

KSU13003HR



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Switch Mode series NPN silicon Power Transistor

- High Voltage, High Speed Switching
- Suitable for switching regulator, inverters motor controls

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

2 Amperes
NPN Silicon Power Transistor
25 Watts

CHARACTERISTICS	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CBO}	900	V
Collector-Emitter Voltage	V_{CEO}	530	V
Emitter-Base Voltage	V_{EBO}	9	V
Collector Current(DC)	I_C	2	A
Collector Current(Pulse)	I_{CP}	4	A
Base Current	I_B	1	A
Collector Dissipation($T_C=25^{\circ}\text{C}$)	P_C	25	W
Storage Temperature	T_{STG}	-55~150	$^{\circ}\text{C}$
Max. Operating Junction Temperature	T_J	150	$^{\circ}\text{C}$

TO-251
1. Emitter
2. Collector
3. Base



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

CHARACTERISTICS	SYMBOL	Test Condition	Min	Typ.	Max	Unit
Collector-Base Breakdown Voltage	V_{CBO}	$I_C=500\mu\text{A}, I_E=0$	900			V
Collector-Emitter Breakdown Voltage	V_{CEO}	$I_C=10\text{mA}, I_B=0$	530			V
Emitter Cut-off Current	I_{EBO}	$V_{EB}=9\text{V}, I_C=0$			10	μA
*DC Current Gain	h_{FE1} h_{FE2}	$V_{CE}=10\text{V}, I_C=0.4\text{A}$ $V_{CE}=10\text{V}, I_C=1\text{A}$	20 6		40	
*Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=0.5\text{A}, I_B=0.1\text{A}$ $I_C=1.5\text{A}, I_B=0.5\text{A}$			0.8 2.5	V V
*Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=0.5\text{A}, I_B=0.1\text{A}$			1.0	V
Output Capacitance	C_{ob}	$V_{CB}=10\text{V}, f=0.1\text{MHz}$		21		pF
Current Gain Bandwidth Product	f_T	$V_{CE}=10\text{V}, I_C=0.1\text{A}$	4			MHz
Turn on Time	t_{on}	$V_{CC}=125\text{V}, I_C=2\text{A}$ $I_{B1}=0.2\text{A}, I_{B2}=-0.2\text{A}$ $R_L=125\Omega$			1.1	μs
Storage Time	t_{stg}				4.0	μs
Fall Time	t_F				0.7	μs

* Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycles $\leq 2\%$

Note.

hFE1 Classification	R	20 ~ 30
	O	25 ~ 35
	Y	30 ~ 40

Package Mark information.

S HR 13003 YWW Z	S	SemiHow Symbol
	YWW	Y; year code, WW; week code
	Z	hFE1 Classification

Typical Characteristics

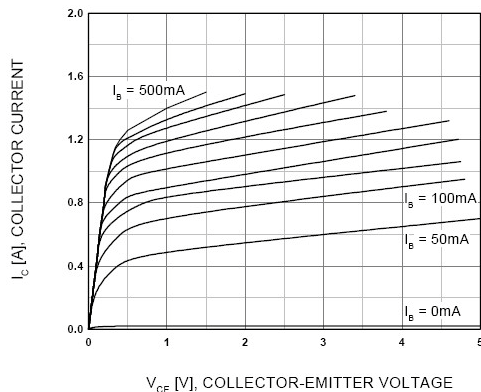


Figure 1. Static Characteristic

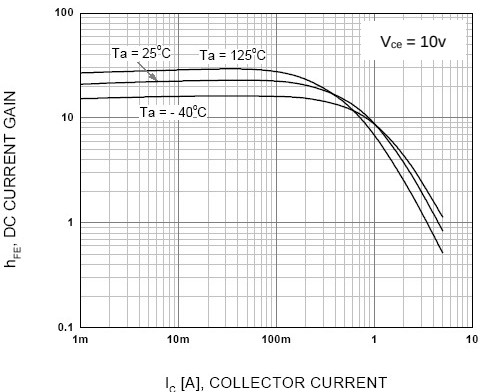


Figure 2. DC current Gain

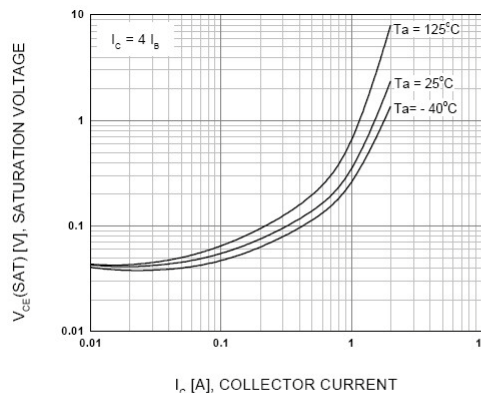


Figure 3. Collector-Emitter Saturation Voltage

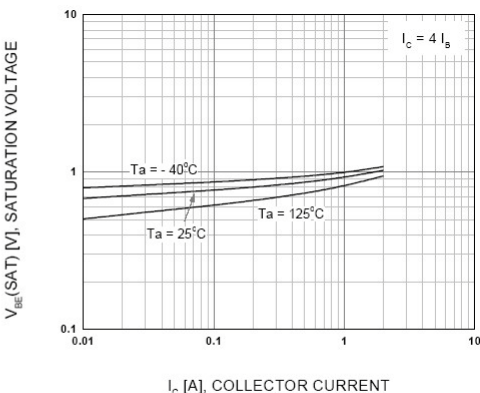


Figure 4. Base-Emitter Saturation Voltage

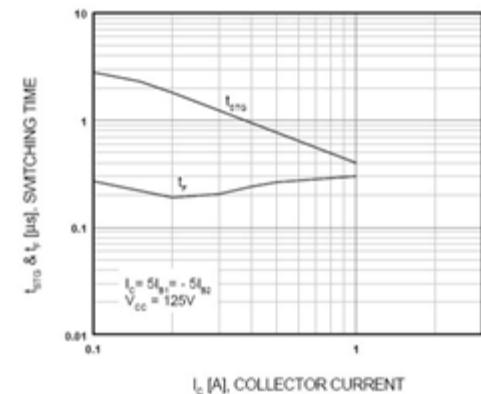


Figure 5. Resistive Load Switching Time

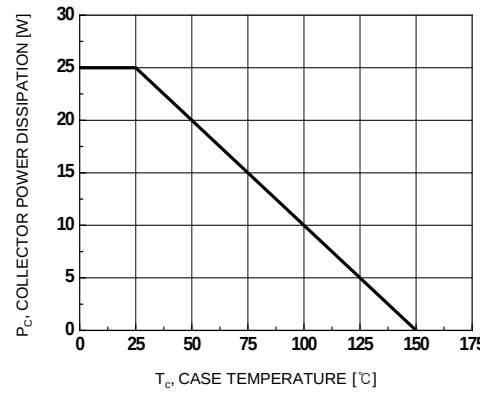


Figure 6. Power Derating

Typical Characteristics

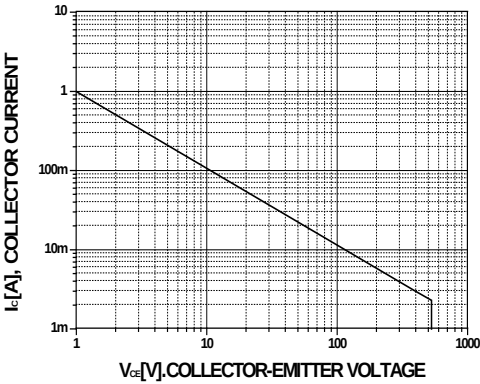


Figure 7. Forward Bias Safe Operating Area

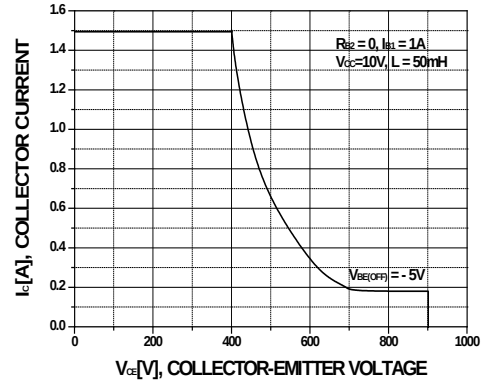


Figure 8. Reverse Bias Safe Operating Area

Package Dimension

TO-251

