Silicon NPN Transistor

KSC2518 / C2518

500V / 4A

DATASHEET

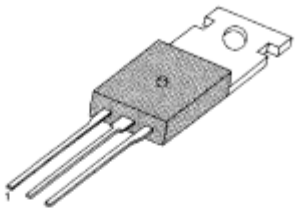
OEM – Samsung

Source: Samsung CD 1995

Datasheet Rev. 1.3 – 04/19 – data without warranty / liability

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	40	W
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	−55~150	°C

* PW≤350μs, Duty Cycle ≤10%

ELECTRICAL CHARACTERISTICS (T_a=25°C)

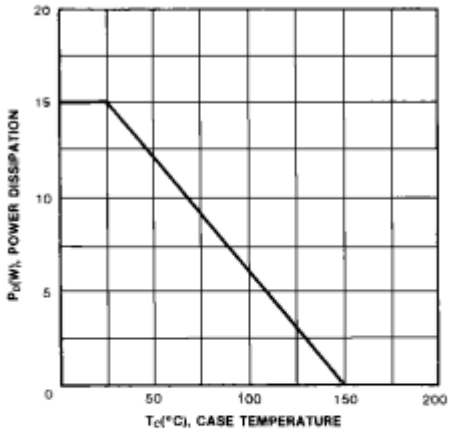
Characteristic	Symbol	Test Condition	Min	Max	Unit
Collector-Emitter Sustaining Voltage	$V_{CEO(SUS)}$	I_C=2A, I_B=0.4A, L=1mH	400		V
Collector-Emitter Sustaining Voltage	$V_{CEX(SUS)}1$	I_C=2A, I_{B1}=−I_{B2}=0.4A T_a=125°C, L=180μH, Clamped	450		V
Collector-Emitter Sustaining Voltage	$V_{CEX(SUS)}2$	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

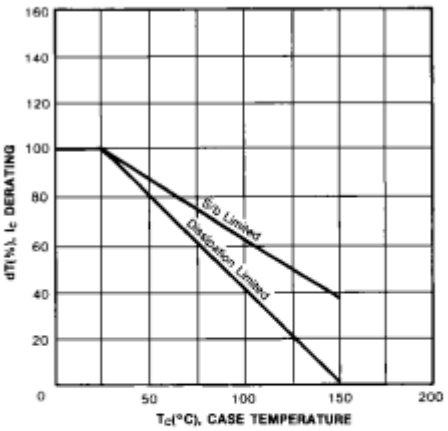
h_{EE} (1) CLASSIFICATION

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

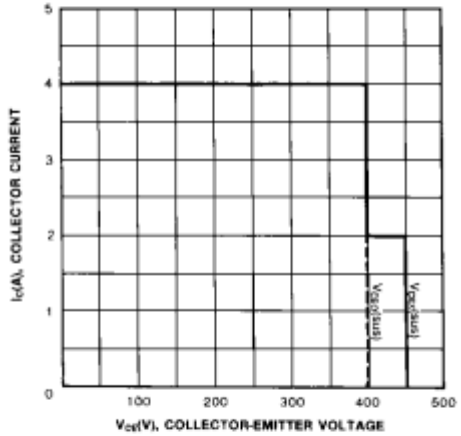
POWER DERATING



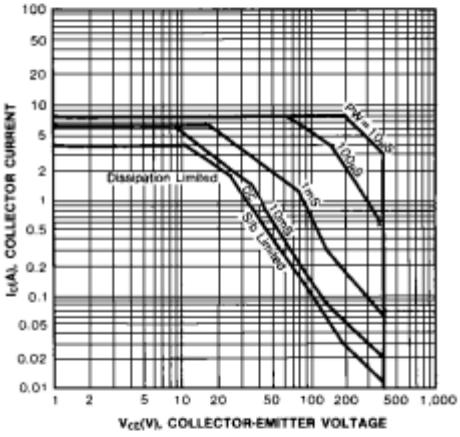
DERATING CURVE OF SAFE OPERATING AREAS



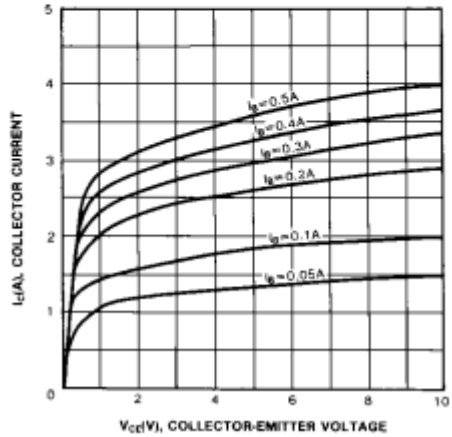
REVERSE BIAS SAFE OPERATING AREA



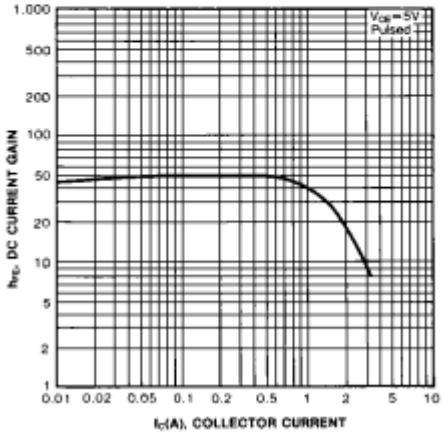
FORWARD BIAS SAFE OPERATING AREA

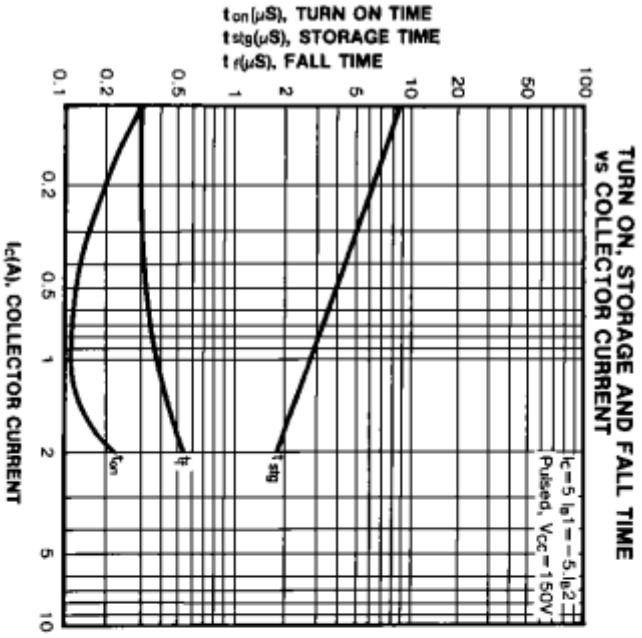


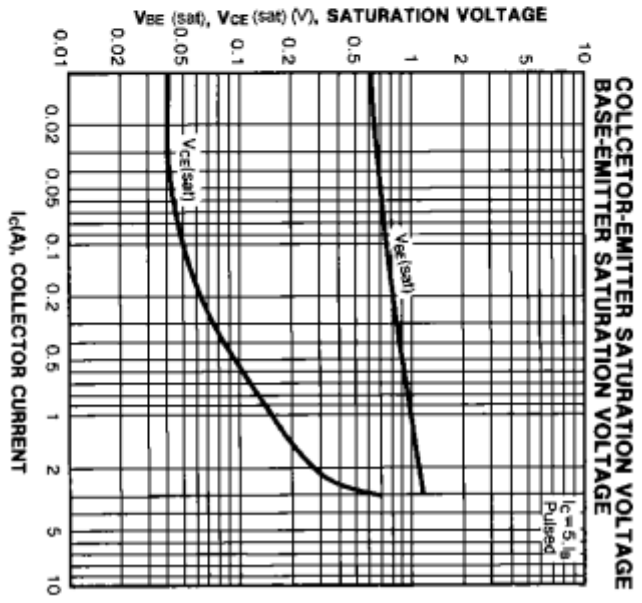
STATIC CHARACTERISTIC



DC CURRENT GAIN




ton(μS), TURN ON TIME
tstg(μS), STORAGE TIME
tf(μS), FALL TIME
TURN ON, STORAGE AND FALL TIME
vs COLLECTOR CURRENT
IC(A), COLLECTOR CURRENT
ton
tf
tstg
IC=5 IB1=-5 IB2
Pulsed, VCC=150V


VBE (sat), VCE (sat) (V), SATURATION VOLTAGE
COLLCETOR-EMITTER SATURATION VOLTAGE
BASE-EMITTER SATURATION VOLTAGE
IC(A), COLLECTOR CURRENT
VCE(sat)
VBE(sat)
IC=5 IB
Pulsed