

**KSC5030**

**NPN SILICON TRANSISTOR**

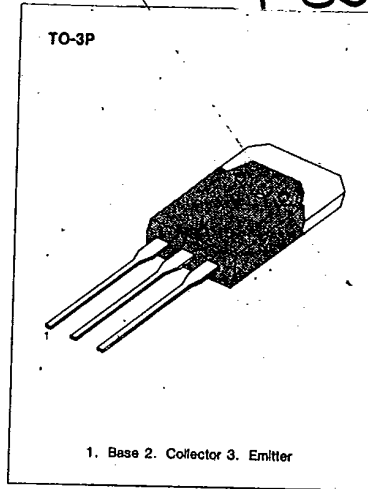
**HIGH VOLTAGE AND HIGH RELIABILITY**

HIGH SPEED SWITCHING  
WIDE SOA

T-33-13

**ABSOLUTE MAXIMUM RATINGS (T<sub>a</sub> = 25°C)**

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	V <sub>CB0</sub>	1100	V
Collector-Emitter Voltage	V <sub>CE0</sub>	800	V
Emitter-Base Voltage	V <sub>EB0</sub>	7	V
Collector Current (DC)	I <sub>C</sub>	6	A
Collector Current (Pulse)	I <sub>C</sub>	20	A
Base Current	I <sub>B</sub>	3	A
Collector Dissipation	P <sub>C</sub>	100	W
Junction Temperature	T <sub>J</sub>	150	°C
Storage Temperature	T <sub>stg</sub>	-55~150	°C



3

**ELECTRICAL CHARACTERISTICS (T<sub>a</sub> = 25°C)**

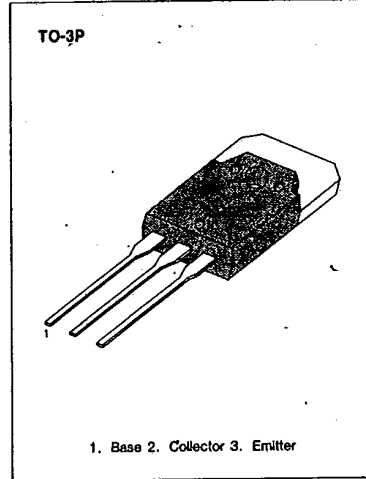
Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Collector Base Breakdown Voltage	BV <sub>CB0</sub>	I <sub>C</sub> = 1mA, I <sub>E</sub> = 0	1100			V
Collector Emitter Breakdown Voltage	BV <sub>CE0</sub>	I <sub>C</sub> = 5mA, R <sub>BE</sub> = ∞	800			V
Emitter Base Breakdown Voltage	BV <sub>EB0</sub>	I <sub>E</sub> = 1mA, I <sub>C</sub> = 0	7			V
Collector Emitter Sustaining Voltage	V <sub>CEX(sus)</sub>	I <sub>C</sub> = 3A, I <sub>B1</sub> = -I <sub>B2</sub> = 0.6A L = 1mH, Clamped	800			V
Collector Cutoff Current	I <sub>CB0</sub>	V <sub>CB</sub> = 800V, I <sub>E</sub> = 0			10	μA
Emitter Cutoff Current	I <sub>EB0</sub>	V <sub>EB</sub> = 5V, I <sub>C</sub> = 0			10	μA
DC Current Gain	h <sub>FE1</sub>	V <sub>CE</sub> = 5V, I <sub>C</sub> = 0.4A	10		40	
	h <sub>FE2</sub>	V <sub>CE</sub> = 5V, I <sub>C</sub> = 2A	8			
Collector Emitter Saturation Voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> = 3A, I <sub>B</sub> = 0.6A			2	V
Base Emitter Saturation Voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> = 3A, I <sub>B</sub> = 0.6A			1.5	V
Output Capacitance	C <sub>ob</sub>	V <sub>CB</sub> = 10V, I <sub>E</sub> = 0, f = 1MHz		120		pF
Current Gain Bandwidth Product	f <sub>T</sub>	V <sub>CE</sub> = 10V, I <sub>C</sub> = 0.4A		15		MHz
Trun On Time	t <sub>on</sub>	V <sub>CC</sub> = 400V			0.5	μS
Storage Time	t <sub>s</sub>	5I <sub>B1</sub> = -2.5I <sub>B2</sub> = I <sub>C</sub> = 4A			3	μS
Fall Time	t <sub>f</sub>	RL = 100Ω			0.3	μS

**h<sub>FE</sub> (1) CLASSIFICATION**

Classification	N	R	O
h <sub>FE</sub> 1	10-20	15-30	20-40

**KSC5031****NPN SILICON TRANSISTOR****HIGH VOLTAGE AND HIGH RELIABILITY**HIGH SPEED SWITCHING  
WIDE SOA**ABSOLUTE MAXIMUM RATINGS (T<sub>a</sub>=25°C)**

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	V <sub>CB0</sub>	1100	V
Collector-Emitter Voltage	V <sub>CEO</sub>	800	V
Emitter-Base Voltage	V <sub>EB0</sub>	7	V
Collector Current (DC)	I <sub>C</sub>	8	A
Collector Current (Pulse)	I <sub>C</sub>	25	A
Base Current	I <sub>B</sub>	4	A
Collector Dissipation	P <sub>C</sub>	140	W
Junction Temperature	T <sub>J</sub>	150	°C
Storage Temperature	T <sub>stg</sub>	-55~150	°C

**ELECTRICAL CHARACTERISTICS (T<sub>a</sub>=25°C)**

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Collector Base Breakdown Voltage	BV <sub>CB0</sub>	I <sub>C</sub> =1mA, I <sub>E</sub> =0	1100			V
Collector Emitter Breakdown Voltage	BV <sub>CEO</sub>	I <sub>C</sub> =5mA, R <sub>th</sub> =∞	800			V
Emitter Base Breakdown Voltage	BV <sub>EB0</sub>	I <sub>E</sub> =1mA, I <sub>C</sub> =0	7			V
Collector Emitter Sustaining Voltage	V <sub>CE(sus)</sub>	I <sub>C</sub> =4A, 2I <sub>B1</sub> =-I <sub>B2</sub> =0.8A L=1mH, Clamped	800			V
Collector Cutoff Current	I <sub>CB0</sub>	V <sub>CB</sub> =800V, I <sub>E</sub> =0			10	μA
Emitter Cutoff Current	I <sub>EB0</sub>	V <sub>EB</sub> =5V, I <sub>C</sub> =0			10	μA
DC Current Gain	h <sub>FE1</sub>	V <sub>CE</sub> =5V, I <sub>C</sub> =0.6A	10		40	
	h <sub>FE2</sub>	V <sub>CE</sub> =5V, I <sub>C</sub> =3A	8			
Collector Emitter Saturation Voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> =4A, I <sub>B</sub> =0.8A			2	V
Base Emitter Saturation Voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> =4A, I <sub>B</sub> =0.8A			1.5	V
Output Capacitance	C <sub>ob</sub>	V <sub>CB</sub> =10V, I <sub>E</sub> =0, f=1MHz		155		pF
Current Gain Bandwidth Product	f <sub>T</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =0.6A		15		MHz
Trun On Time	t <sub>on</sub>	V <sub>CC</sub> =400V			0.5	μS
Storage Time	t <sub>S</sub>	S <sub>I</sub> B1=-2.5I <sub>B2</sub> =I <sub>C</sub> =6A			3	μS
Fall Time	t <sub>f</sub>	R <sub>L</sub> =66.7Ω			0.3	μS

**h<sub>FE</sub> (1) CLASSIFICATION**

Classification	N	R	O
h <sub>FE</sub> 1	10-20	15-30	20-40



**KSD73****NPN EPITAXIAL SILICON TRANSISTOR**

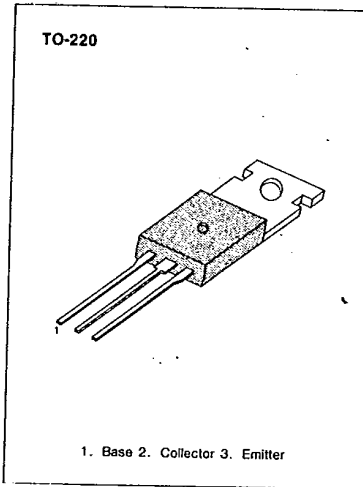
T-33-09

**LOW FREQUENCY HIGH POWER AMPLIFIER**

- Collector-Base Voltage  $V_{CB0} = 100V$
- Collector Current  $I_C = 5A$
- Collector Dissipation  $P_C = 30W$  ( $T_C = 25^\circ C$ )

**ABSOLUTE MAXIMUM RATINGS ( $T_a = 25^\circ C$ )**

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	$V_{CB0}$	100	V
Collector-Emitter Voltage	$V_{CEO}$	60	V
Emitter-Base Voltage	$V_{EBO}$	5	V
Collector Current	$I_C$	5	A
Collector Dissipation ( $T_C = 25^\circ C$ )	$P_C$	30	W
Junction Temperature	$T_j$	150	$^\circ C$
Storage Temperature	$T_{stg}$	-55 - 150	$^\circ C$



3

**ELECTRICAL CHARACTERISTICS ( $T_a = 25^\circ C$ )**

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	$BV_{CBO}$	$I_C = 1mA, I_E = 0$	100			V
Collector-Emitter Breakdown Voltage	$BV_{CEO}$	$I_C = 20mA, I_B = 0$	60			V
Emitter-Base Breakdown Voltage	$BV_{EBO}$	$I_E = -1mA, I_C = 0$	5			V
Collector Cutoff Current	$I_{CBO}$	$V_{CB} = 100V, I_E = 0$			5	mA
DC Current Gain	$h_{FE}$	$V_{CE} = 10V, I_C = 1.0A$	70		240	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 5A, I_B = 0.5A$			2.0	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 5A, I_B = 0.5A$			1.5	V
Current-Gain Bandwidth Product	$f_T$	$V_{CE} = 10V, I_C = 0.3A$		20		MHz
Base-Emitter On Voltage	$V_{BE(on)}$	$V_{CE} = 10V, I_C = 1.0A$		0.75		V

 **$h_{FE}$  CLASSIFICATION**

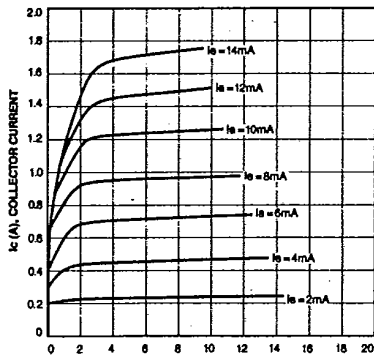
Classification	O	Y
$h_{FE}$	70-140	120-240

KSD73

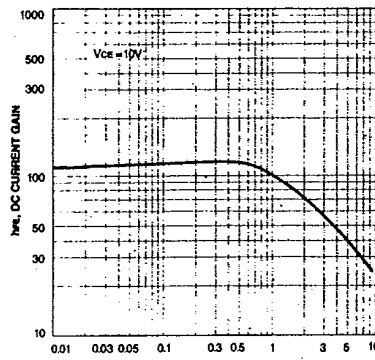
NPN EPITAXIAL SILICON TRANSISTOR

T-33-09

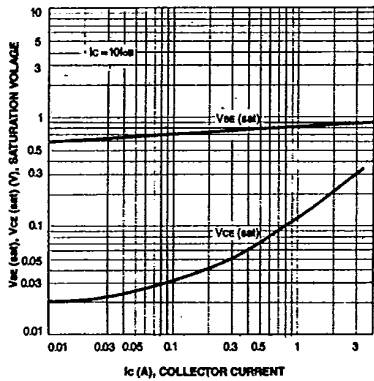
STATIC CHARACTERISTIC



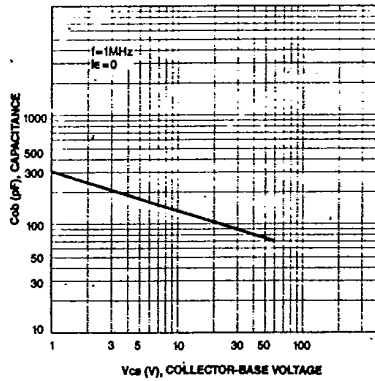
DC CURRENT GAIN



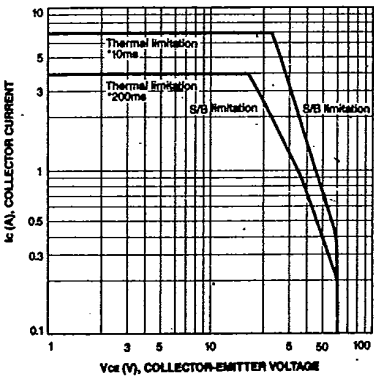
BASE-EMITTER SATURATION VOLTAGE  
COLLECTOR-EMITTER SATURATION VOLTAGE



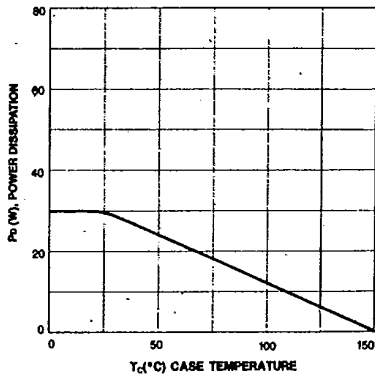
COLLECTOR OUTPUT CAPACITANCE



SAFE OPERATING AREA



POWER DERATING

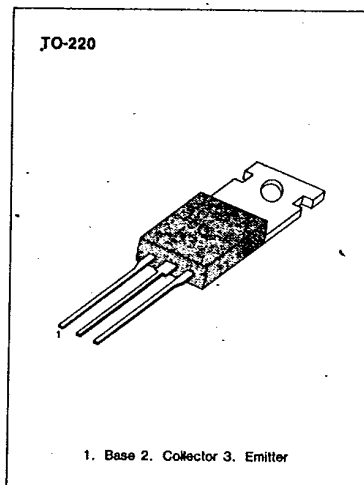


**KSD288****NPN EPITAXIAL SILICON TRANSISTOR****POWER REGULATOR  
LOW FREQUENCY POWER AMPLIFIER**

- Complement to KSA614
- Collector-Base Voltage  $V_{CB0} = 80V$
- Collector Dissipation  $P_C = 25W$  ( $T_C = 25^\circ C$ )

**ABSOLUTE MAXIMUM RATINGS ( $T_a = 25^\circ C$ )**

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	$V_{CB0}$	80	V
Collector-Emitter Voltage	$V_{CE0}$	55	V
Emitter-Base Voltage	$V_{EB0}$	5	V
Collector Current	$I_C$	8	A
Collector Dissipation ( $T_C = 25^\circ C$ )	$P_C$	25	W
Junction Temperature	$T_J$	150	$^\circ C$
Storage Temperature	$T_{stg}$	-55 ~ +150	$^\circ C$



3

**ELECTRICAL CHARACTERISTICS ( $T_a = 25^\circ C$ )**

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	$BV_{CB0}$	$I_C = 500\mu A, I_E = 0$	80			V
Collector-Emitter Breakdown Voltage	$BV_{CE0}$	$I_C = 10mA, I_B = 0$	55			V
Emitter-Base Breakdown Voltage	$BV_{EB0}$	$I_E = -500\mu A, I_C = 0$	5			V
Collector Cut-off Current	$I_{CBO}$	$V_{CB} = 50V, I_E = 0$			50	$\mu A$
DC Current Gain	$h_{FE}$	$V_{CE} = 5V, I_C = 0.5A$	40		240	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 1A, I_B = 0.1A$			1	V

 **$h_{FE}$  CLASSIFICATION**

Classification	R	O	Y
$h_{FE}$	40-80	70-140	120-240



KSD288

NPN EPITAXIAL SILICON TRANSISTOR

T-33-09

