

Features

- High speed switching
- Small flat package
- RoHS compliant with Halogen-free

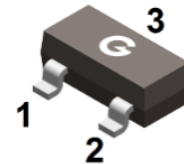
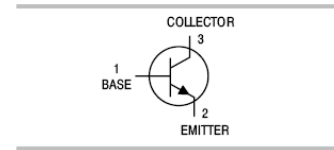
HF

Applications

- High voltage switch mode application

Mechanical Data

- Case: SOT-23
- Molding compound: UL flammability classification rating 94V-0
- Terminals: Tin-plated; solderability per MIL-STD-202, Method 208



SOT-23

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
3DD13001	SOT-23	3000 pcs / Tape & Reel	13001

Maximum Ratings (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Collector-Base Breakdown Voltage	V_{CBO}	600	V
Collector-Emitter Breakdown Voltage	V_{CEO}	400	V
Emitter-Base Breakdown Voltage	V_{EBO}	7	V
Collector Current (Continuous)	I_C	0.2	A
Collector Current ($t_p < 5\text{ms}$)	I_{CM}	0.4	A

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation ($T_A = 25^\circ\text{C}$)	P_D	350	mW
Thermal Resistance Junction-to-Air	$R_{\theta JA}$	357	$^\circ\text{C/W}$
Junction Temperature	T_J	-55 ~ +150	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 ~ +150	$^\circ\text{C}$

Electrical Characteristics (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 100\mu\text{A}, I_E = 0$	600	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 1\text{mA}, I_B = 0$	400	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 100\mu\text{A}, I_C = 0$	7	-	-	V
Collector Cut-off Current	I_{CBO}	$V_{CB} = 600\text{V}, I_E = 0$	-	-	100	μA
Collector Cut-off Current	I_{CEO}	$V_{CE} = 400\text{V}, I_B = 0$	-	-	200	μA
Emitter Cut-off Current	I_{EBO}	$V_{EB} = 7\text{V}, I_C = 0$	-	-	100	μA
DC Current Gain	h_{FE}	$V_{CE} = 20\text{V}, I_C = 20\text{mA}$	10	-	40	-
		$V_{CE} = 10\text{V}, I_C = 250\text{mA}$	5	-	-	-
Collector-emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C = 50\text{mA}, I_B = 10\text{mA}$	-	-	0.5	V
Base-emitter Saturation Voltage	$V_{BE(SAT)}$	$I_C = 50\text{mA}, I_B = 10\text{mA}$	-	-	1.2	V
Transition Frequency	f_T	$I_C = 20\text{mA}, V_{CE} = 20\text{V}, f = 1\text{MHz}$	8	-	-	MHZ
Fall Time	t_f	$I_C = 50\text{mA}, I_{B1} = I_{B2} = 5\text{mA}$	-	-	0.3	μs
Storage Time	t_s		-	-	1.5	μs

Classification of h_{FE}

Range	10-15	15-20	20-25	25-30	30-35	35-40
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Ratings and Characteristic Curves (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

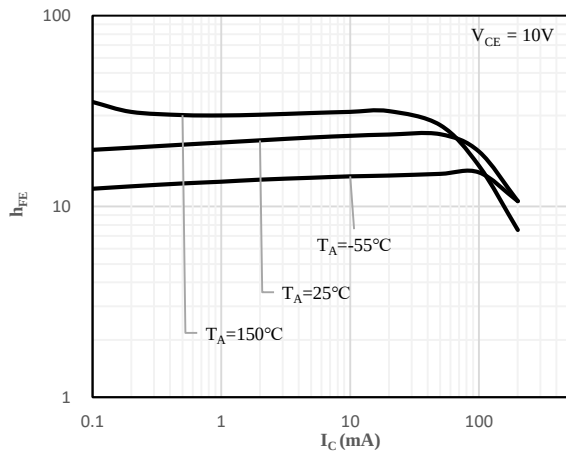


Fig 1 h_{FE} vs. I_C

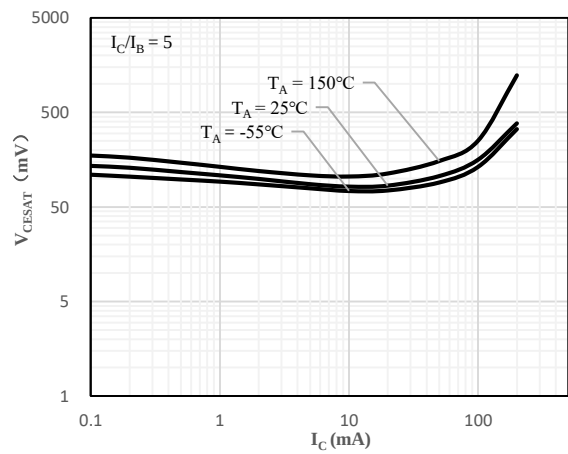


Fig 2 $V_{CE(sat)}$ vs. I_C

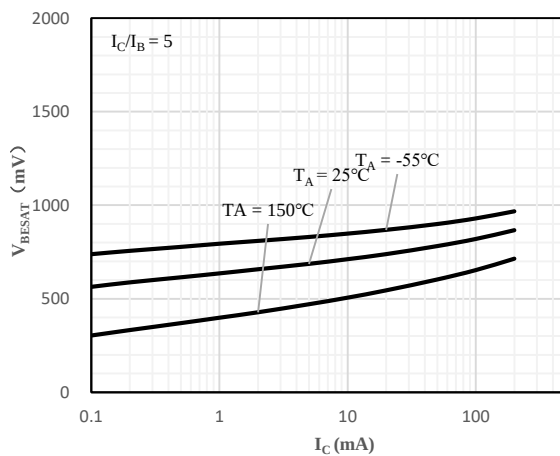


Fig 3 $V_{BE(sat)}$ vs. I_C

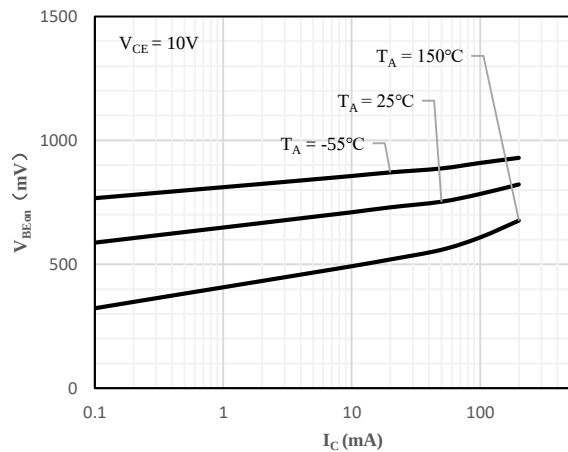


Fig 4 $V_{BE(on)}$ vs. I_C

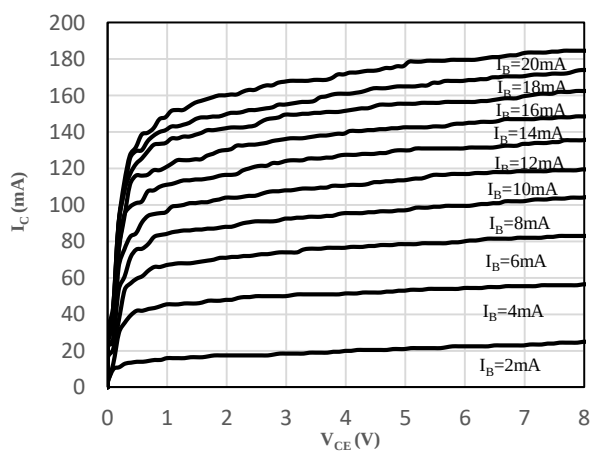


Fig 5 I_C vs. V_{CE}

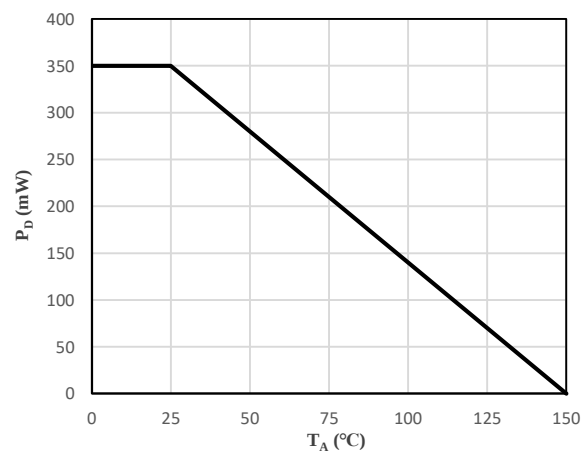


Fig 6 P_D vs. T_A

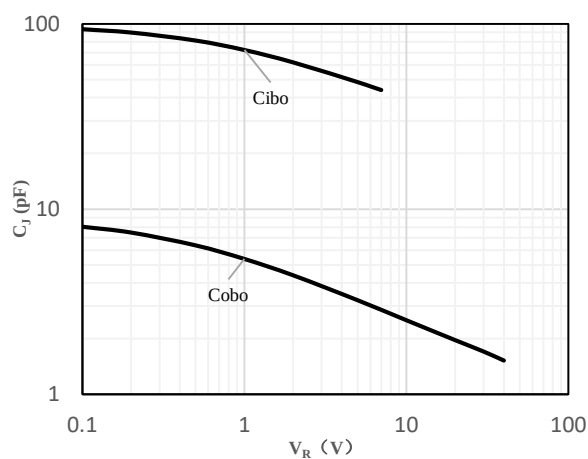
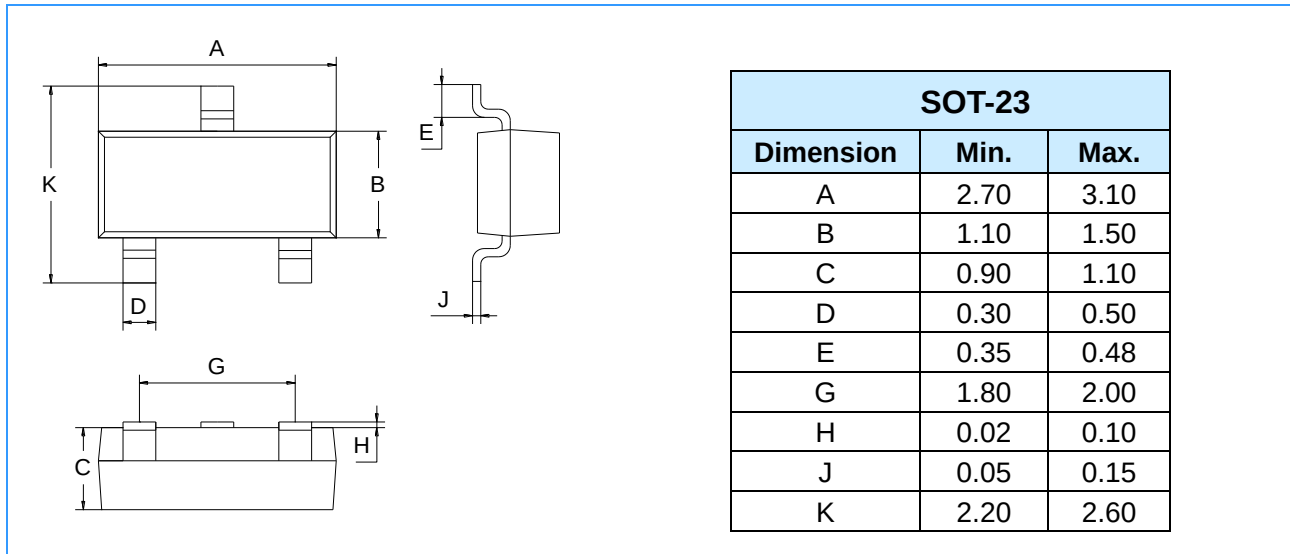


Fig 7 C_J vs. V_R

Package Outline Dimensions (Unit: mm)



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