

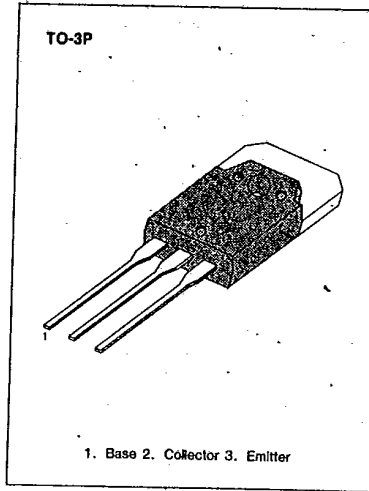
KSC2751**NPN EPITAXIAL SILICON TRANSISTOR**

T-33-13

**HIGH SPEED, HIGH CURRENT SWITCHING
INDUSTRIAL USE****ABSOLUTE MAXIMUM RATINGS (T_a = 25°C)**

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	V _{CB0}	500	V
Collector-Emitter Voltage	V _{CE0}	400	V
Emitter-Base Voltage	V _{EB0}	7	V
Collector Current (DC)	I _C	15	A
*Collector Current (Pulse)	I _C	30	A
Base Current (DC)	I _B	7.5	A
Collector Dissipation (T _c = 25°C)	P _C	120	W
Junction Temperature	T _J	150	°C
Storage Temperature	T _{stg}	-55~150	°C

* PW ≤ 300μs, Duty Cycle ≤ 10%



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ELECTRICAL CHARACTERISTICS (T_a = 25°C)

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Collector Emitter Sustaining Voltage	V _{CE0} (sus)	I _C = 10A, I _B = 2A, L = 50μH	400			V
Collector Emitter Sustaining Voltage	V _{CEX} (sus)1	I _C = 10A, I _{B1} = -I _{B2} = 2A T _a = 125°C, L = 180μH, Clamped	450			V
Collector Emitter Sustaining Voltage	V _{CEX} (sus)2	I _C = 20A, I _{B1} = 4A, -I _{B2} = 2A T _a = 125°C, L = 180μH, Clamped	400			V
Collector Cutoff Current	I _{CB0}	V _{CB} = 400V, I _E = 0			100	μA
Collector Cutoff Current	I _{CER}	V _{CE} = 400V, R _{BE} = 50Ω, T _a = 125°C			2	mA
Collector Cutoff Current	I _{CEX1}	V _{CE} = 400V, V _{BE} (off) = -1.5V			100	μA
Collector Cutoff Current	I _{CEX2}	V _{CE} = 400V, V _{BE} (off) = -1.5V T _a = 125°C			1	mA
Emitter Cutoff Current	I _{EB0}	V _{EB} = 5V, I _C = 0			10	μA
*DC Current Gain	h _{FE1}	V _{CE} = 5V, I _C = 2A	15	35	80	
	h _{FE2}	V _{CE} = 5V, I _C = 5A	10			
	h _{FE3}	V _{CE} = 5V, I _C = 10A	7			
*Collector-Emitter Saturation Voltage	V _{CE} (sat)	I _C = 10A, I _B = 2A		0.3	1	V
*Base-Emitter Saturation Voltage	V _{BE} (sat)	I _C = 10A, I _B = 2A		1	1.5	V
Turn On Time	t _{on}	I _C = 10A, R _L = 15Ω			1	μs
Storage Time	t _s	I _{B1} = -I _{B2} = 2A, V _{CC} = 150V			2.5	μs
Fall Time	t _f				0.7	μs

*Pulse Test: PW ≤ 350μs, Duty Cycle ≤ 2% Pulsed

h_{FE} (1) CLASSIFICATION

Classification	N	R	O	Y
h _{FE} (1)	15-30	20-40	30-60	40-80

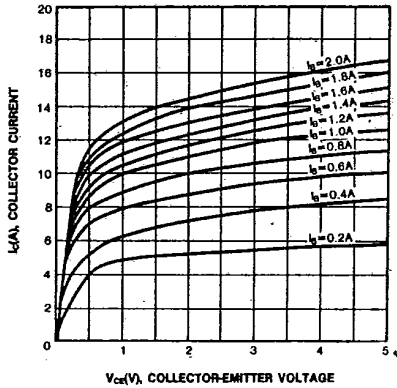


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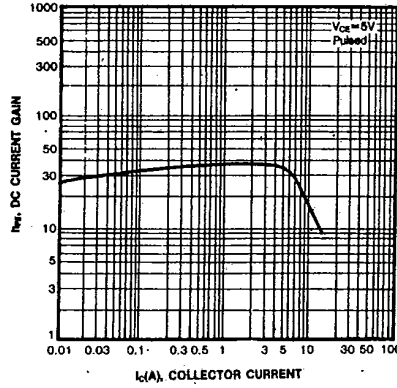
NPN EPITAXIAL SILICON TRANSISTOR

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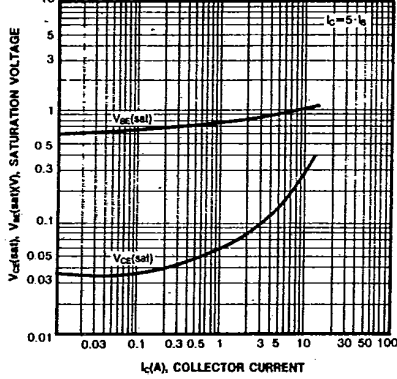
STATIC CHARACTERISTIC



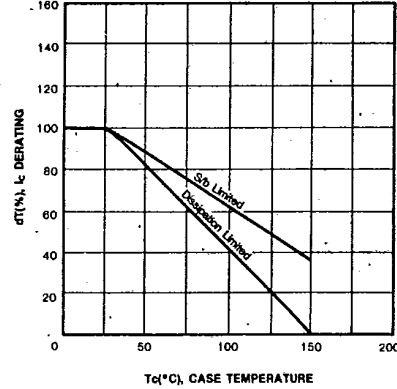
DC CURRENT GAIN



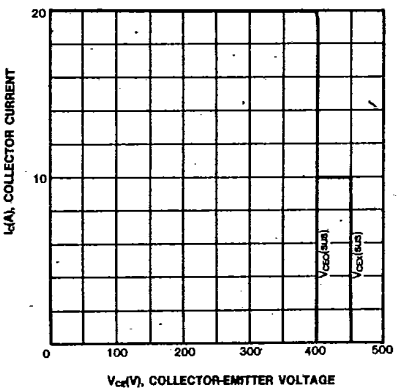
BASE-EMITTER SATURATION VOLTAGE
COLLECTOR-EMITTER SATURATION VOLTAGE



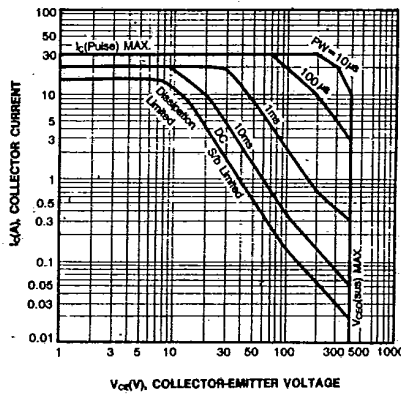
DERATING CURVE OF SAFE OPERATING AREAS



REVERSE BIAS SAFE OPERATING AREA



SAFE OPERATING AREA

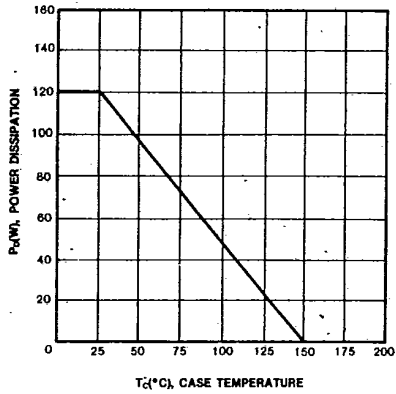


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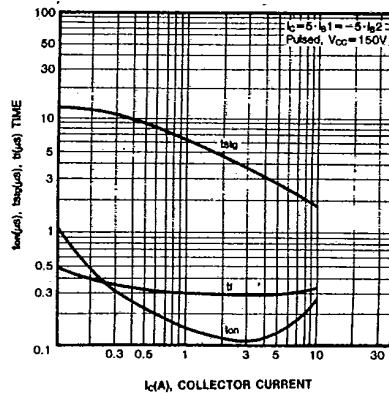
NPN EPITAXIAL SILICON TRANSISTOR

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POWER DERATING



SWITCHING TIME



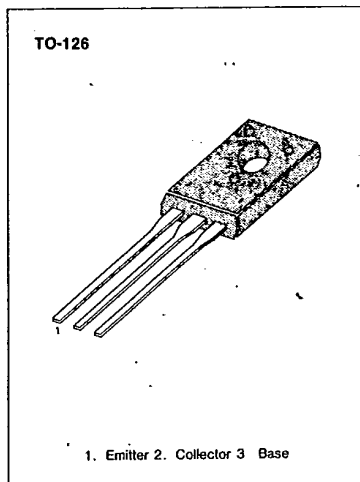
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KSC2752**NPN EPITAXIAL SILICON TRANSISTOR**

T-33-07

**HIGH SPEED, HIGH VOLTAGE SWITCHING
INDUSTRIAL USE****ABSOLUTE MAXIMUM RATINGS ($T_a=25^\circ\text{C}$)**

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	V_{CBO}	500	V
Collector-Emitter Voltage	V_{CEO}	400	V
Emitter-Base Voltage	V_{EBO}	7	V
Collector Current (DC)	I_C	0.5	A
*Collector Current (Pulse)	I_C	1	A
Base Current (DC)	I_B	0.25	A
Collector Dissipation ($T_a=25^\circ\text{C}$)	P_C	1	W
Collector Dissipation ($T_c=25^\circ\text{C}$)	P_C	10	W
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55~150	$^\circ\text{C}$

* $PW \leq 300\mu\text{s}$, Duty Cycle $\leq 10\%$ **ELECTRICAL CHARACTERISTICS ($T_a=25^\circ\text{C}$)**

Characteristic	Symbol	Test Condition	Min	Max	Unit
Collector Emitter Sustaining Voltage	$V_{CEO}(\text{sus})$	$I_C=0.3\text{A}$, $I_B1=0.06\text{A}$, $L=10\text{mH}$	400		V
Collector Emitter Sustaining Voltage	$V_{CEX}(\text{sus})1$	$I_C=0.3\text{A}$, $I_B1=-I_B2=0.06\text{A}$ $V_{BE}(\text{off})=-5\text{V}$, $L=10\text{mH}$, Clamped	450		V
Collector Emitter Sustaining Voltage	$V_{CEX}(\text{sus})2$	$I_C=0.6\text{A}$, $I_B1=0.2\text{A}$, $I_B2=-0.06\text{A}$ $V_{BE}(\text{off})=-5\text{V}$, $L=10\text{mH}$, Clamped	400		V
Collector Cutoff Current	I_{CBO}	$V_{CB}=400\text{V}$, $I_E=0$		10	μA
Collector Cutoff Current	I_{CER}	$V_{CE}=400\text{V}$, $R_{BE}=51\Omega$, $T_a=125^\circ\text{C}$		1	mA
Collector Cutoff Current	I_{CEX1}	$V_{CE}=400\text{V}$, $V_{BE}(\text{off})=-1.5\text{V}$		10	μA
Collector Cutoff Current	I_{CEX2}	$V_{CE}=400\text{V}$, $V_{BE}(\text{off})=-1.5\text{V}$ $T_a=125^\circ\text{C}$		1	mA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=5\text{V}$, $I_C=0$		10	μA
*DC Current Gain	h_{FE1}	$V_{CE}=5\text{V}$, $I_C=0.05\text{A}$	20	80	
	h_{FE2}	$V_{CE}=5\text{V}$, $I_C=0.3\text{A}$	10		
*Collector-Emitter Saturation Voltage	$V_{CE}(\text{sat})$	$I_C=0.3\text{A}$, $I_B=0.06\text{A}$		1	V
*Base-Emitter Saturation Voltage	$V_{BE}(\text{sat})$	$I_C=0.3\text{A}$, $I_B=0.06\text{A}$		1.2	V
Turn On Time	t_{on}	$I_C=0.3\text{A}$ $R_L=500\Omega$		1	μs
Storage Time	t_s	$I_B1=-I_B2=0.06\text{A}$, $V_{CC}=150\text{V}$		2.5	μs
Fall Time	t_f	$PW=50\mu\text{s}$, Duty Cycle $\leq 2\%$		1	μs

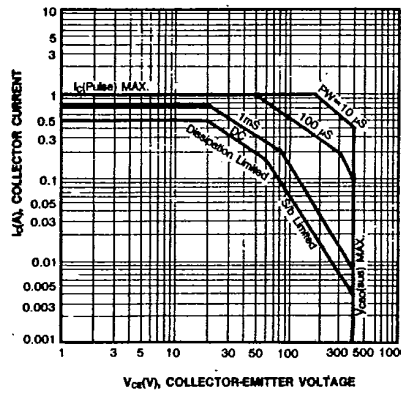
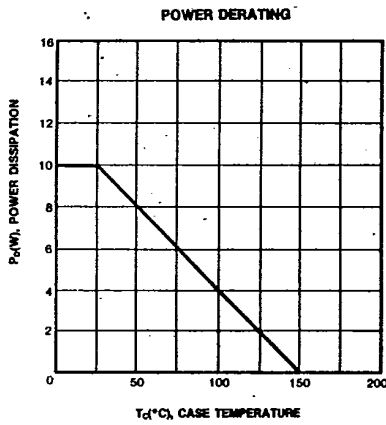
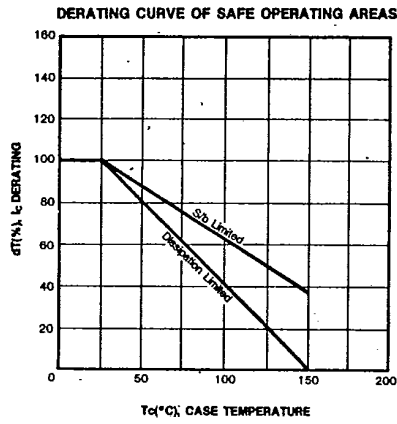
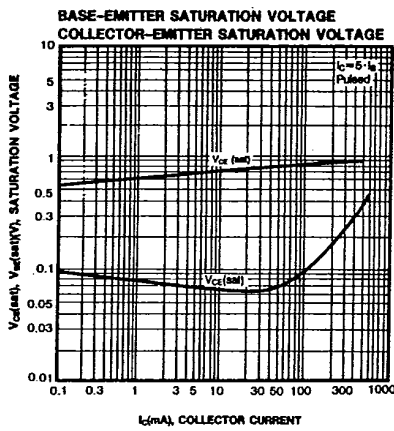
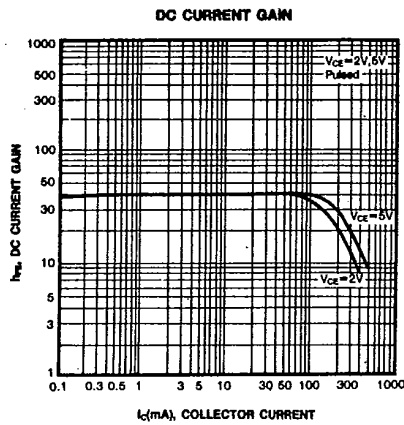
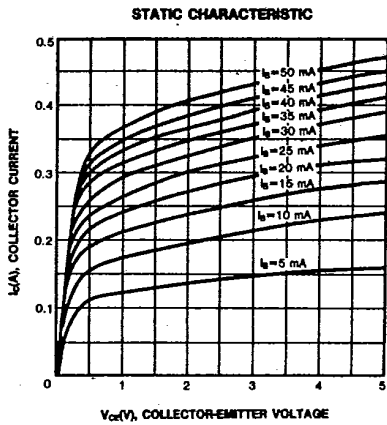
*Pulse Test: $PW \leq 350\mu\text{s}$, Duty Cycle $\leq 2\%$ pulsed **h_{FE} (1) CLASSIFICATION**

Classification	R	O	Y
$h_{FE}(1)$	20-40	30-60	40-80

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