

製品規格/Product Specification 品名/Type Number: UNR 3 <input type="checkbox"/> A <input type="checkbox"/> 0 0 <input type="checkbox"/> L 1) 1) 1) 1)	DESIGNED <i>N. Kasuya</i>	CHECKED <i>H. Fukasawa</i>	CHECKED <i>T. Shiro</i>	APPROVED <i>M. Yamazaki</i>
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種別/Type シリコントランジスタ/Silicon Transistors

用途/Application デジタル回路用/Digital Circuit

構造/Structure PNP/NPNエピタキシャルプレーナ形/PNP/NPN Epitaxial Planar Type

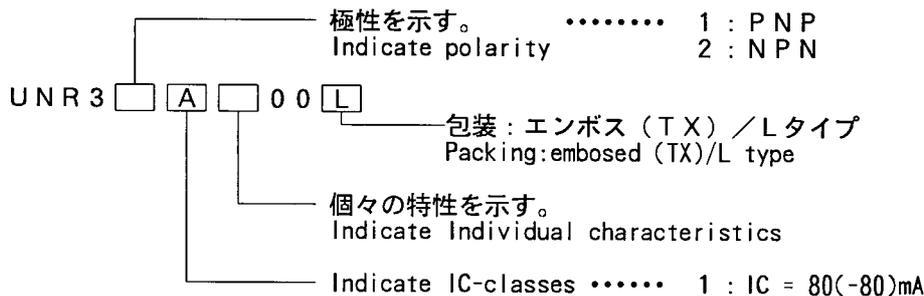
絶対最大定格/ Absolute Maximum Ratings	Symbol	UNR 3 1 A <input type="checkbox"/>	UNR 3 2 A <input type="checkbox"/>	Unit
	VCBO	- 5 0	5 0	V
	VCEO	- 5 0	5 0	V
	IC	- 8 0	8 0	mA
	PT	1 0 0		mW
	Tj	1 2 5		°C
	Tstg	- 5 5 ~ 1 2 5		°C

電気的特性/Electrical characteristics(Ta=25±3°C)

項目/Item	記号/ Symbol	測定条件/ Measuring condition	極性 Polarity	UNR31A <input type="checkbox"/> and UNR32A <input type="checkbox"/>			単位 Unit
				min	typ	max	
コレクタ耐圧 Collector to Base Voltage	VCBO	IC=-10μA, IE=0	PNP	- 50	-	-	V
		IC= 10μA, IE=0	NPN	50	-	-	
コレクタ耐圧 Collector to Emitter Voltage	VCEO	IC=-2mA, IB=0	PNP	- 50	-	-	V
		IC= 2mA, IB=0	NPN	50	-	-	
コレクタ遮断電流 Collector Cutoff Current	ICBO	VCB=-50V, IE=0	PNP	-	-	- 0.1	μA
		VCB= 50V, IE=0	NPN	-	-	0.1	
コレクタ遮断電流 Collector Cutoff Current	ICEO	VCE=-50V, IB=0	PNP	-	-	- 0.5	μA
		VCE= 50V, IB=0	NPN	-	-	0.5	
コレクタ飽和電圧 Collector to Emitter Saturation Voltage	VCE(sat)	IC=-10mA, IB=-0.3mA	PNP	-	-	-0.25	V
		IC= 10mA, IB= 0.3mA	NPN	-	-	0.25	
トランジション周波数 Gain Bandwidth Product	fT	VCB=-10V, IE= 1mA, f=200MHz	PNP	-	80	-	MHz
		VCB= 10V, IE=-2mA, f=200MHz	NPN	-	150	-	

Note : 測定方法は、日本工業規格 JIS C 7030 トランジスタ測定方法による。  
Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 Measuring methods for transistors.

1) このシリーズの品名は下記のように与えられる。  
In this series, the name of devices is given by following rules.



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品種名/Type Number: UNR 3 <input type="checkbox"/> <input checked="" type="checkbox"/> A <input type="checkbox"/> 0 0 <input checked="" type="checkbox"/> L							
1) 1) 1) 1)							
電気的特性/Electrical characteristics(Ta=25±3℃)							
項目/Item	記号/Symbol	測定条件/ Measuring condition	品種名/ Type Number	Limit			単位 Unit
				min	typ	max	
エミッタ遮断電流 Emitter Cutoff Current	IEB0	VEB=-6V, IC=0	UNR31A1	-	-	-0.5	mA
			UNR31A2, UNR31A4 UNR31AD, UNR31AE UNR31AM, UNR31AN UNR31AT	-	-	-0.2	
			UNR31A3, UNR31AA	-	-	-0.1	
			UNR31A5, UNR31A6 UNR31A7, UNR31A0 UNR31AB	-	-	-0.01	
			UNR31AF, UNR31AH	-	-	-1.0	
			UNR31A9	-	-	-1.5	
			UNR31A8, UNR31AL UNR31AV, UNR31AC	-	-	-2.0	
		VEB= 6V, IC=0	UNR32A1	-	-	0.5	
			UNR32A2, UNR32A4 UNR32AD, UNR32AE UNR32AM, UNR32AN UNR32AT	-	-	0.2	
			UNR32A3, UNR32AA	-	-	0.1	
			UNR32A5, UNR32A6 UNR32A7, UNR32A0 UNR32AB	-	-	0.01	
			UNR32AF, UNR32AK	-	-	1.0	
			UNR32A9	-	-	1.5	
			UNR32A8, UNR32AL UNR32AV, UNR32AC	-	-	2.0	
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電気的特性/Electrical characteristics(Ta=25±3°C)							
項目/Item	記号/Symbol	測定条件/ Measuring condition	品種名/ Type Number	Limit			単位 Unit
				min	typ	max	
直流電流増幅率 Forward current transfer ratio	hFE	VCE=-10V, IC=-5mA	UNR31A1	35	-	-	-
			UNR31A2, UNR31AE	60	-	-	
			UNR31A3, UNR31A4 UNR31AM, UNR31AA UNR31AC	80	-	-	
			UNR31A5, UNR31A6 UNR31A7, UNR31A0 UNR31AB	160	-	460	
			UNR31A8, UNR31AL	20	-	-	
			UNR31A9, UNR31AD UNR31AF, UNR31AH	30	-	-	
			UNR31AN, UNR31AT	80	-	400	
			UNR31AV	6	-	20	
		VCE= 10V, IC= 5mA	UNR32A1	35	-	-	
			UNR32A2, UNR32AE	60	-	-	
			UNR32A3, UNR32A4 UNR32AM, UNR32AA UNR32AC	80	-	-	
			UNR32A5, UNR32A6 UNR32A7, UNR32A0 UNR32AB	160	-	460	
			UNR32A8, UNR32AL UNR32AK	20	-	-	
			UNR32A9, UNR32AD UNR32AF	30	-	-	
			UNR32AN, UNR32AT	80	-	400	
			UNR32AV	6	-	20	
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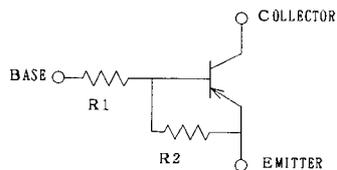
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電気的特性/Electrical characteristics(Ta=25±3°C)							
項目/Item	記号/ Symbol	測定条件/ Measuring condition	品種名/ Type Number	Limit			単位 Unit
				min	typ	max	
出力電圧ハイレベル Output Voltage High Level	VOH	VCC=-5V, VB=-0.5V, RL=1kΩ	UNR31A1, UNR31A2 UNR31A3, UNR31A4 UNR31A5, UNR31A6 UNR31A7, UNR31A8 UNR31A9, UNR31A0 UNR31AD, UNR31AE UNR31AF, UNR31AH UNR31AL, UNR31AM UNR31AN, UNR31AT UNR31AV, UNR31AA UNR31AB, UNR31AC	-4.9	-	-	V
		VCC=5V, VB=0.5V, RL=1kΩ	UNR32A1, UNR32A2 UNR32A3, UNR32A4 UNR32A5, UNR32A6 UNR32A7, UNR32A8 UNR32A9, UNR32A0 UNR32AD, UNR32AE UNR32AF, UNR32AK UNR32AL, UNR32AM UNR32AN, UNR32AT UNR32AV, UNR32AA UNR32AB, UNR32AC	4.9	-	-	
出力電圧ローレベル Output Voltage Low Level	VOL	VCC=-5V, VB=-2.5V, RL=1kΩ	UNR31A1, UNR31A2 UNR31A4, UNR31A5 UNR31A6, UNR31A7 UNR31A8, UNR31A9 UNR31A0, UNR31AF UNR31AH, UNR31AL UNR31AM, UNR31AN UNR31AT, UNR31AV	-	-	-0.2	V
		VCC=-5V, VB=-3.5V, RL=1kΩ	UNR31A3, UNR31AB	-	-	-0.2	
		VCC=-5V, VB=-10V, RL=1kΩ	UNR31AD	-	-	-0.2	
		VCC=-5V, VB=-6V, RL=1kΩ	UNR31AE	-	-	-0.2	
		VCC=-5V, VB=-5V, RL=1kΩ	UNR31AA	-	-	-0.2	
		VCC=5V, VB=2.5V, RL=1kΩ	UNR32A1, UNR32A2 UNR32A4, UNR32A5 UNR32A6, UNR32A7 UNR32A8, UNR32A9 UNR32A0, UNR32AF UNR32AL, UNR32AM UNR32AN, UNR32AT UNR32AV	-	-	0.2	
		VCC=5V, VB=3.5V, RL=1kΩ	UNR32A3, UNR32AK UNR32AB	-	-	0.2	
		VCC=5V, VB=10V, RL=1kΩ	UNR32AD	-	-	0.2	
		VCC=5V, VB=6V, RL=1kΩ	UNR32AE	-	-	0.2	
VCC=5V, VB=5V, RL=1kΩ	UNR32AA	-	-	0.2			
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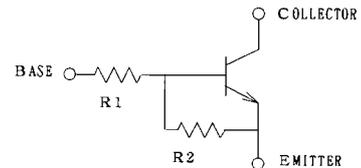
電気的特性/Electrical characteristics(Ta=25±3°C)

項目/Item	記号/Symbol	測定条件/Measuring condition	品種名/Type Number	Limit			単位/Unit
				min	typ	max	
入力抵抗 Input Resistance	R1		UNR31A8, UNR32A8	-30%	0.51	+30%	k Ω
			UNR31A9, UNR32A9	-30%	1	+30%	
			UNR31AH, UNR31AM, UNR32AM	-30%	2.2	+30%	
			UNR31AV, UNR32AV				
			UNR31A6, UNR32A6				
			UNR31AF, UNR32AF				
			UNR31AL, UNR32AL	-30	4.7	+30%	
			UNR31AN, UNR32AN				
			UNR31A1, UNR32A1	-30%	10	+30%	
			UNR31A4, UNR32A4				
UNR31A5, UNR32A5							
UNR32AK							
UNR31A2, UNR32A2	-30%	22	+30%				
UNR31A7, UNR32A7							
UNR31AT, UNR32AT							
UNR31A3, UNR32A3	-30%	47	+30%				
UNR31A0, UNR32A0							
UNR31AD, UNR32AD							
UNR31AE, UNR32AE							
UNR31AA, UNR32AA	-30%	100	+30%				
UNR31AB, UNR32AB							
UNR31AC, UNR32AC							
							∞
抵抗比率 Resistance Ratio	R1/R2		UNR31A1, UNR32A1				-
			UNR31A2, UNR32A2	0.8	1.0	1.2	
			UNR31A3, UNR32A3				
			UNR31AL, UNR32AL				
			UNR31AA, UNR32AA				
			UNR31A4, UNR32A4	0.17	0.21	0.25	
			UNR31A8, UNR32A8	0.08	0.1	0.12	
			UNR31A9, UNR32A9				
			UNR31AD, UNR32AD	3.7	4.7	5.7	
			UNR31AE, UNR32AE	1.7	2.14	2.6	
			UNR31AF, UNR32AF	0.37	0.47	0.57	
			UNR31AH, UNR32AH	0.17	0.22	0.27	
			UNR32AK	1.7	2.13	2.6	
			UNR31AM, UNR32AM		0.047		
			UNR31AN, UNR32AN		0.1		
UNR31AT, UNR32AT		0.47					
UNR31AV, UNR32AV		1.0					
UNR31A5, UNR32A5							
UNR31A6, UNR32A6							
UNR31A7, UNR32A7							
UNR31A0, UNR32A0							
UNR31AB, UNR32AB							
							R2 = ∞
ミッタ・ベース間抵抗 Emitter to Base Resistance	R2		UNR31AC, UNR32AC		47		k Ω

内部接続図/Internally connected circuit (PNP)



(NPN)



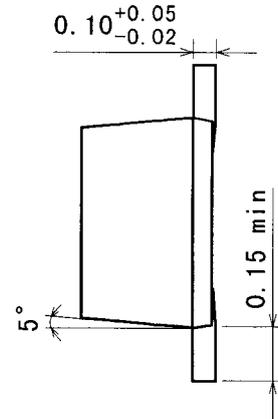
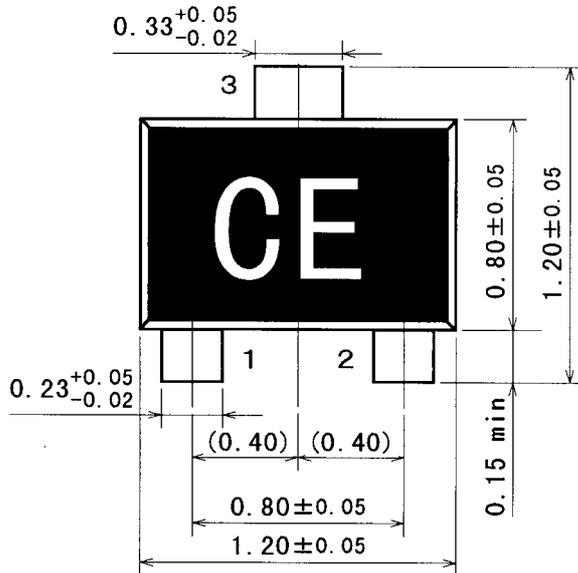
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製品規格/Product Specification

外形図/Out Line

品種名/Type Number: UNR 3   A   0 0 L  
 1) 1) 1) 1)

単位/Unit : mm

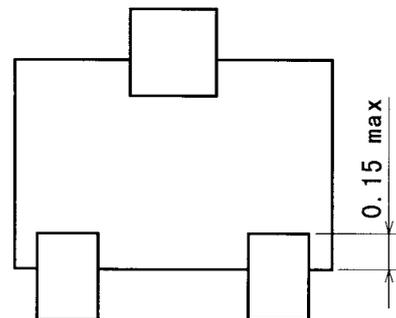
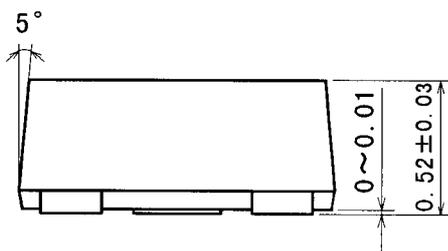


注) 品種略号のみ表示

Display at trademark

ex. UNR31A1

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



品名略号/Trademark

UNR31A1:CE, UNR31A2:CF, UNR31A3:CH, UNR31A4:CK, UNR31A5:CL, UNR31A6:CN, UNR31A7:CP  
 UNR31A8:KS, UNR31A9:DC, UNR31A0:CD, UNR31AD:DK, UNR31AE:DL, UNR31AF:DN, UNR31AH:EC  
 UNR31AL:ED, UNR31AM:EF, UNR31AN:EK, UNR31AT:EN, UNR31AV:EP, UNR31AA:DE, UNR31AB:DF  
 UNR31AC:DH  
 UNR32A1:FK, UNR32A2:FL, UNR32A3:FN, UNR32A4:FP, UNR32A5:HC, UNR32A6:HD, UNR32A7:HE  
 UNR32A8:HF, UNR32A9:HK, UNR32A0:KT, UNR32AD:KX, UNR32AE:KC, UNR32AF:KD, UNR32AK:KE  
 UNR32AL:KF, UNR32AM:KH, UNR32AN:KL, UNR32AT:KZ, UNR32AV:KP, UNR32AA:HL, UNR32AB:HN  
 UNR32AC:HP

項目/Item	内容/contents
リード材質/Lead Material	銅系/Cu
リード処理/Lead Process	はんだめっき/Solder plating
モールド材質/Mold Material	エポキシ樹脂/Epoxy

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