

KSC2751**NPN EPITAXIAL SILICON TRANSISTOR**

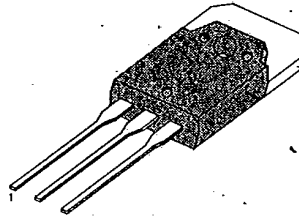
T-33-13

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

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 ($T_c = 25^\circ\text{C}$)	P_C	120	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 $\leq 10\%$

TO-3P



1. Base 2. Collector 3. Emitter

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ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Collector Emitter Sustaining Voltage	$V_{CE0}(\text{sus})$	$I_C = 10\text{A}$, $I_B = 2\text{A}$, $L = 50\mu\text{H}$	400			V
Collector Emitter Sustaining Voltage	$V_{CE0}(\text{sus})1$	$I_C = 10\text{A}$, $I_B = -I_{B2} = 2\text{A}$ $T_a = 125^\circ\text{C}$, $L = 180\mu\text{H}$, Clamped	450			V
Collector Emitter Sustaining Voltage	$V_{CE0}(\text{sus})2$	$I_C = 20\text{A}$, $I_B = 4\text{A}$, $-I_{B2} = 2\text{A}$ $T_a = 125^\circ\text{C}$, $L = 180\mu\text{H}$, Clamped	400			V
Collector Cutoff Current	I_{CBO}	$V_{CB} = 400\text{V}$, $I_E = 0$			100	μA
Collector Cutoff Current	I_{CER}	$V_{CE} = 400\text{V}$, $R_{BE} = 50\Omega$, $T_a = 125^\circ\text{C}$			2	mA
Collector Cutoff Current	I_{CEX1}	$V_{CE} = 400\text{V}$, $V_{BE}(\text{off}) = -1.5\text{V}$			100	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}	$V_{CE} = 5\text{V}$, $I_C = 2\text{A}$	15	35	80	
	h_{FE2}	$V_{CE} = 5\text{V}$, $I_C = 5\text{A}$	10			
	h_{FE3}	$V_{CE} = 5\text{V}$, $I_C = 10\text{A}$	7			
*Collector-Emitter Saturation Voltage	$V_{CE}(\text{sat})$	$I_C = 10\text{A}$, $I_B = 2\text{A}$		0.3	1	V
*Base-Emitter Saturation Voltage	$V_{BE}(\text{sat})$	$I_B = 10\text{A}$, $I_C = 2\text{A}$		1	1.5	V
Turn On Time	t_{on}	$I_C = 10\text{A}$, $R_L = 15\Omega$			1	μs
Storage Time	t_s	$I_B1 = -I_{B2} = 2\text{A}$, $V_{CC} = 150\text{V}$			2.5	μs
Fall Time	t_f				0.7	μs

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

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



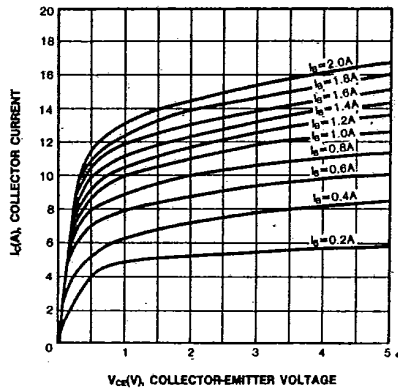
SAMSUNG SEMICONDUCTOR

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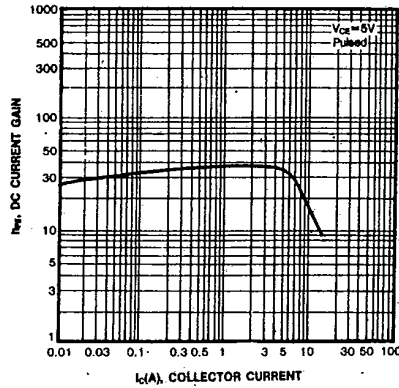
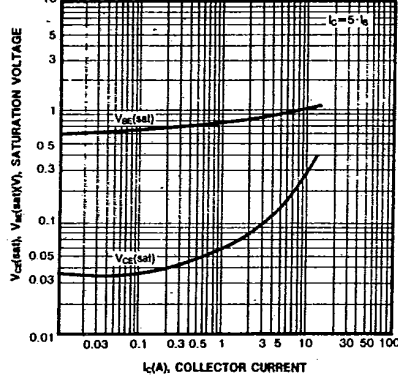
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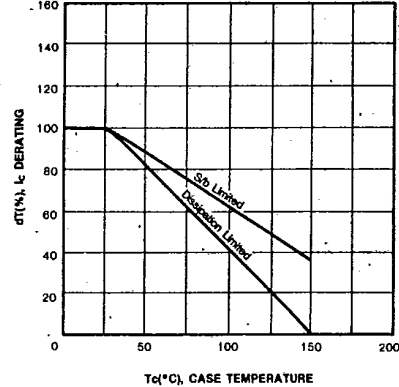
STATIC CHARACTERISTIC



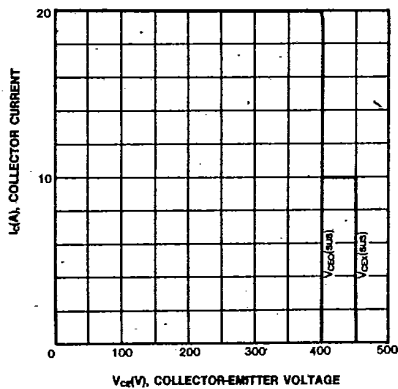
DC CURRENT GAIN

BASE-EMITTER SATURATION VOLTAGE
COLLECTOR-EMITTER SATURATION VOLTAGE

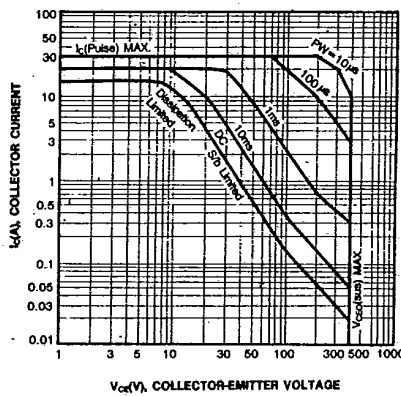
DERATING CURVE OF SAFE OPERATING AREAS

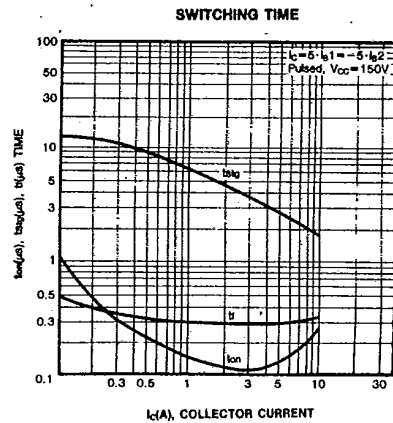
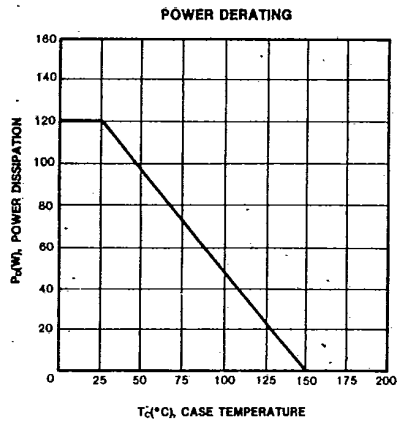


REVERSE BIAS SAFE OPERATING AREA



SAFE OPERATING AREA



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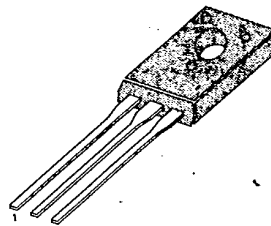
KSC2752**NPN EPITAXIAL SILICON TRANSISTOR**

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	$^\circ\text{C}$

TO-18



1. Emitter 2. Collector 3. Base

* $PW \leq 300\mu\text{s}$, 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

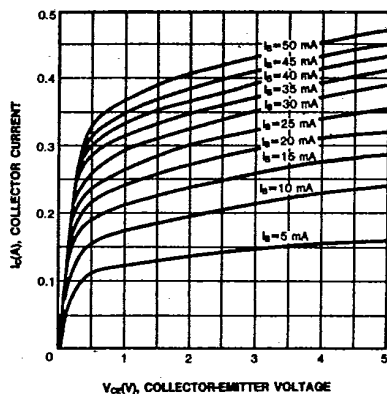


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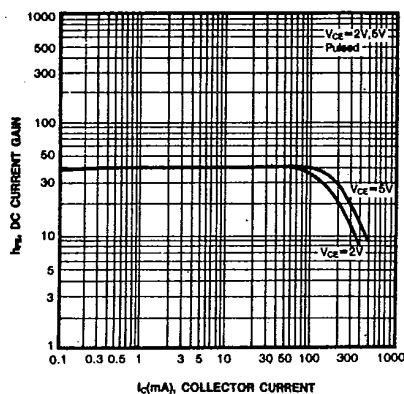
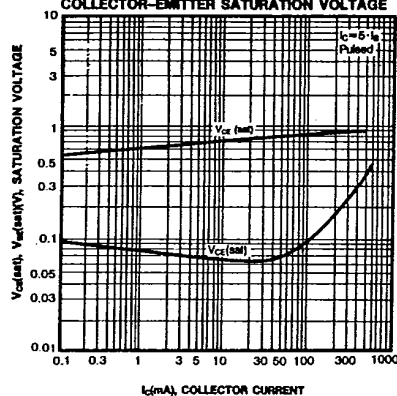
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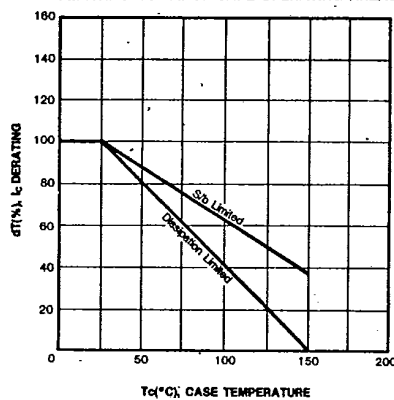
STATIC CHARACTERISTIC



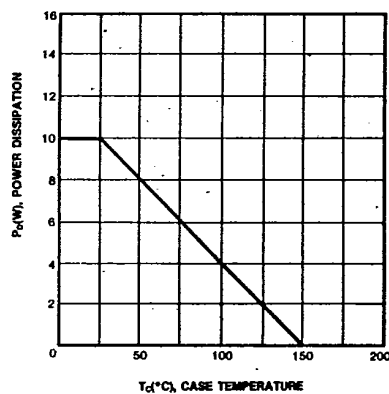
DC CURRENT GAIN

BASE-EMITTER SATURATION VOLTAGE
COLLECTOR-EMITTER SATURATION VOLTAGE

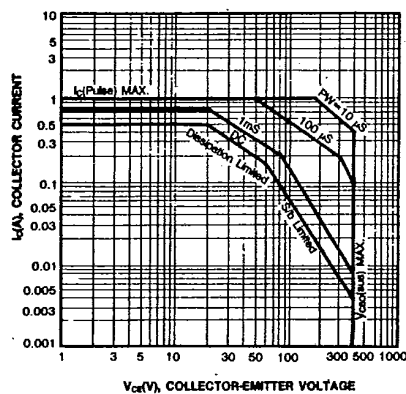
DERATING CURVE OF SAFE OPERATING AREAS



POWER DERATING



SAFE OPERATING AREA



3



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