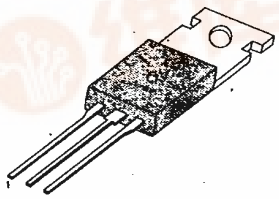
KSC2517 NPN EXITAXIAL SILICON TRANSISTOR

T-33-09

HIGH SPEED SWITCHING
INDUSTRIAL USE

TO-220



1. Base 2. Collector 3. Emitter

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ABSOLUTE MAXIMUM RATINGS (T_a=25°C)

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	V_{CBO}	150	V
Collector-Emitter Voltage	V_{CEO}	100	V
Emitter-Base Voltage	V_{EBO}	12	V
Collector Current (DC)	I_C	5	A
Collector Current (Pulse)	I_C	10	A
Collector Dissipation (T_a=25°C)	P_C	1.5	W
Collector Dissipation (T_c=25°C)	P_C	30	W
Base Current	I_B	2.5	A
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=3A, I_{B1}=0.3A, L=1mH	100		V
Collector Emitter Sustaining Voltage	V_{CEX} (sus)1	I_C=3A, I_{B1}=−I_{B2}=0.3A, V_{BE} (off)=−5V, L=180μH Clamped	150		V
Collector Emitter Sustaining Voltage	V_{CEX} (sus)2	I_C=6A, I_{B1}=1.2A, I_{B2}=−0.3A, V_{BE} (off)=−5V L=180μA, Clamped	100		V
Collector Cutoff Current	I_{CBO}	V_{CB}=100V, I_E=0		10	μA
Collector Cutoff Current	I_{CER}	V_{CE}=100V, R_{BE}=51Ω T_a=125°C		1	mA
Collector Cutoff Current	I_{CEX}1	V_{CE}=100V, V_{BE} (off)=−1.5V		10	μA
Collector Cutoff Current	I_{CEX}2	V_{CE}=100V, T_a=125°C V_{BE}(off)=−1.5V		1	mA
Emitter Cutoff Current	I_{EBO}	V_{EB}=10V, I_C=0		10	μA
*DC Current Gain	h_{FE1}	V_{CE}=5V, I_C=0.2A	40		
	h_{FE2}	V_{CE}=5V, I_C=2A	40	200	
*Collector-Emitter Saturation Voltage	V_{CE} (sat)	I_C=3A, I_B=0.3A		0.6	V
*Base-Emitter Saturation Voltage	V_{BE} (sat)	I_C=3A, I_B=0.3A		1.5	V
Turn On Time	ton	I_C=3A, RL=17Ω, V_{CC}=50V		0.5	μs
Storage Time	ts	I_{B1}=−I_{B2}=0.3A		2.5	μs
Fall Time	tf			0.5	μs

*Pulse Test: PW≤350μs, Duty Cycle≤2%

h_{FE}(2) CLASSIFICATION

Classification	R	O	Y
h_{FE}(2)	40-80	60-120	100-200

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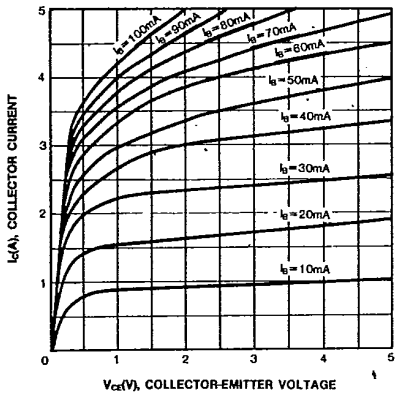
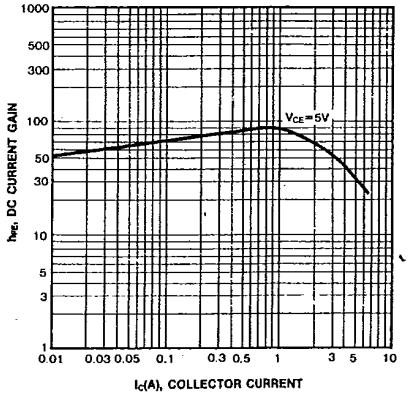
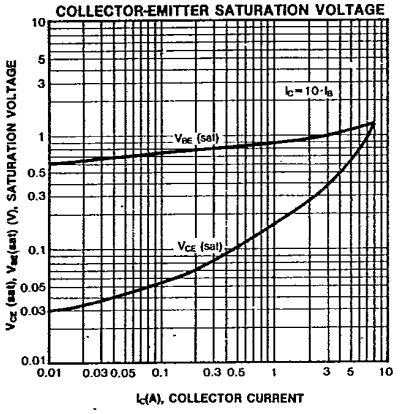
STATIC CHARACTERISTIC



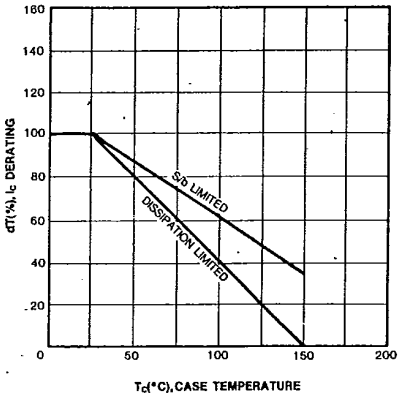
DC CURRENT GAIN



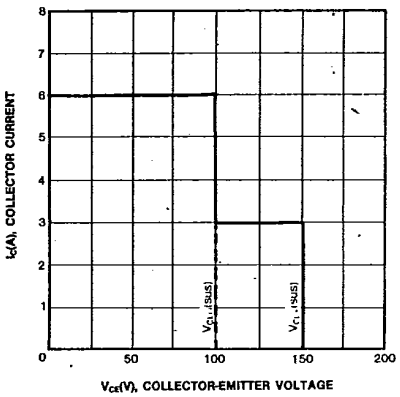
BASE-EMITTER SATURATION VOLTAGE
COLLECTOR-EMITTER SATURATION VOLTAGE



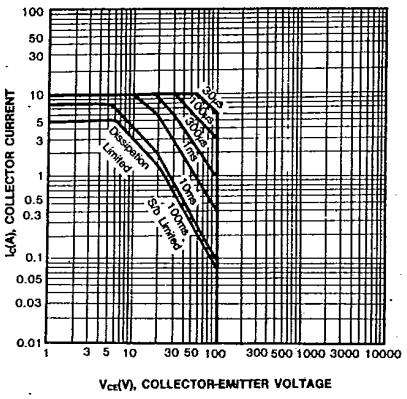
DERATING CURVE OF SAFE OPERATING AREAS



REVERSE BIAS SAFE OPERATING AREAS



SAFE OPERATING AREA



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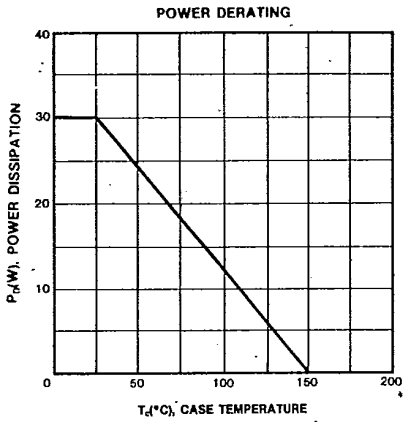

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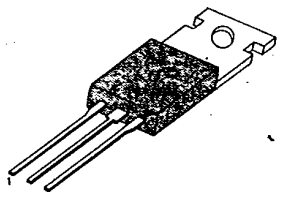
KSC2518 NPN EPITAXIAL SILICON TRANSISTOR

T-33-07

HIGH SPEED, HIGH VOLTAGE SWITCHING
LOW COLLECTOR SATURATION VOLTAGE
SPECIFIED OF REVERSE BIASED SOA
WITH INDUCTIVE LOADS

TO-220



1. Base 2. Collector 3. Emitter

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	4	A
*Collector Current (Pulse)	I_C	8	A
Base Current (DC)	I_B	1	A
Collector Dissipation	P_C	15	W
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	−55∼150	°C

* PW≤350μs, 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=2A, I_B=0.4A, L=1mH	400		V
Collector-Emitter Sustaining Voltage	V_{CEX}(sus)1	I_C=2A, I_{B1}=−I_{B2}=0.4A T_a=125°C, L=180μH, Clamped	450		V
Collector-Emitter Sustaining Voltage	V_{CEX}(sus)2	I_C=4A, I_{B1}=0.8A, −I_{B2}=0.4A T_a=125°C, L=180μH, 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_{FE}1	V_{CE}=5V, I_C=0.3A	20	80	
	h_{FE}2	V_{CE}=5V, I_C=1.5A	10		
*Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=1.5A, I_B=0.3A		1	V
*Base-Emitter Saturation Voltage	$V_{BE(sat)}$	I_C=1.5A, I_B=0.3A		1.5	V
Turn On Time	ton	I_C=2A, I_{B1}=−I_{B2}=0.4A		1	μS
Storage Time	tstg	RL=75Ω, V_{CC}=150V		2.5	μS
Fall Time	tf			0.7	μS

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

h_{EE} (1) CLASSIFICATION

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

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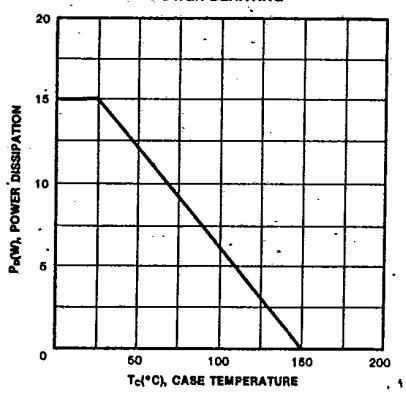
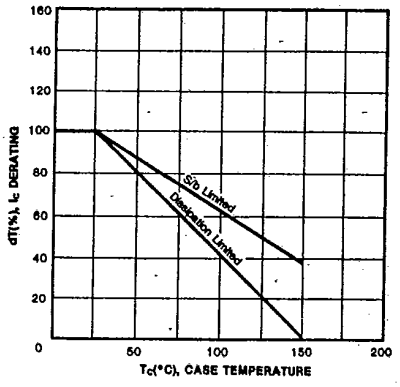
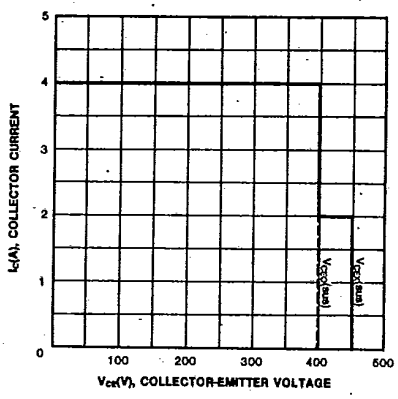
POWER DERATING



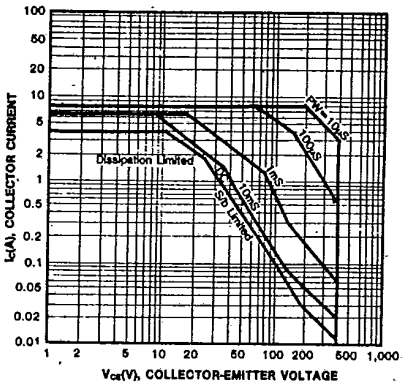
DERATING CURVE OF SAFE OPERATING AREAS



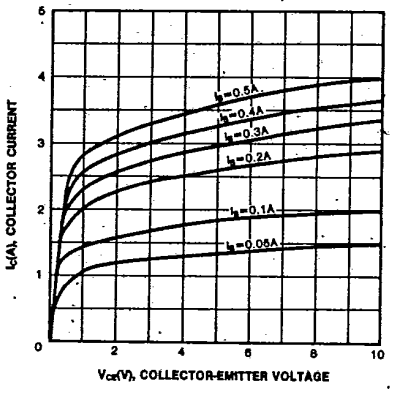
REVERSE BIAS SAFE OPERATING AREA



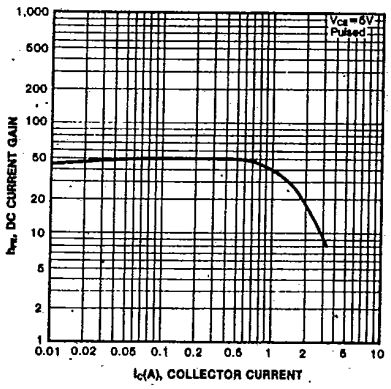
FORWARD BIAS SAFE OPERATING AREA



STATIC CHARACTERISTIC



DC CURRENT GAIN



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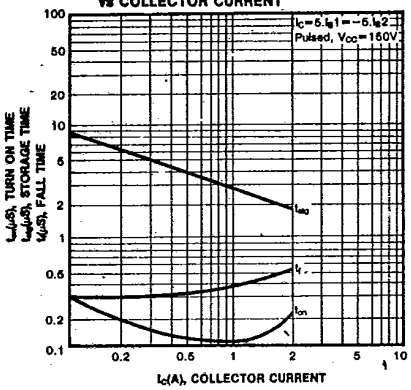
TURN ON, STORAGE AND FALL TIME
vs COLLECTOR CURRENT



COLLCETOR-EMITTER SATURATION VOLTAGE
BASE-EMITTER SATURATION VOLTAGE