



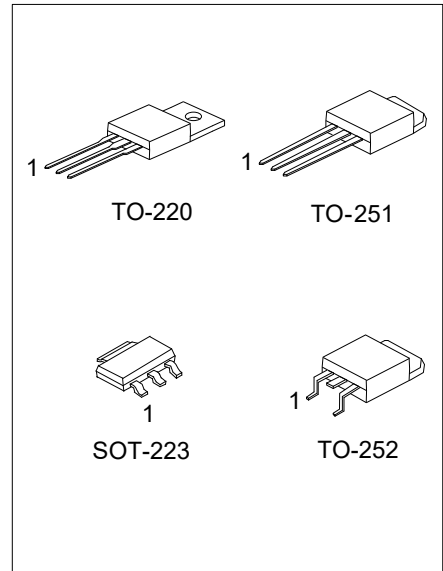
# HJ45H11

## PNP SILICON TRANSISTOR

### PNP EPITAXIAL PLANAR TRANSISTOR

■ DESCRIPTION

The **HJ45H11** is designed for various specific and general purpose applications, such as: output and driver stages of amplifiers operating at frequencies from DC to greater than 1MHz; series, shunt and switching regulators; low and high frequency inverters/converters; and many others.



■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
HJ45H11L-AA3-R	HJ45H11G-AA3-R	SOT-223	B	C	E	Tape Reel
HJ45H11L-TA3-T	HJ45H11G-TA3-T	TO-220	B	C	E	Tube
HJ45H11L-TM3-T	HJ45H11G-TM3-T	TO-251	B	C	E	Tube
HJ45H11L-TN3-R	HJ45H11G-TN3-R	TO-252	B	C	E	Tape Reel
HJ45H11L-TN3-T	HJ45H11G-TN3-T	TO-252	B	C	E	Tube

Note: Pin Assignment: B: Base C: Case E: Emitter

<p>HJ45H11G-AA3-R</p> <p>(1) Packing Type (2) Package Type (3) Green Package</p>	<p>(1) R: Tape Reel, T: Tube (2) AA3: SOT-223, TA3: TO-220, TM3: TO-251 TN3: TO-252 (3) G: Halogen Free and Lead Free, L: Lead Free</p>
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■ MARKING

SOT-223	TO-220 / TO-251 / TO-252

■ ABSOLUTE MAXIMUM RATINGS ( $T_A=25^{\circ}\text{C}$ , unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Collector-Base Voltage (Open Emitter)		$V_{CBO}$	-80	V
Collector- Emitter Voltage		$V_{CEO}$	-80	V
Collector-Emitter Voltage		$V_{CES}$	-80	V
Emitter-Base Voltage		$V_{EBO}$	-5	V
Collector Current	Continuous	$I_C$	-10	A
	Peak ( $T_C=25^{\circ}\text{C}$ )	$I_{CM}$	-15	A
Base Current		$I_B$	-5	A
Power Dissipation ( $T_C=25^{\circ}\text{C}$ )	SOT-223	$P_D$	5	W
	TO-220		65	W
	TO-251/TO-252		20	W
Junction Temperature		$T_J$	-40 ~ +150	$^{\circ}\text{C}$
Storage Temperature		$T_{STG}$	-55 ~ +150	$^{\circ}\text{C}$

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ THERMAL DATA

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Case (Note)	SOT-223	$\theta_{JC}$	25	$^{\circ}\text{C}/\text{W}$
	TO-220		1.92	$^{\circ}\text{C}/\text{W}$
	TO-251/TO-252		6.25	$^{\circ}\text{C}/\text{W}$

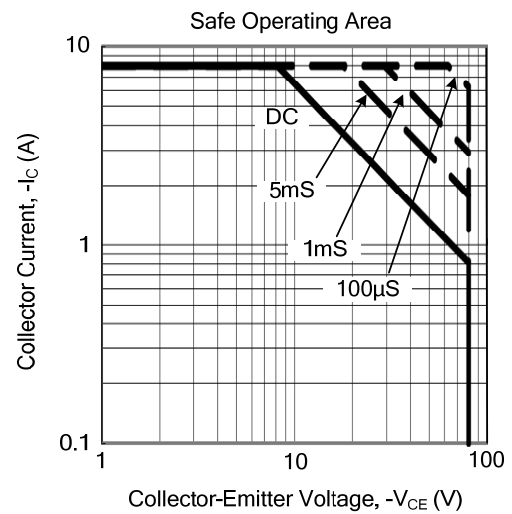
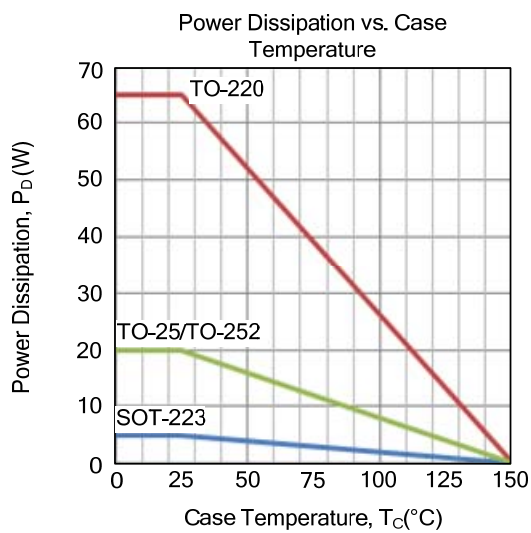
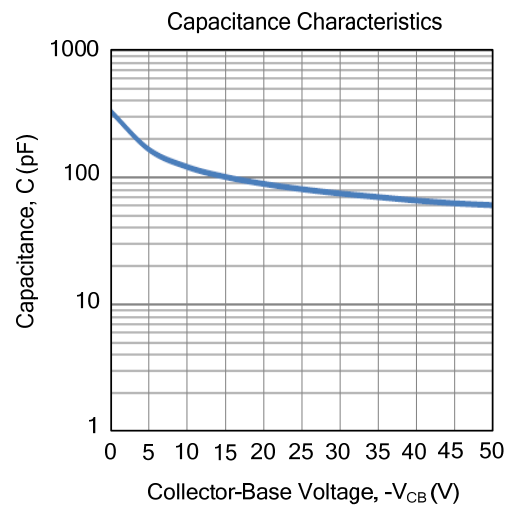
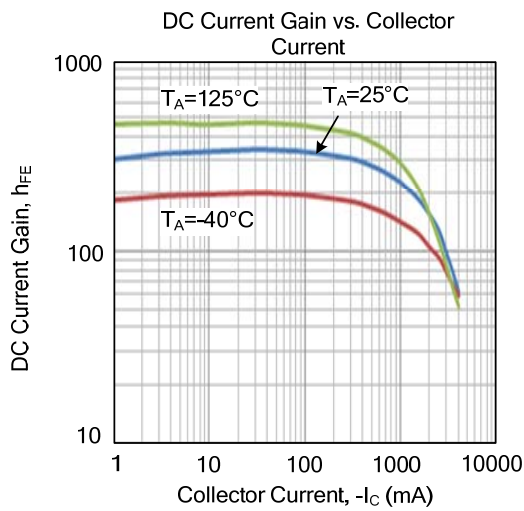
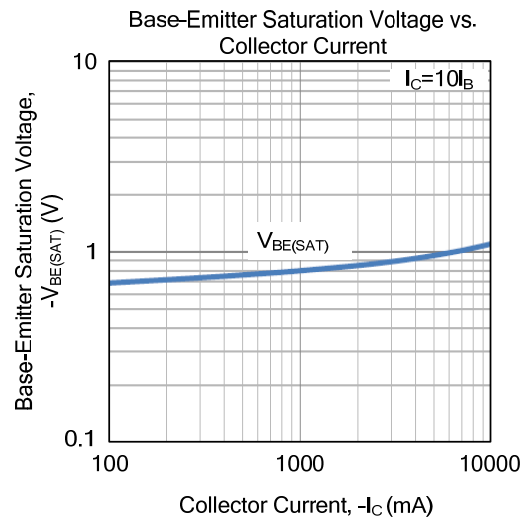
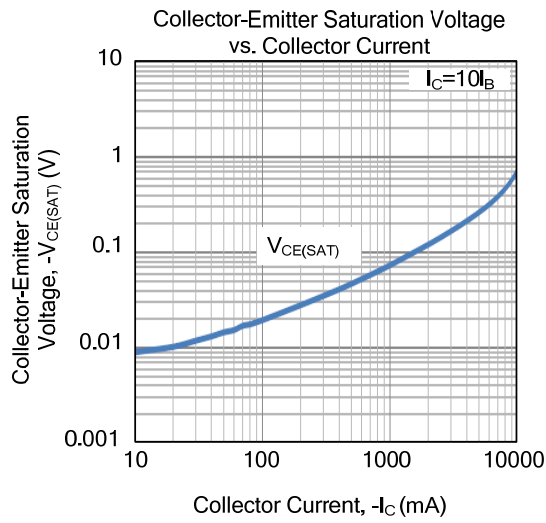
Note: Device mounted on FR-4 substrate  $P_c$  board, 2oz copper, with 1inch square copper plate.

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector Base Breakdown Voltage	$BV_{CBO}$	$I_C=-1\text{mA}$ , $I_E=0$	-80			V
Collector-Emitter Breakdown Voltage	$BV_{CEO}$	$I_C=-30\text{mA}$ , $I_B=0$	-80			V
Collector-Emitter Breakdown Voltage	$BV_{CES}$	$I_C=-1\text{mA}$ , $I_B=0$	-80			V
Emitter-Base Breakdown Voltage	$BV_{EBO}$	$I_E=-1\text{mA}$ , $I_C=0$	-5			V
Collector Cut-off Current	$I_{CBO}$	$V_{CB}=-80\text{V}$ , $V_{EB}=0$			-1	$\mu\text{A}$
Collector Cut-Off Current	$I_{CES}$	$V_{CE}=-80\text{V}$ , $V_{EB}=0$			-1	$\mu\text{A}$
Emitter Cut-off Current	$I_{EBO}$	$V_{EB}=-5\text{V}$ , $I_C=0$			-1	$\mu\text{A}$
Collector-Emitter Saturation Voltage (Note)	$V_{CE(SAT)}$	$I_C=-8\text{A}$ , $I_B=-0.8\text{A}$			-1	V
Base-Emitter Saturation Voltage (Note)	$V_{BE(SAT)}$	$I_C=-8\text{A}$ , $I_B=-0.8\text{A}$			-1.5	V
DC Current Gain (Note)	$h_{FE1}$	$V_{CE}=-1\text{V}$ , $I_C=-2\text{A}$	60			
	$h_{FE2}$	$V_{CE}=-1\text{V}$ , $I_C=-4\text{A}$	40			
Output Capacitance	$C_{OB}$	$V_{CB}=-10\text{V}$		105		pF
Transition Frequency	$f_T$	$V_{CE}=10\text{V}$ , $I_C=500\text{mA}$ , $f=20\text{MHz}$		50		MHz
Delay and Rise Times	$t_D + t_R$	$I_C=-5.0\text{A}$ , $I_{B1}=-0.5\text{A}$		33		ns
Storage Time	$t_S$	$I_C=-5.0\text{A}$ , $I_{B1}=I_{B2}=-0.5\text{A}$		1720		ns
Fall Time	$t_F$			150		ns

Note: Pulse Test: Pulse Width  $\leq 380\mu\text{s}$ , Duty Cycle  $\leq 2\%$ .

## TYPICAL CHARACTERISTICS



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