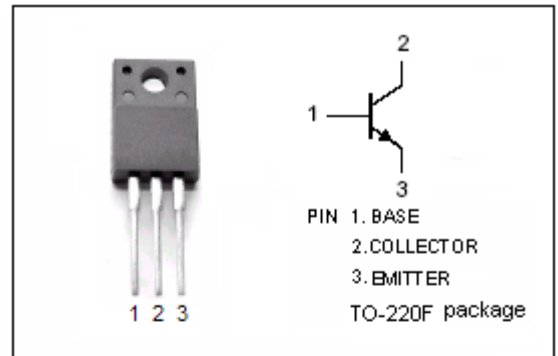
- Collector-Emitter Breakdown Voltage-  
:  $V_{(BR)CEO} = 500V(\text{Min.})$
- High Switching Speed
- Wide Area of Safe Operation

**APPLICATIONS**

- Designed for switching regulator applications.

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

SYMBOL	PARAMETER	VALUE	UNIT
$V_{CBO}$	Collector-Base Voltage	800	V
$V_{CEO}$	Collector-Emitter Voltage	500	V
$V_{EBO}$	Emitter-Base Voltage	7	V
$I_C$	Collector Current-Continuous	3	A
$I_{CM}$	Collector Current-Pulse	6	A
$I_B$	Base Current-Continuous	1	A
$P_C$	Collector Power Dissipation @ $T_C=25^\circ\text{C}$	25	W
$T_J$	Junction Temperature	150	$^\circ\text{C}$
$T_{stg}$	Storage Temperature	-55~150	$^\circ\text{C}$



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## ELECTRICAL CHARACTERISTICS

T<sub>j</sub>=25°C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V <sub>(BR)CEO</sub>	Collector-Emitter Breakdown Voltage	I <sub>C</sub> = 5mA; R <sub>BE</sub> = ∞	500			V
V <sub>(BR)CBO</sub>	Collector-Base Breakdown Voltage	I <sub>C</sub> = 1mA; I <sub>E</sub> = 0	800			V
V <sub>(BR)EBO</sub>	Emitter-Base Breakdown Voltage	I <sub>E</sub> = 1mA; I <sub>C</sub> = 0	7			V
V <sub>CE(sat)</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 1.5A; I <sub>B</sub> = 0.3A			1.0	V
V <sub>BE(sat)</sub>	Base-Emitter Saturation Voltage	I <sub>C</sub> = 1.5A; I <sub>B</sub> = 0.3A			1.5	V
I <sub>CBO</sub>	Collector Cutoff Current	V <sub>CB</sub> = 500V; I <sub>E</sub> = 0			10	μ A
I <sub>EBO</sub>	Emitter Cutoff Current	V <sub>EB</sub> = 5V; I <sub>C</sub> = 0			10	μ A
h <sub>FE-1</sub>	DC Current Gain	I <sub>C</sub> = 0.3A; V <sub>CE</sub> = 5V	15		50	
h <sub>FE-2</sub>	DC Current Gain	I <sub>C</sub> = 1.5A; V <sub>CE</sub> = 5V	8			
C <sub>OB</sub>	Collector Output Capacitance	I <sub>E</sub> = 0; V <sub>CB</sub> = 10V; f= 1MHz		50		pF
f <sub>T</sub>	Current-Gain—Bandwidth Product	I <sub>C</sub> = 0.3A; V <sub>CE</sub> = 10V		18		MHz

## Switching times

t <sub>on</sub>	Turn-on Time	I <sub>C</sub> = 2A, I <sub>B1</sub> = 0.4A; I <sub>B2</sub> = -0.8A; R <sub>L</sub> = 100 Ω; V <sub>CC</sub> = 200V			0.5	μ s
t <sub>stg</sub>	Storage Time				3.0	μ s
t <sub>f</sub>	Fall Time				0.3	μ s

◆ h<sub>FE-1</sub> Classifications

L	M	N
15-30	20-40	30-50