5 é / Descriptions

9 5 : .> / / x J´ 6 4 6 ƒ â ’ož Silicon PNP Digital transistor in a SOT-23 Plastic Package.

¤ ª / Features

Ä x ž å Š k • ¿ è — ‹ k × 5 « ^ y ò - v i k … ` ' +) 7 ö Õ ä U ´ Å } L k —)í D }ož

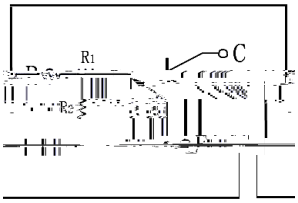
With built-in bias resistors, simplify circuit design, reduce a quantity of parts and manufacturing process, high current, Qualified to AEC-Q101 Standards for High Reliability, HF Product.

Ð ÷ / Applications

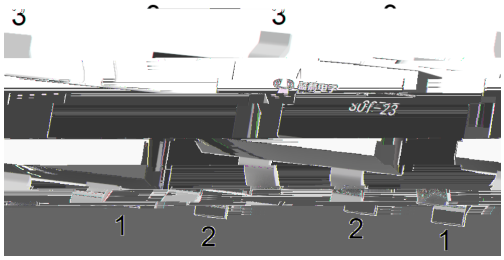
9 • ¼o• F , èo• µ è Y C Ü è k á V ñ • } Ložž

Switching, inverter circuit, interface circuit and driver circuit applications, Meet the stringent requirements of automotive applications.

Ã W] Ô · / Equivalent Circuit



• Û - æ / Pinning



PIN 1 y Base PIN 2 y Emitter PIN 3 y Collector

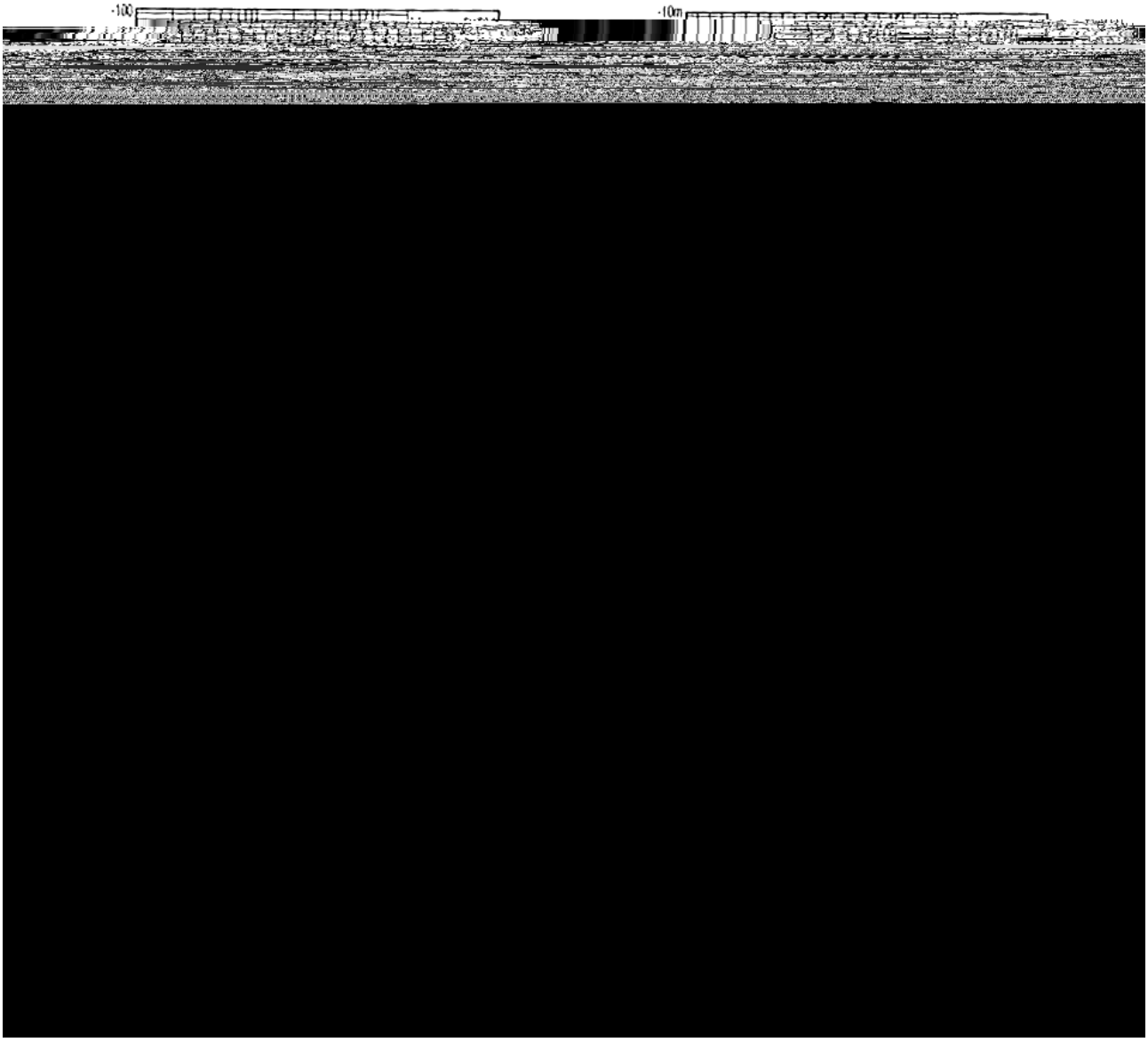
Z Ü B , M V / h_{FE} Classifications & Marking

Marking	Q13

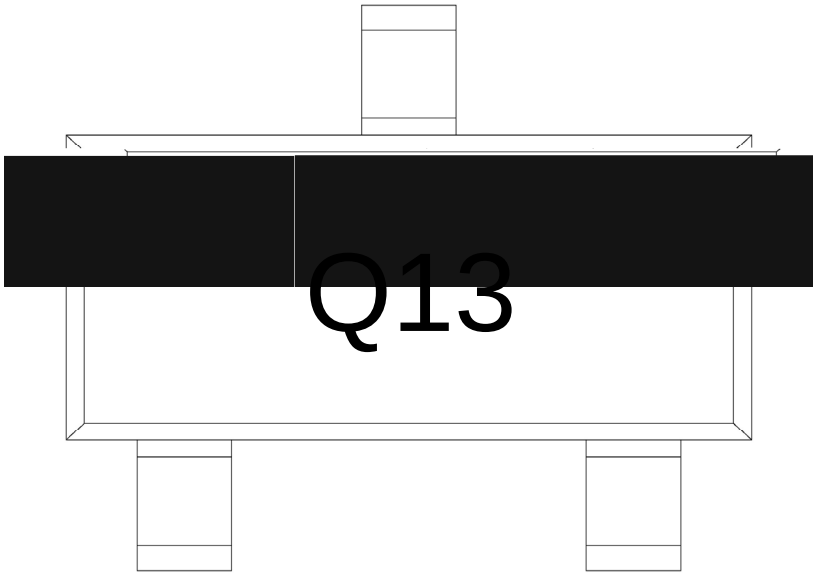
@ *f* Parameter	… Z Symbol	*f* › Rating	% y Unit
Output Voltage	V_{CC}	-50	V
Input Voltage	V_{IN}	-30	V
		10	V
Output Current	I_O	-100	mA
	$I_{C(MAX)}$	-100	mA
Power Dissipation	P_d	200	mW
Junction Temperature	T_j	150	
Storage Temperature Range	T_{stg}	-55 150	

@ *f* Parameter	… Z Symbol	y ¡ Ú ^ Test Conditions	Â 4 › Min	Á º › Typ	Â Ý › Max	% y Unit
Input Voltage	$V_{I(off)}$	v_{CC}=-5.0V I_O=-100 A			-0.5	V
	$V_{I(on)}$	V_O=-0.3V I_O=-20mA	-3.0			V
Output Voltage	$V_{O(on)}$	I_O=-10mA I_I=-0.5mA		-0.1	-0.3	V
Input Current	I_I	V_I=-5.0V			-1.8	mA
Output Cut-off Current	$I_{O(off)}$	V_{CC}=-50V V_I=0V			-0.5	A
DC Current Gain	G_I	V_O=-5.0V I_O=-10mA	20			
Transition Frequency	f_T	V_{CE}=-10V I_E				

Ô ? d • Ž ¢ / Electrical Characteristic Curve



, M y ƒ / Marking Instructions



ª ¢ y

7 y V ñ —)í D } ö œ

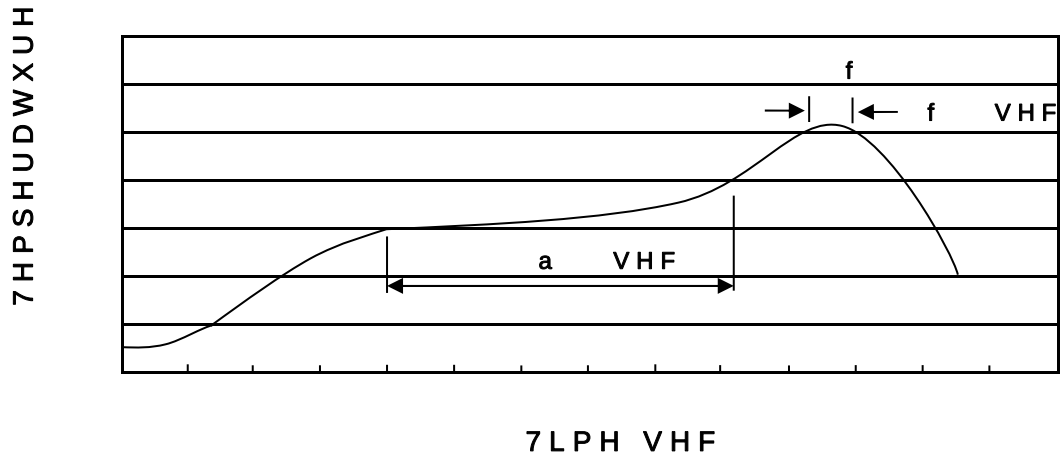
13 y º Z W A

Note:

Q: Automobile halogen-free product Code

13 y Product Type Code

š WD t ... • Ž ¢ (x /) / : K S V K X G Z [X K 6 X U L O R K L U X / 8 8 K L R U] 9 U R J K X O T M 6



7LPH VHF

ª ¢ y Note:

1o• Ä ½ “ † 150 ½200 - k ž • 60 ½120sec; 1.Preheating:150~200 - , Time:60~120sec.

2o• Q › “ † 255 r5 - k ž • 4 Ò 5 r0.5sec; 2.Peak Temp.:255 r5 - , Duration:5 r0.5sec.

3o•D N ò i Ò 0 , † 2 ½10 - /sec. 3.Cooling Speed: 2~10 - /sec.

ÂD /Cã p ¯ »] / Resistance to Soldering Heat Test Conditions

“ † y 260 r5 - ž • y 10 r1 sec. Temp.:260±5 Time:10±1 sec

G P á / Packaging SPEC.

2 & x / REEL

Package Type 7>û ˜ E	Units ;>û ¦H					Dimension ;>û p . (unit Æmm³)		
	Units/Reel / --	Reels/Inner Box -- /-	Units/Inner Box /-	Inner Boxes/Outer Box - /1ç	Units/Outer Box /1ç	Reel	Inner Box×	Outer Box1ç
SOT-23	3,000	10	30,000	6	180,000	7 s ×8	180×120×180	390×385×205

„ Ð y ƒ / Notices