

**DESCRIPTION**

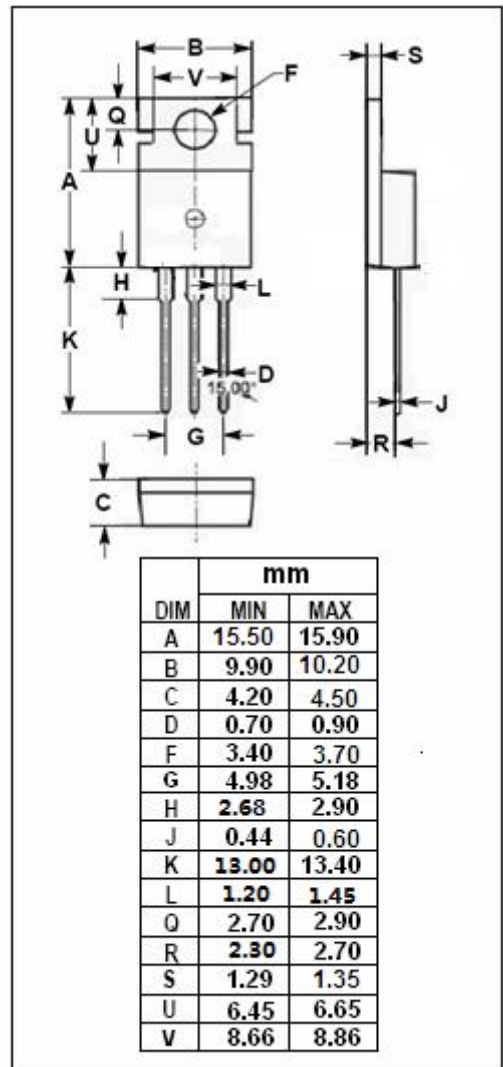
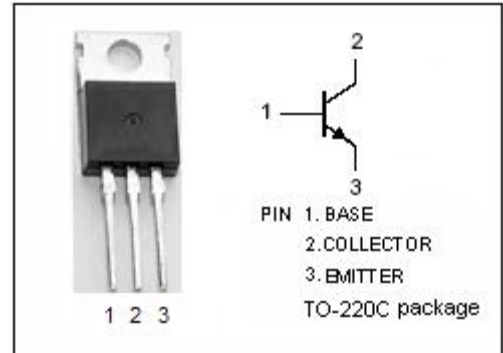
- High Collector-Emitter Breakdown Voltage  
:  $V_{(BR)CEO} = 400V(\text{Min.})$
- High Switching Speed
- Wide Area of Safe Operation

**APPLICATIONS**

- Designed for switching regulator applications

**ABSOLUTE MAXIMUM RATINGS(Ta=25°C)**

SYMBOL	PARAMETER	VALUE	UNIT
$V_{CBO}$	Collector-Base Voltage	500	V
$V_{CEO}$	Collector-Emitter Voltage	400	V
$V_{EBO}$	Emitter-Base Voltage	7	V
$I_C$	Collector Current-Continuous	7	A
$I_{CM}$	Collector Current-Peak	14	A
$I_B$	Base Current-Continuous	3	A
$P_C$	Collector Power Dissipation@ $T_C=25^\circ\text{C}$	50	W
	Collector Power Dissipation@ $T_a=25^\circ\text{C}$	1.75	
$T_J$	Junction Temperature	150	°C
$T_{stg}$	Storage Temperature Range	-55~150	°C



**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	$I_C=5\text{mA}; R_{BE}=\infty$	400			V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C=1\text{mA}; I_E=0$	500			V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E=1\text{mA}; I_C=0$	7			V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=4\text{A}; I_B=0.8\text{A}$			0.8	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=4\text{A}; I_B=0.8\text{A}$			1.5	V
$I_{CBO}$	Collector Cutoff Current	$V_{CB}=400\text{V}; I_E=0$			10	$\mu\text{A}$
$I_{EBO}$	Emitter Cutoff Current	$V_{EB}=5\text{V}; I_C=0$			10	$\mu\text{A}$
$h_{FE-1}$	DC Current Gain	$I_C=0.8\text{A}; V_{CE}=5\text{V}$	15		50	
$h_{FE-2}$	DC Current Gain	$I_C=4\text{A}; V_{CE}=5\text{V}$	10			
$h_{FE-3}$	DC Current Gain	$I_C=10\text{mA}; V_{CE}=5\text{V}$	10			
$f_T$	Current-Gain—Bandwidth Product	$I_C=0.8\text{A}; V_{CE}=10\text{V}$		20		MHz
$C_{OB}$	Output Capacitance	$I_E=0; V_{CB}=10\text{V}; f_{test}=1.0\text{MHz}$		80		pF

Switching times

$t_{on}$	Turn-on Time	$I_C=5\text{A}; I_{B1}=1\text{A}; I_{B2}=-2\text{A}$ $R_L=40\Omega; V_{CC}=200\text{V}$			0.5	$\mu\text{s}$
$t_{stg}$	Storage Time				2.5	$\mu\text{s}$
$t_f$	Fall Time				0.3	$\mu\text{s}$

◆  **$h_{FE-1}$  Classifications**

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