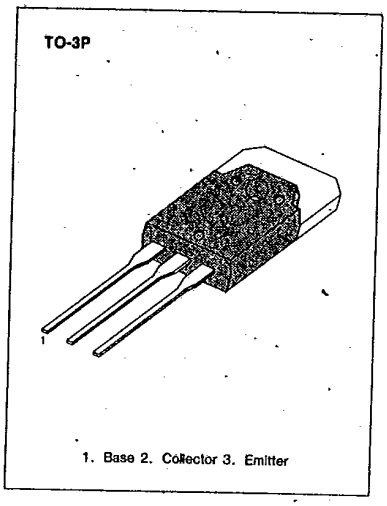
KSC2751 NPN EPITAXIAL SILICON TRANSISTOR

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_{CBO}	500	V
Collector-Emitter Voltage	V_{CEO}	400	V
Emitter-Base Voltage	V_{EBO}	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	Tj	150	°C
Storage Temperature	Tstg	−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_{CEO} (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_{CBO}	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_{CEX}1	V_{CE}=400V, V_{BE}(off)=−1.5V			100	μA
Collector Cutoff Current	I_{CEX}2	V_{CE}=400V, V_{BE} (off)=−1.5V T_a=125°C			1	mA
Emitter Cutoff Current	I_{EBO}	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	ton	I_C=10A, RL=15Ω			1	μs
Storage Time	ts	I_{B1}=−I_{B2}=2A, V_{CC}≒150V			2.5	μs
Fall Time	tf				0.7	μs

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

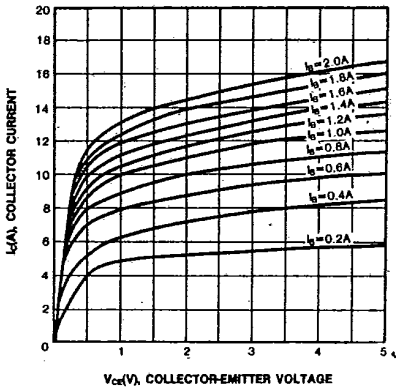
h_{FE} (1) CLASSIFICATION

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

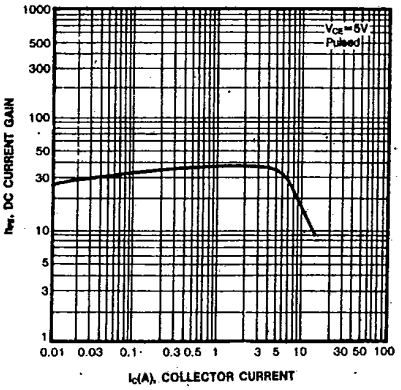
KSC2751 NPN EPITAXIAL SILICON TRANSISTOR

T-33-13

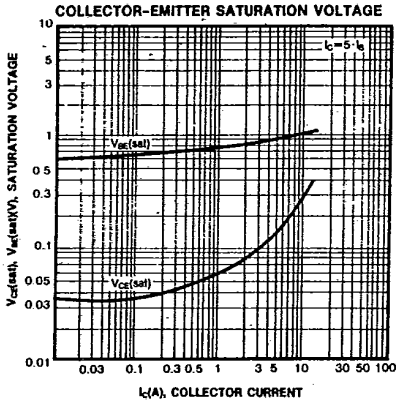
STATIC CHARACTERISTIC



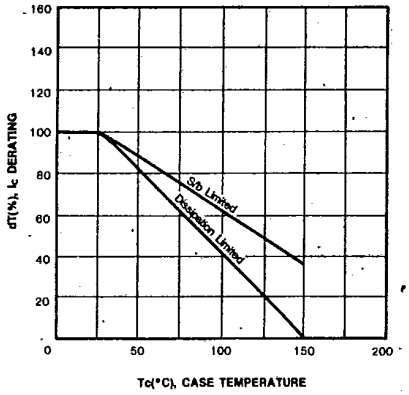
DC CURRENT GAIN



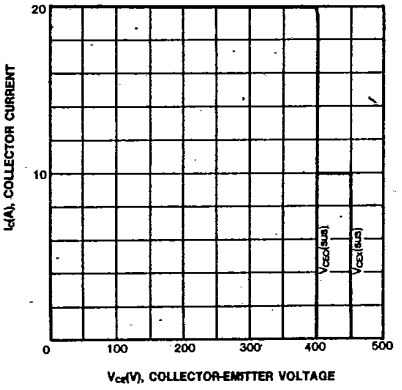
BASE-EMITTER SATURATION VOLTAGE
COLLECTOR-EMITTER SATURATION VOLTAGE



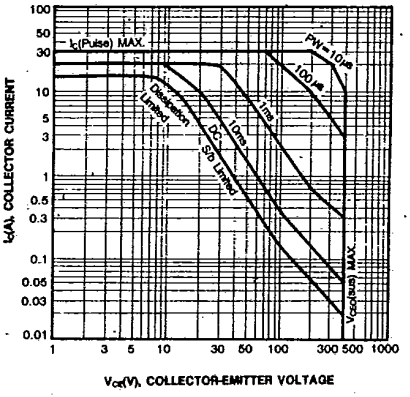
DERATING CURVE OF SAFE OPERATING AREAS



REVERSE BIAS SAFE OPERATING AREA



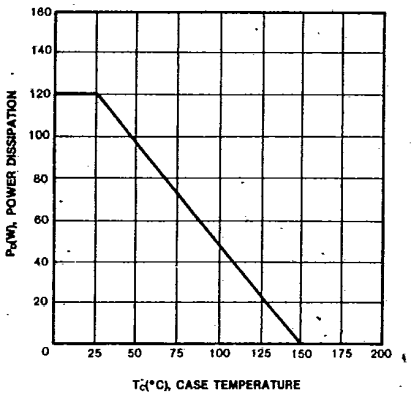
SAFE OPERATING AREA



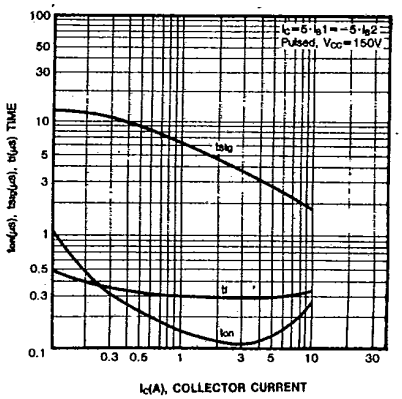
KSC2751 NPN EPITAXIAL SILICON TRANSISTOR

T-33-13

POWER DERATING



SWITCHING TIME



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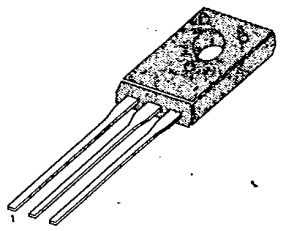
KSC2752 NPN EPITAXIAL SILICON TRANSISTOR

T-33-07

HIGH SPEED, HIGH VOLTAGE SWITCHING INDUSTRIAL USE

TO-126



1. Emitter 2. Collector 3 Base

ABSOLUTE MAXIMUM RATINGS (T_a=25°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°C)	P_C	1	W
Collector Dissipation (T_c=25°C)	P_C	10	W
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	−55~150	°C

* PW≤300μs, Duty Cycle ≤10%

ELECTRICAL CHARACTERISTICS (T_a=25°C)

Characteristic	Symbol	Test Condition	Min	Max	Unit
Collector Emitter Sustaining Voltage	V_{CEO} (sus)	I_C=0.3A, I_{B1}=0.06A, L=10mH	400		V
Collector Emitter Sustaining Voltage	V_{CEX} (sus)1	I_C=0.3A, I_{B1}=−I_{B2}=0.06A V_{BE} (off)=−5V, L=10mH, Clamped	450		V
Collector Emitter Sustaining Voltage	V_{CEX} (sus)2	I_C=0.6A, I_{B1}=0.2A, I_{B2}=−0.06A V_{BE} (off)=−5V, L=10mH, Clamped	400		V
Collector Cutoff Current	I_{CBO}	V_{CB}=400V, I_E=0		10	μA
Collector Cutoff Current	I_{CER}	V_{CE}=400V, R_{BE}=51Ω, T_a=125°C		1	mA
Collector Cutoff Current	I_{CEX}1	V_{CE}=400V, V_{BE} (off)=−1.5V		10	μA
Collector Cutoff Current	I_{CEX}2	V_{CE}=400V, V_{BE} (off)=−1.5V T_a=125°C		1	mA
Emitter Cutoff Current	I_{EBO}	V_{EB}=5V, I_C=0		10	μA
*DC Current Gain	h_{FE1}	V_{CE}=5V, I_C=0.05A	20	80	
	h_{FE2}	V_{CE}=5V, I_C=0.3A	10		
*Collector-Emitter Saturation Voltage	V_{CE} (sat)	I_C=0.3A, I_B=0.06A		1	V
*Base-Emitter Saturation Voltage	V_{BE} (sat)	I_C=0.3A, I_B=0.06A		1.2	V
Turn On Time	ton	I_C=0.3A RL=500Ω		1	μs
Storage Time	ts	I_{B1}=−I_{B2}=0.06A, V_{CC}=150V		2.5	μs
Fall Time	tf	PW=50μs, Duty Cycle≤2%		1	μs

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

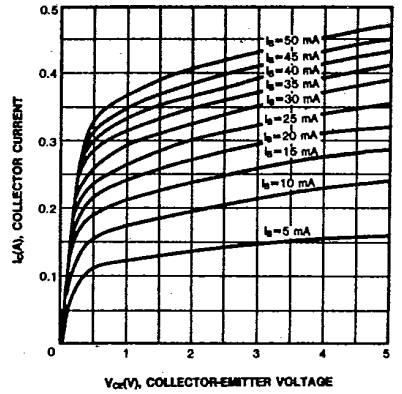
h_{FE} (1) CLASSIFICATION

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

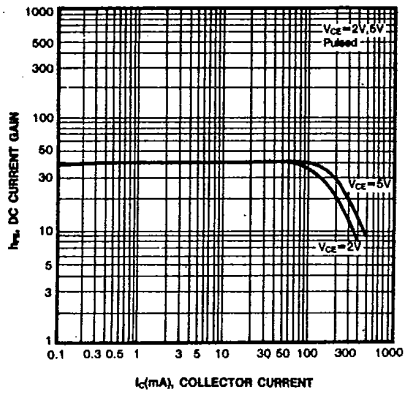
KSC2752 NPN EPITAXIAL SILICON TRANSISTOR

T-33-07

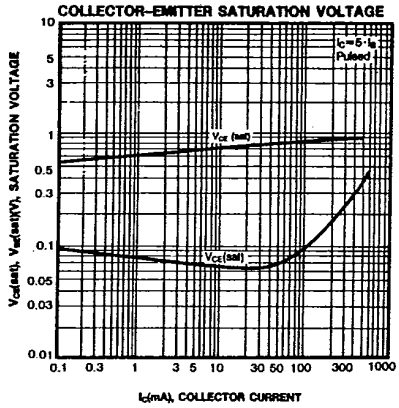
STATIC CHARACTERISTIC



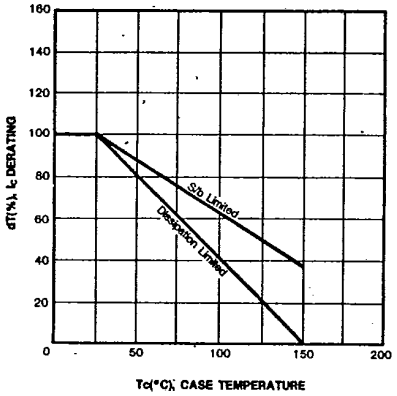
DC CURRENT GAIN



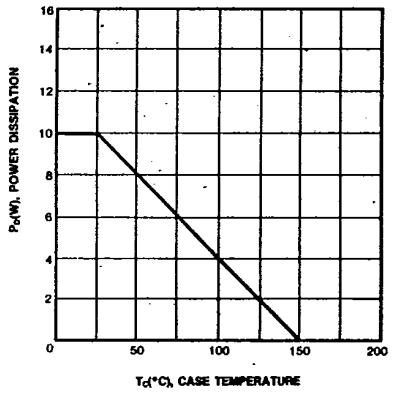
BASE-EMITTER SATURATION VOLTAGE
COLLECTOR-EMITTER SATURATION VOLTAGE



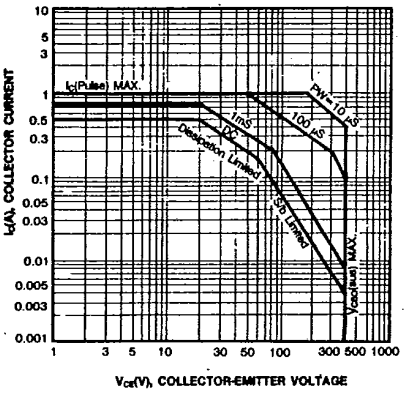
DERATING CURVE OF SAFE OPERATING AREAS



POWER DERATING



SAFE OPERATING AREA



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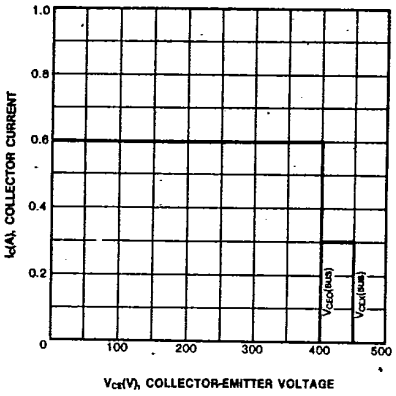
KSC2752 NPN EPITAXIAL SILICON TRANSISTOR

T-33-07

REVERSE BIAS SAFE OPERATING AREA



SWITCHING TIME