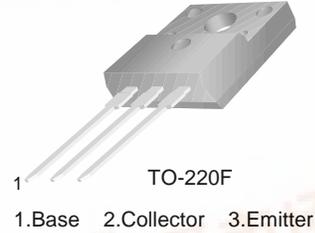


FAIRCHILD
SEMICONDUCTOR™

KSD1417

High Power Switching Applications

- High DC Current Gain
- Low Collector-Emitter Saturation Voltage
- Complement to KSB1022



NPN Silicon Darlington Transistor

Absolute Maximum Ratings $T_C=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
V_{CB0}	Collector-Base Voltage	60	V
V_{CEO}	Collector-Emitter Voltage	60	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current (DC)	7	A
I_{CP}	Collector Current (Pulse)	10	A
I_B	Base Current	0.7	A
P_C	Collector Dissipation ($T_a=25^\circ\text{C}$)	2	W
P_C	Collector Dissipation ($T_C=25^\circ\text{C}$)	30	W
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{STG}	Storage Temperature	-55 ~ 150	$^\circ\text{C}$

Electrical Characteristics $T_C=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
BV_{CEO}	Collector-Emitter Breakdown Voltage	$I_C = 50\text{mA}, I_B = 0$	60			V
I_{CB0}	Collector Cut-off Current	$V_{CB} = 60\text{V}, I_E = 0$			100	μA
I_{EBO}	Emitter Cut-off Current	$V_{EB} = 5\text{V}, I_C = 0$			3	mA
h_{FE1}	DC Current Gain	$V_{CE} = 3\text{V}, I_C = 3\text{A}$	2K		15K	
h_{FE2}		$V_{CE} = 3\text{V}, I_C = 7\text{A}$	1K			
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 3\text{A}, I_B = 6\text{mA}$		0.9	1.5	V
		$I_C = 7\text{A}, I_B = 14\text{mA}$		1.2	2	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 3\text{A}, I_B = 6\text{mA}$		1.5	2.5	V
t_{ON}	Turn ON Time	$V_{CC} = 45\text{V}, I_C = 4.5\text{A}$ $I_{B1} = -I_{B2} = 6\text{mA}$ $R_L = 10\Omega$		0.8		μs
t_{STG}	Storage Time			3		μs
t_F	Fall Time			2.5		μs

Typical Characteristics

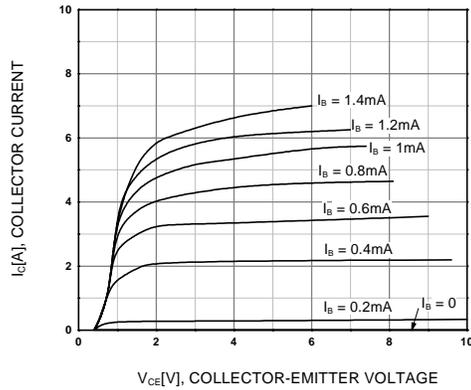


Figure 1. Static Characteristic

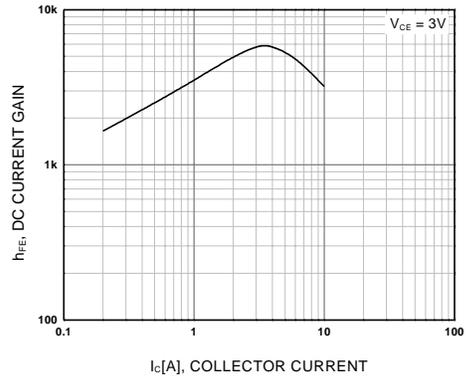


Figure 2. DC current Gain

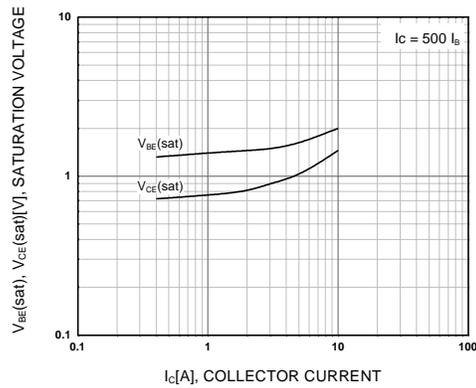


Figure 3. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

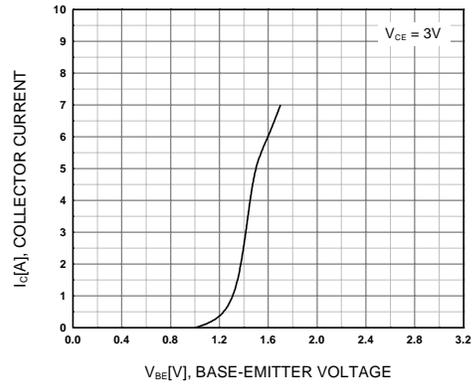


Figure 4. Base-Emitter On Voltage

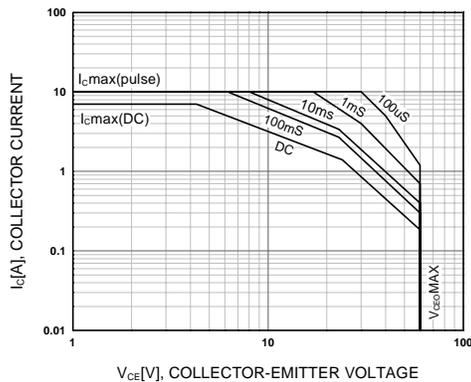


Figure 5. Safe Operating Area

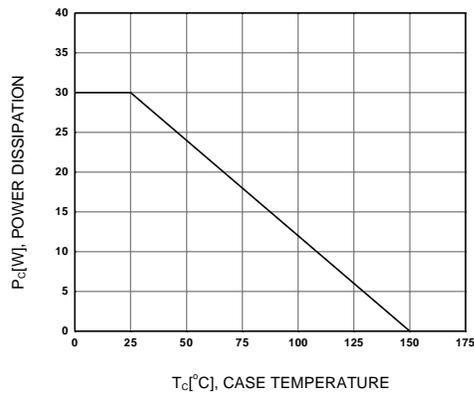
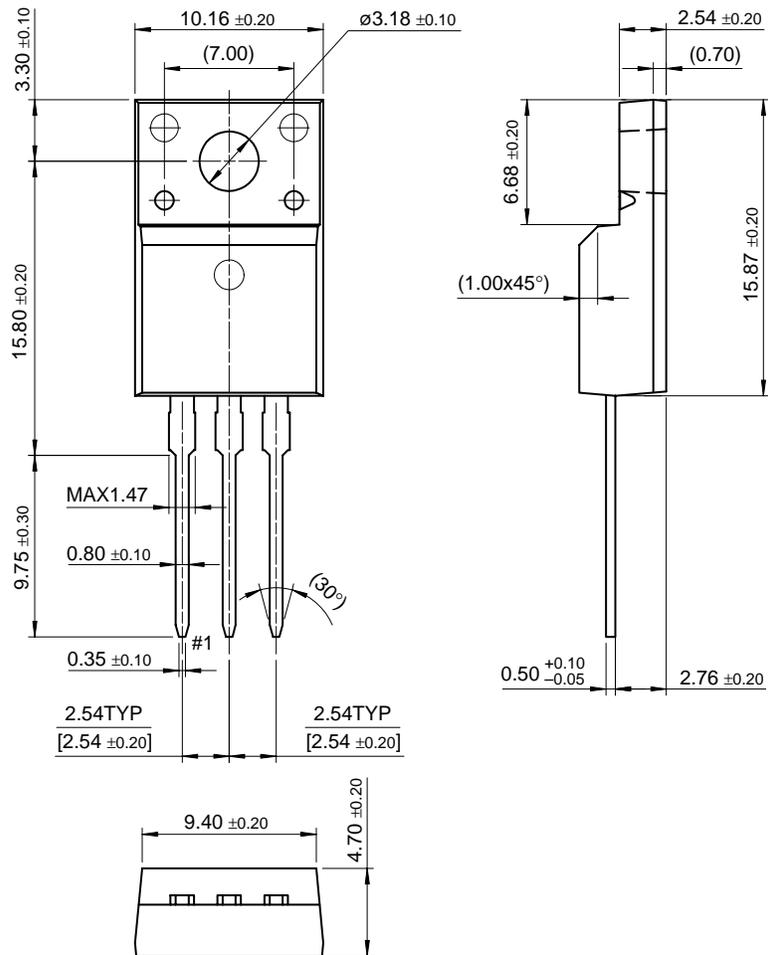


Figure 6. Power Derating

Package Dimensions

KSD1417

TO-220F



Dimensions in Millimeters

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