

May 2007

FJPF3305

High Voltage Switch Mode Application

- High Speed Switching
- · Suitable for Electronic Ballast and Switching Regulator



Absolute Maximum Ratings $*T_a = 25$ °C unless otherwise noted

Symbol	Parameter	Value	Units
V _{CBO}	Collector-Base Voltage	700	V
V _{CEO}	Collector-Emitter Voltage	400	V
V _{EBO}	Emitter-Base Voltage	9	V
I _C	Collector Current (DC)	4	А
I _{CP}	Collector Current (Pulse)	8	A
I _B	Base Current	2	А
P _C	Collector Dissipation (T _a = 25°C)	30	W
T _J	Junction Temperature	150	°C
T _{STG}	Storage Temperature	-65 ~ 150	°C

^{*} These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

Electrical Characteristics * T_C = 25°C unless otherwise noted

Symbol	Parameter	Conditions	Min.	Тур.	Max	Units
BV _{CBO}	Collector-Base Breakdwon Voltage	$I_C = 500 \mu A, I_E = 0$	700			V
BV _{CEO}	Collector-Emitter Breakdown Voltage	$I_{C} = 5mA, I_{B} = 0$	400			V
BV _{EBO}	Emitter-Base Breakdown Voltage	$I_E = 500 \mu A, I_C = 0$	9			V
I _{CBO}	Collector Cut-off Current	$V_{CB} = 700V, I_{E} = 0$			1	μА
I _{EBO}	Emitter Cut-off Current	$V_{EB} = 9V, I_{C} = 0$			1	μА
h _{FE1} h _{FE2}	DC Current Gain *	V _{CE} = 5V, I _C = 1A V _{CE} = 5V, I _C = 2A	19 8		35 40	
V _{CE(sat)}	Collector-Emitter Saturation Voltage	$I_C = 1A, I_B = 0.2A$ $I_C = 2A, I_B = 0.5A$ $I_C = 4A, I_B = 1A$			0.5 0.6 1.0	V V V
V _{BE(sat)}	Base-Emitter Saturation Voltage	I _C = 1A, I _B = 0.2A I _C = 2A, I _B = 0.5A			1.2 1.6	V V
f _T	Current Gain Bandwidth Product	V _{CE} = 5V, I _C = 1A	4			MHz
C _{ob}	Output Capacitance	V _{CB} = 10V, f = 1MHz		65		pF
t _{ON}	Turn On Time	V _{CC} = 125V			0.8	μS
t _{STG}	Storge Time	$I_C = 2A = 5I_{B1} = -5I_{B2}$ $R_1 = 62.5\Omega$			4.0	μS
t _F	Fall Time	11 - 02.032			0.9	μS

^{*} Pulse Test: PW $\leq 300 \mu s,$ Duty Cycle $\leq 2\%$

\mathbf{h}_{FE} Classification

Classification	H1	H2
h _{FE2}	19 ~ 28	26 ~ 35

Typical Performance Characteristics

Figure 1. Static Characteristic

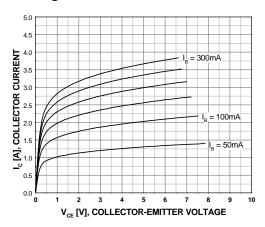


Figure 2. DC Current Gain (R-Grade)

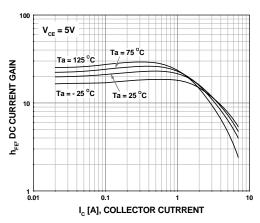


Figure 3. DC Current Gain (O-Grade)

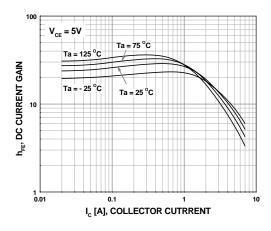


Figure 4. Saturation Voltage (R-Grade)

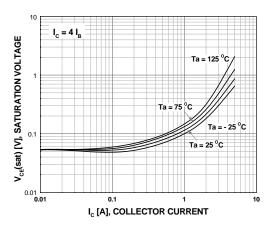


Figure 5. Saturatin Voltage (O-Grade)

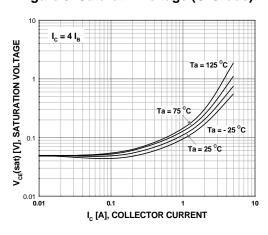
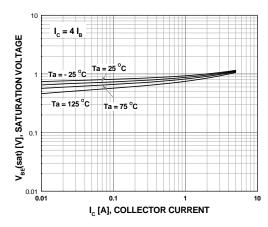


Figure 6. Saturation Voltage (R-Grade)



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Typical Performance Characteristics (Continued)

Figure 7. Saturation Voltage (O-Grade)

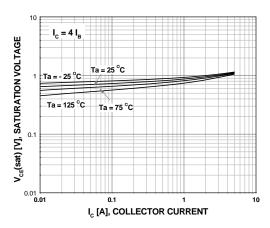


Figure 8. Switching Time

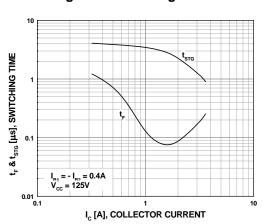
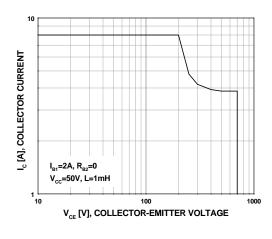


Figure 9. Reverse Biased Safe Operating Area

Figure 10. Forward Biased Safe Operating Area



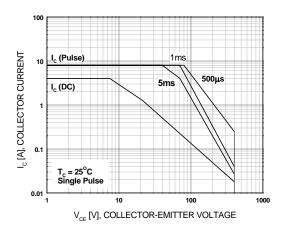
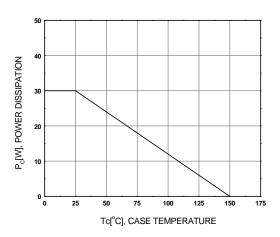


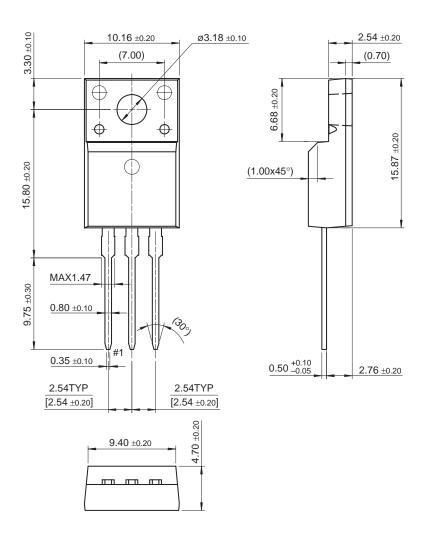
Figure 11. Power Derating



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Mechanical Dimensions

TO-220F



Dimensions in Millimeters





TinyBuck™

TinyLogic[®]

TINYOPTO™

TinyPower™

TruTranslation™

TinvWire™

μSerDes™ UHC[®]

UniFET™

VCXTM

Wire™

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