

HIGH VOLTAGE AND HIGH RELIABILITY

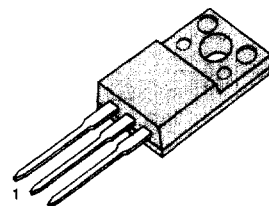
- High speed Switching
- Wide Safe Operating Area
- High Collector Base Voltage

ABSOLUTE MAXIMUM RATINGS

Characteristic		Symbol	Rating	Unit
Collector Base Voltage		V_{CBO}	1,600	V
Collector Emitter Voltage		V_{CEO}	800	V
Emitter Base Voltage		V_{EBO}	12	V
Collector Current	DC	I_C	3	A
	Pulse*	I_{CP}	6	
Base Current	DC	I_B	2	A
	Pulse*	I_{BP}	4	
Collector Dissipation ($T_c=25^\circ\text{C}$)		P_C	40	W
Junction Temperature		T_J	150	$^\circ\text{C}$
Storage Temperature		T_{STG}	-65 ~ 150	$^\circ\text{C}$

* Pulse Test : Pulse Width=5ms, Duty Cycle $\leq 10\%$

TO-220F



1. Base 2. Collector 3. emitter

ELECTRICAL CHARACTERISTICS ($T_c=25^\circ\text{C}$)

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Collector Base Breakdown Voltage	BV_{CBO}	$I_C = 0.5\text{mA}, I_E = 0$	1600	-	-	V
Collector Emitter Breakdown Voltage	BV_{CEO}	$I_C = 5\text{mA}, I_B = 0$	800	-	-	V
Emitter Base Breakdown Voltage	BV_{EBO}	$I_C = 0.5\text{mA}, I_C = 0$	12	-	-	V
Collector Cutoff Current	I_{CBO}	$V_{CB} = 1,600\text{V}, I_E = 0$	-	-	20	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 12\text{V}, I_C = 0$	-	-	20	μA
DC Current Gain	h_{FE}	$V_{CE} = 3\text{V}, I_C = 0.4\text{A}$	12	-	35	-
	h_{FE}	$V_{CE} = 10\text{V}, I_C = 5\text{mA}$	8	-	-	
Collector Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 250\text{mA}, I_B = 25\text{mA}$	-	-	2.5	V
		$I_C = 500\text{mA}, I_B = 50\text{mA}$	-	-	4.0	
		$I_C = 1\text{A}, I_B = 0.2\text{A}$	-	-	2.5	
Base Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 500\text{mA}, I_B = 50\text{mA}$	-	-	1.5	V
Output Capacitance	C_{OB}	$V_{CB} = 10\text{V}, I_E = 0, f = 1\text{MHz}$	-	40	-	pF
Turn on Time	t_{ON}	$V_{CC} = 125\text{V},$	-	-	0.5	μS
Storage Time	t_{STG}	$I_C = 0.5\text{A}$	-	-	2.2	
Falling Time	t_F	$I_{B1} = 42\text{mA}, I_{B2} = -333\text{mA}$	-	-	0.5	
Turn on Time	t_{ON}	$V_{CC} = 250\text{V},$	-	-	0.5	μS
Storage Time	t_{STG}	$I_C = 1\text{A}$	-	-	4.0	
Falling Time	t_F	$I_{B1} = 0.2\text{A}, I_{B2} = -0.4\text{A}$	-	-	0.5	

THERMAL CHARACTERISTICS

Characteristic		Symbo	Max	Unit
Thermal Resistance	Junction to Case	$R\theta_{j-c}$	3.02	$^{\circ}\text{C}/\text{W}$
	Junction to Ambient	$R\theta_{j-a}$	62.5	

