

# KSD1417

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## High Power Switching Applications

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



TO-220F  
1.Base 2.Collector 3.Emitter

## NPN Silicon Darlington Transistor

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

Symbol	Parameter	Value	Units
$V_{CBO}$	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
$I_{CBO}$	Collector Cut-off Current	$V_{CB} = 60\text{V}, I_E = 0$			100	$\mu\text{A}$
$I_{EBO}$	Emitter Cut-off Current	$V_{EB} = 5\text{V}, I_C = 0$			3	mA
$h_{FE1}$ $h_{FE2}$	DC Current Gain	$V_{CE} = 3\text{V}, I_C = 3\text{A}$ $V_{CE} = 3\text{V}, I_C = 7\text{A}$	2K 1K		15K	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 3\text{A}, I_B = 6\text{mA}$ $I_C = 7\text{A}, I_B = 14\text{mA}$		0.9 1.2	1.5 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	$V_{CC} = 45\text{V}, I_C = 4.5\text{A}$		0.8		$\mu\text{s}$
$t_{STG}$	Storage Time	$I_{B1} = -I_{B2} = 6\text{mA}$		3		$\mu\text{s}$
$t_F$	Fall Time	$R_L = 10\Omega$		2.5		$\mu\text{s}$

# Typical Characteristics

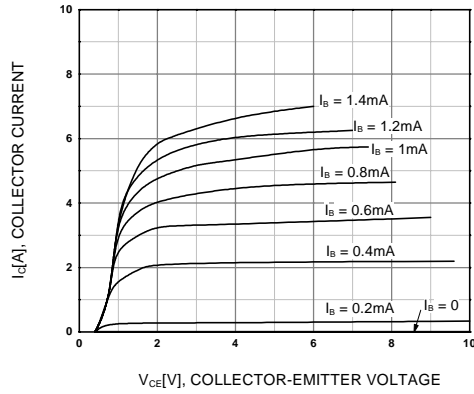


Figure 1. Static Characteristic

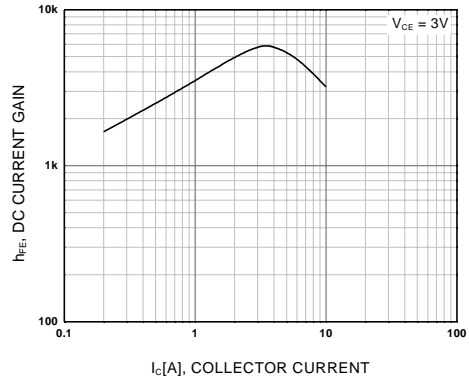


Figure 2. DC current Gain

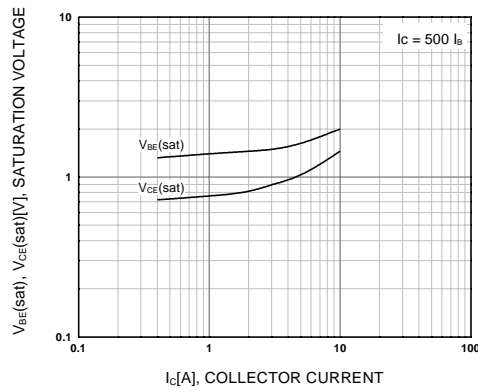


Figure 3. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

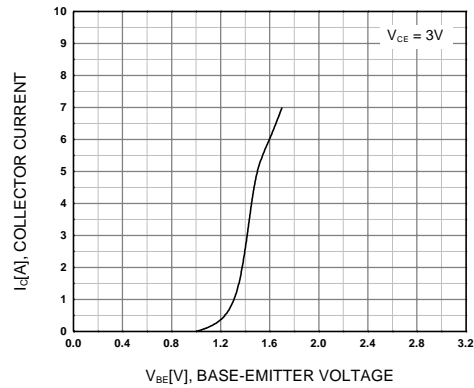


Figure 4. Base-Emitter On Voltage

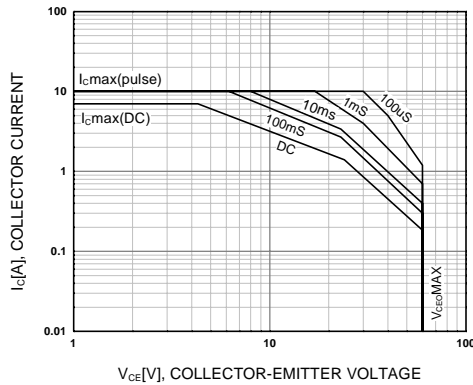


Figure 5. Safe Operating Area

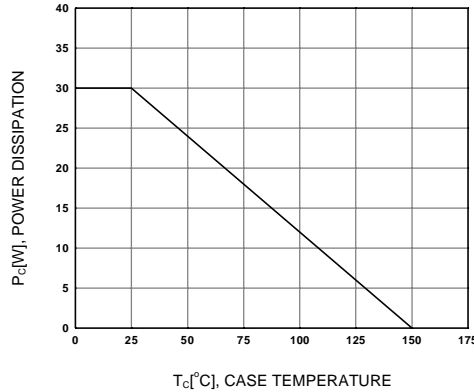


Figure 6. Power Derating

# Package Dimensions

KSD1417

## TO-220F



Dimensions in Millimeters

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