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Manufacturers of World Class Discrete Semiconductors

PN5135
PN5136
PN5137

NPN SILICON TRANSISTORS

JEDEC TO-92 CASE (EBC)

DESCRIPTION

The CENTRAL SEMICONDUCTOR PN5135, PN5136, PN5137 types are silicon NPN small signal transistors manufactured by the epitaxial planar process designed for general purpose amplifier and switching applications.

MAXIMUM RATINGS ($T_A=25^\circ\text{C}$ unless otherwise noted)

	SYMBOL	PN5135	PN5136	PN5137	UNIT
Collector-Base Voltage	V_{CB0}	30	30	30	V
Collector-Emitter Voltage	V_{CES}	30	30	30	V
Collector-Emitter Voltage	V_{CEO}	25	20	20	V
Emitter-Base Voltage	V_{EBO}	4.0	3.0	3.0	V
Collector Current	I_C	200	500	500	mA
Power Dissipation	P_D	625	625	625	mW
Power Dissipation ($T_C=25^\circ\text{C}$)	P_D	1.0	1.0	1.0	W
Operating and Storage					
Junction Temperature	T_J, T_{STG}	-65 to +150			$^\circ\text{C}$
Thermal Resistance	θ_{JA}	0.20			$^\circ\text{C}/\text{W}$
Thermal Resistance	θ_{JC}	125			$^\circ\text{C}/\text{W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	PN5135		PN5136		PN5137		UNIT
		MIN	MAX	MIN	MAX	MIN	MAX	
I_{CB0}	$V_{CB}=15\text{V}$		300		-		-	nA
I_{CB0}	$V_{CB}=20\text{V}$		-		100		100	nA
I_{CB0}	$V_{CB}=15\text{V}, T_A=65^\circ\text{C}$		10		-		-	μA
I_{CB0}	$V_{CB}=20\text{V}, T_A=65^\circ\text{C}$		-		10		10	μA
I_{EBO}	$V_{EB}=4.0\text{V}$		10		-		-	μA
I_{EBO}	$V_{EB}=2.0\text{V}$		-		100		100	nA
BV_{CB0}	$I_C=100\mu\text{A}$	30		30		30		V
BV_{CES}	$I_C=100\mu\text{A}$	30		30		30		V
BV_{CEO}	$I_C=10\text{mA}$	25		20		20		V
BV_{EBO}	$I_E=10\mu\text{A}$	4.0		3.0		3.0		V
$V_{CE}(\text{SAT})$	$I_C=100\text{mA}, I_B=10\text{mA}$		1.0		-		-	V
$V_{CE}(\text{SAT})$	$I_C=150\text{mA}, I_B=15\text{mA}$		-		0.25		0.25	V
$V_{BE}(\text{ON})$	$V_{CE}=10\text{V}, I_C=100\text{mA}$		1.0		-		-	V
$V_{BE}(\text{ON})$	$V_{CE}=10\text{V}, I_C=150\text{mA}$		-		1.1		1.1	V
$V_{BE}(\text{SAT})$	$I_C=100\text{mA}, I_B=10\text{mA}$		1.0		-		-	V
$V_{BE}(\text{SAT})$	$I_C=150\text{mA}, I_B=15\text{mA}$		-		1.1		1.1	V
hFE	$V_{CE}=1.0\text{V}, I_C=2.0\text{mA}$	15		-			-	
hFE	$V_{CE}=1.0\text{V}, I_C=30\text{mA}$	-		20		20		
hFE	$V_{CE}=1.0\text{V}, I_C=150\text{mA}$	-		20	400	20	400	
hFE	$V_{CE}=10\text{V}, I_C=10\text{mA}$	50	600	-	-	-	-	
f_T	$V_{CE}=5.0\text{V}, I_C=50\text{mA}, f=20\text{MHz}$	-	-	40	-	40	-	MHz
f_T	$V_{CE}=10\text{V}, I_C=30\text{mA}, f=20\text{MHz}$	40	-	-	-	-	-	MHz
C_{eb}	$V_{EB}=0.5\text{V}, I_C=0, f=1.0\text{MHz}$		-		85		85	pF
C_{ob}	$V_{CB}=10\text{V}, I_E=0, f=1.0\text{MHz}$		25		35		35	pF