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## Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

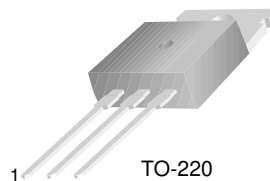


# KSC2518

KSC2518

## High Speed, High Voltage Switching

- Low Collector Saturation Voltage
- Specified of Reverse Biased SOA With Inductive Load



TO-220  
1.Base 2.Collector 3.Emitter

## NPN Epitaxial Silicon Transistor

### Absolute Maximum Ratings $T_C=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
$V_{CBO}$	Collector-Base Voltage	500	V
$V_{CEO}$	Collector-Emitter Voltage	400	V
$V_{EBO}$	Emitter-Base Voltage	7	V
$I_C$	Collector Current (DC)	4	A
$I_{CP}$	*Collector Current (Pulse)	8	A
$I_B$	Base Current (DC)	1	A
$P_C$	Collector Dissipation ( $T_C=25^\circ\text{C}$ )	40	W
$T_J$	Junction Temperature	150	$^\circ\text{C}$
$T_{STG}$	Storage Temperature	- 55 ~ 150	$^\circ\text{C}$

\*  $PW \leq 350\mu\text{s}$ , Duty Cycle  $\leq 10\%$

### Electrical Characteristics $T_C=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Max.	Units
$V_{CEO(sus)}$	Collector-Emitter Sustaining Voltage	$I_C = 2A, I_{B1} = 0.4A, L = 1mH$	400		V
$V_{CEX(sus)1}$	Collector-Emitter Sustaining Voltage	$I_C = 2A, I_{B1} = -I_{B2} = 0.4A$ $T_a = 125^\circ\text{C}, L = 180\mu\text{H}, \text{Clamped}$	450		V
$V_{CEX(sus)2}$	Collector-Emitter Sustaining Voltage	$I_C = 4A, I_{B1} = 0.8A, -I_{B2} = 0.4A$ $T_a = 125^\circ\text{C}, L = 180\mu\text{H}, \text{Clamped}$	400		V
$I_{CBO}$	Collector Cut-off Current	$V_{CB} = 400V, I_E = 0$		10	$\mu\text{A}$
$I_{CER}$	Collector Cut-off Current	$V_{CE} = 400V, R_{BE} = 51\Omega @ T_C = 125^\circ\text{C}$		1	mA
$I_{CEX1}$ $I_{CEX2}$	Collector Cut-off Current	$V_{CE} = 400V, V_{BE}(\text{off}) = -1.5V$ $V_{CE} = 400V, V_{BE}(\text{off}) = -1.5V @ T_C = 125^\circ\text{C}$		10 1	$\mu\text{A}$ mA
$I_{EBO}$	Emitter Cut-off Current	$V_{EB} = 5V, I_C = 0$		10	$\mu\text{A}$
$h_{FE1}$ $h_{FE2}$	* DC Current Gain	$V_{CE} = 5V, I_C = 0.3A$ $V_{CE} = 5V, I_C = 1.5A$	20 10	80	
$V_{CE(sat)}$	* Collector-Emitter Saturation Voltage	$I_C = 1.5A, I_B = 0.3A$		1	V
$V_{BE(sat)}$	* Base-Emitter Saturation Voltage	$I_C = 1.5A, I_B = 0.3A$		1.5	V
$t_{ON}$	Turn ON Time	$V_{CC} = 150V, I_C = 2A$		1	$\mu\text{s}$
$t_{STG}$	Storage Time	$I_{B1} = -I_{B2} = 0.4A$		2.5	$\mu\text{s}$
$t_F$	Fall Time	$R_L = 75\Omega$		0.7	$\mu\text{s}$

\* Pulse Test:  $PW \leq 350\mu\text{s}$ , Duty Cycle  $\leq 2\%$  Pulsed

### $h_{FE}$ Classification

Classification	R	O	Y
$h_{FE1}$	20 ~ 40	30 ~ 60	40 ~ 80

# Typical Characteristics

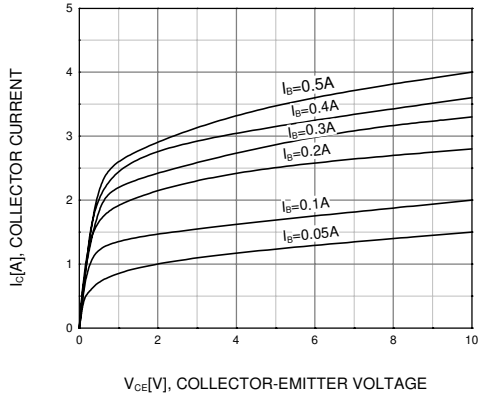


Figure 1. Static Characteristic

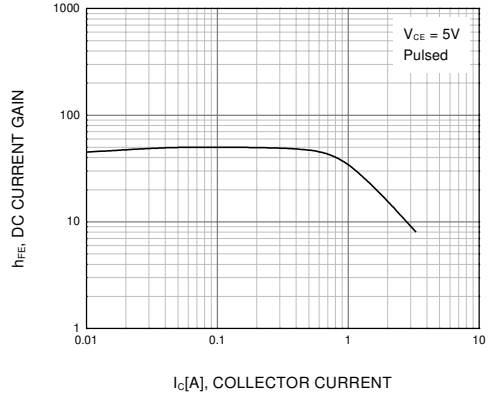


Figure 2. DC current Gain

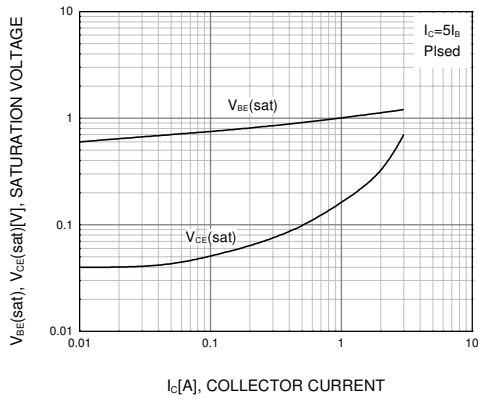


Figure 3. Base-Emitter Saturation Voltage  
Collector-Emmitter Saturation Voltage

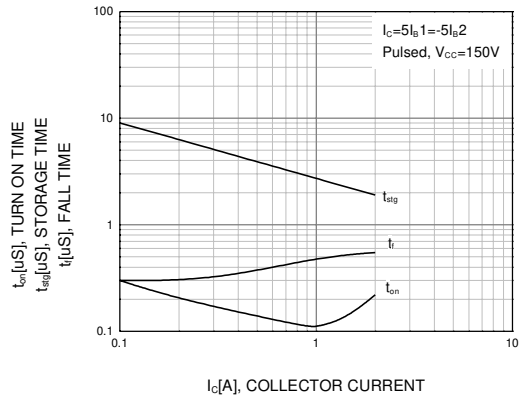


Figure 4. Turn On, Storage and Fall Time  
vs Collector Current

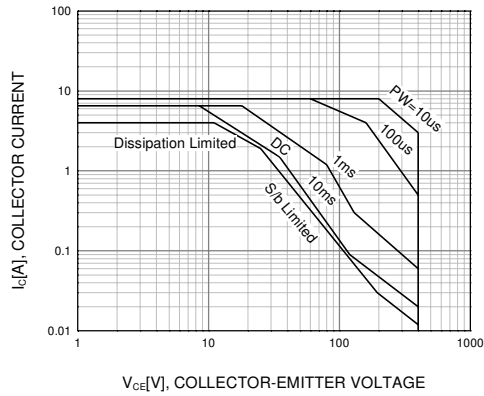


Figure 5. Forward Bias Safe Operating Area

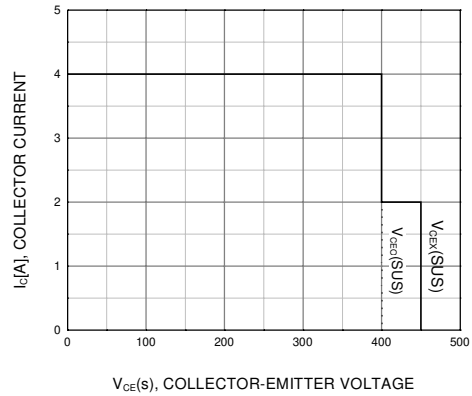


Figure 6. Reverse Bias Safe Operating Area

# Typical Characteristics (Continued)

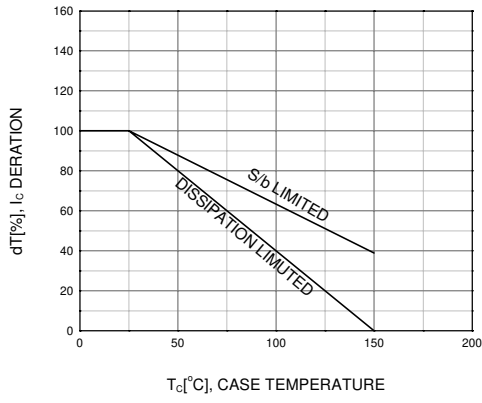


Figure 7. Derating Curve of Safe Operating Areas

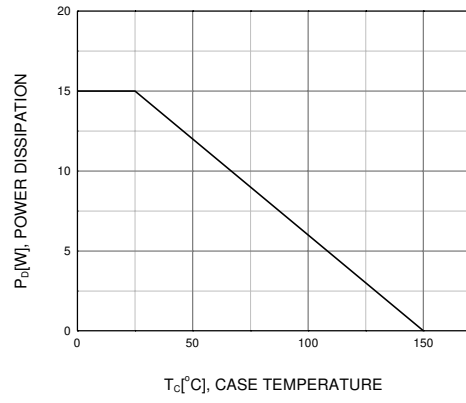
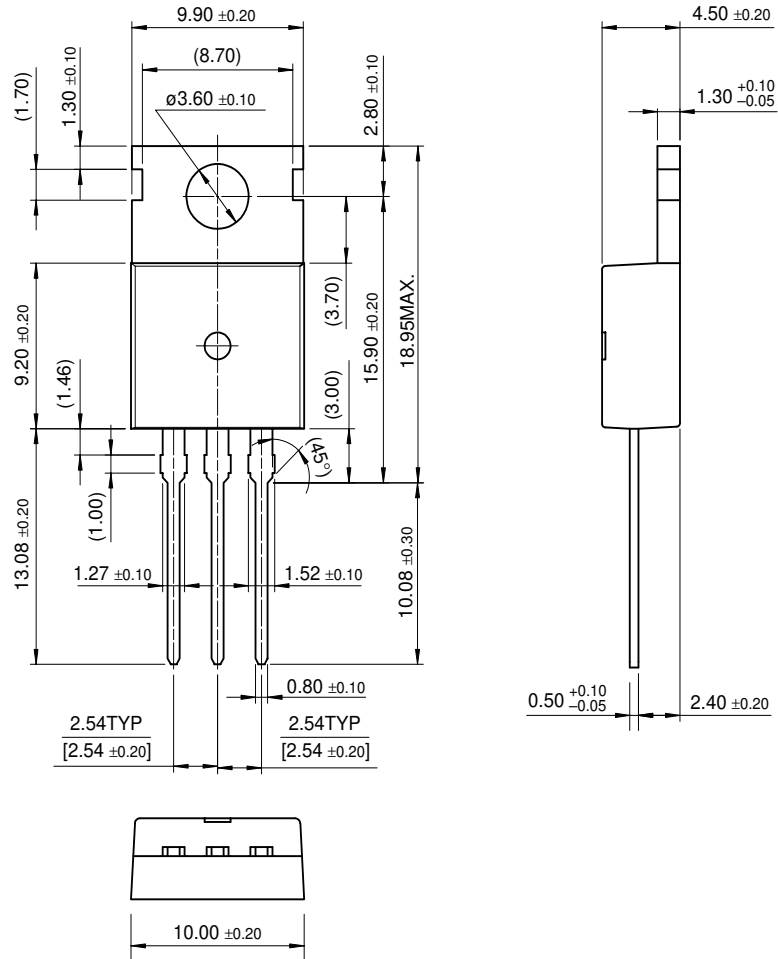


Figure 8. Power Derating

# Package Dimensions

KSC2518

## TO-220



Dimensions in Millimeters

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FAST®	Quiet Series™	
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