

UN5111/5112/5113/5114/5115/5116/5117/5118/5119/5110/ 511D/511E/511F/511H/511L/511M/511N/511T/511V/511Z

Silicon PNP epitaxial planer transistor

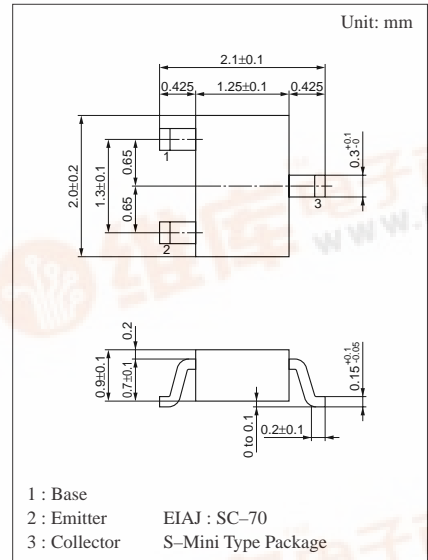
For digital circuits

Features

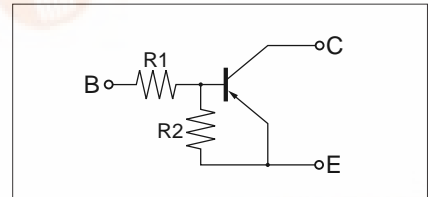
- Costs can be reduced through downsizing of the equipment and reduction of the number of parts.
- S-Mini type package, allowing automatic insertion through tape packing and magazine packing.

Resistance by Part Number

	Marking Symbol	(R ₁)	(R ₂)
• UN5111	6A	10kΩ	10kΩ
• UN5112	6B	22kΩ	22kΩ
• UN5113	6C	47kΩ	47kΩ
• UN5114	6D	10kΩ	47kΩ
• UN5115	6E	10kΩ	—
• UN5116	6F	4.7kΩ	—
• UN5117	6H	22kΩ	—
• UN5118	6I	0.51Ω	5.1kΩ
• UN5119	6K	1kΩ	10kΩ
• UN5110	6L	47kΩ	—
• UN511D	6M	47kΩ	10kΩ
• UN511E	6N	47kΩ	22kΩ
• UN511F	6O	4.7kΩ	10kΩ
• UN511H	6P	2.2kΩ	10kΩ
• UN511L	6Q	4.7kΩ	4.7kΩ
• UN511M	EI	2.2kΩ	47kΩ
• UN511N	EW	4.7kΩ	47kΩ
• UN511T	EY	22kΩ	47kΩ
• UN511V	FC	2.2kΩ	2.2kΩ
• UN511Z	FE	4.7kΩ	22kΩ

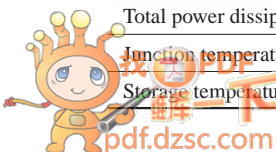


Internal Connection



Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Ratings	Unit
Collector to base voltage	V _{CBO}	-50	V
Collector to emitter voltage	V _{CEO}	-50	V
Collector current	I _C	-100	mA
Total power dissipation	P _T	150	mW
Junction temperature	T _j	150	°C
Storage temperature	T _{stg}	-55 to +150	°C



**UN5111/5112/5113/5114/5115/5116/5117/5118/5119/5110/
Transistors with built-in Resistor 511D/511E/511F/511H/511L/511M/511N/511T/511V/511Z**

Electrical Characteristics (Ta=25°C)

Parameter		Symbol	Conditions	min	typ	max	Unit
Collector cutoff current		I _{CBO}	V _{CB} = -50V, I _E = 0			-0.1	μA
		I _{CEO}	V _{CE} = -50V, I _B = 0			-0.5	μA
Emitter cutoff current	UN5111	I _{EBO}	V _{EB} = -6V, I _C = 0			-0.5	mA
	UN5112/5114/511E/511D/511M/511N/511T					-0.2	
	UN5113					-0.1	
	UN5115/5116/5117/5110					-0.01	
	UN511F/511H					-1.0	
	UN5119					-1.5	
	UN5118/511L/511V					-2.0	
	UN511Z					-0.4	
Collector to base voltage		V _{CBO}	I _C = -10μA, I _E = 0	-50			V
UN511N/511T/511V/511Z				-50			
Collector to emitter voltage		V _{CEO}	I _C = -2mA, I _B = 0	-50			V
UN511N/511T				-50			
Forward current transfer ratio	UN5111	h _{FE}	V _{CE} = -10V, I _C = -5mA	35			
	UN5112/511E			60			
	UN5113/5114/511M			80			
	UN5115*/5116*/5117*/5110*			160	460		
	UN511F/511D/5119/511H			30			
	UN5118/511L			20			
	UN511N/511T			80	400		
	UN511V			6	20		
	UN511Z			60	200		
Collector to emitter saturation voltage		V _{CE(sat)}	I _C = -10mA, I _B = -0.3mA			-0.25	V
UN511V				I _C = -10mA, I _B = -1.5mA			
Output voltage high level		V _{OH}	V _{CC} = -5V, V _B = -0.5V, R _L = 1kΩ	-4.9			V
Output voltage low level		V _{OL}	V _{CC} = -5V, V _B = -2.5V, R _L = 1kΩ			-0.2	V
			V _{CC} = -5V, V _B = -3.5V, R _L = 1kΩ			-0.2	
			V _{CC} = -5V, V _B = -10V, R _L = 1kΩ			-0.2	
			V _{CC} = -5V, V _B = -6V, R _L = 1kΩ			-0.2	
Transition frequency		f _T	V _{CB} = -10V, I _E = 1mA, f = 200MHz		80		MHz
			UN511Z	V _{CB} = -10V, I _E = 1mA, f = 200MHz		150	
Input resistance	UN5111/5114/5115	R _i		(-30%)	10	(+30%)	kΩ
	UN5112/5117/511T				22		
	UN5113/5110/511D/511E				47		
	UN5116/511F/511L/511N/511Z				4.7		
	UN5118				0.51		
	UN5119				1		
	UN511H/511M/511V				2.2		

* h_{FE} rank classification (UN5115/5116/5117/5110)

Rank	Q	R	S
h _{FE}	160 to 260	210 to 340	290 to 460

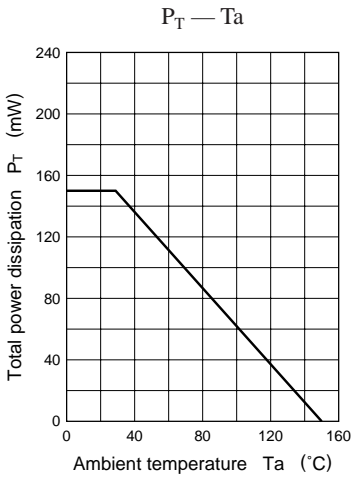
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■ Electrical Characteristics (continued) (Ta=25°C)

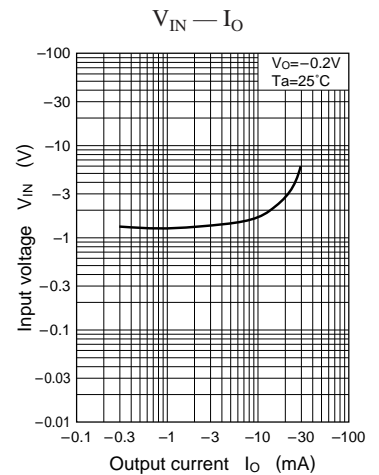
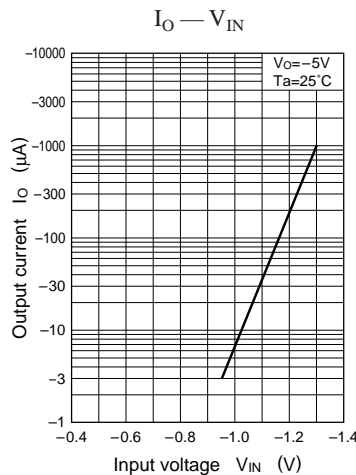
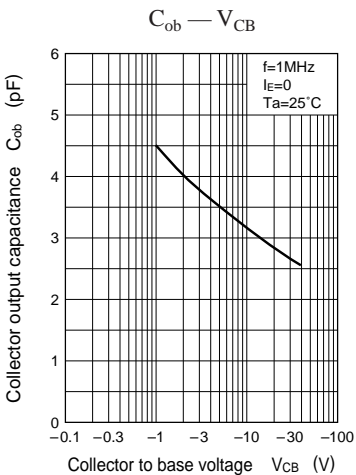
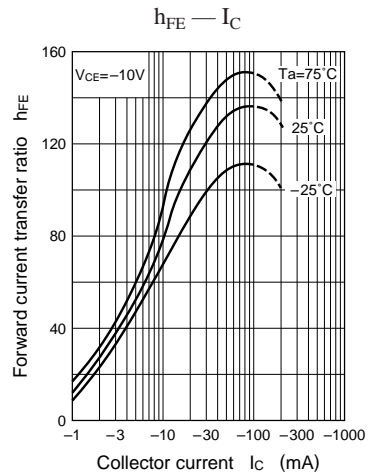
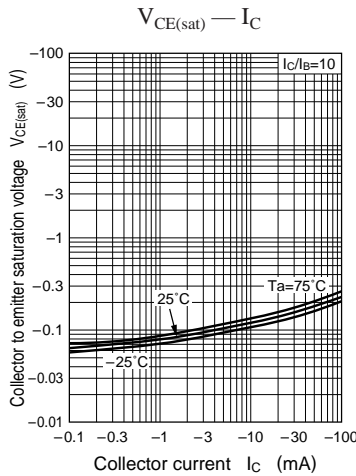
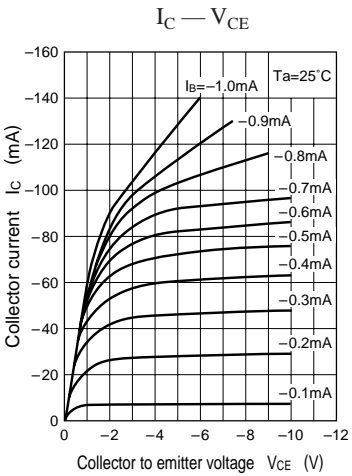
Parameter		Symbol	Conditions	min	typ	max	Unit
Resis- tance ratio	UN5111/5112/5113/511L	R_1/R_2		0.8	1.0	1.2	
	UN5114			0.17	0.21	0.25	
	UN5118/5119			0.08	0.1	0.12	
	UN511D				4.7		
	UN511E				2.14		
	UN511F/511T				0.47		
	UN511H			0.17	0.22	0.27	
	UN511M				0.047		
	UN511N				0.1		
	UN511V				1.0		
	UN511Z				0.21		

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Common characteristics chart

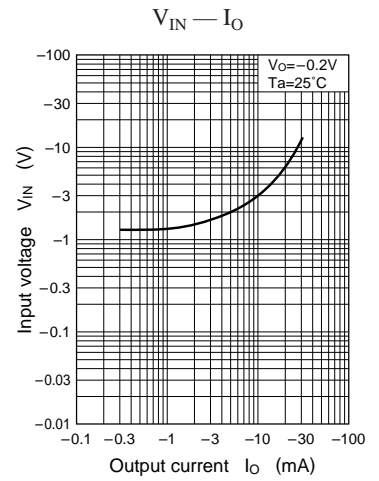
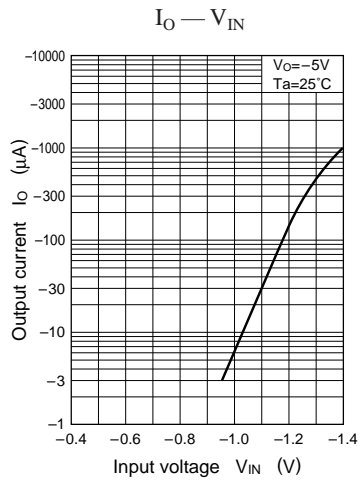
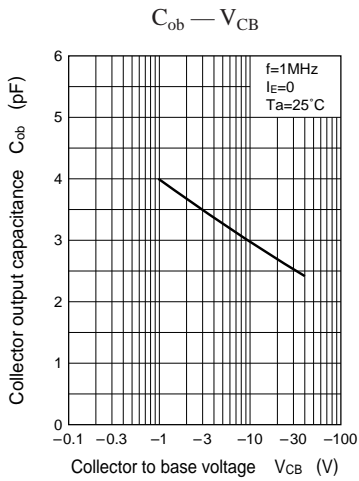
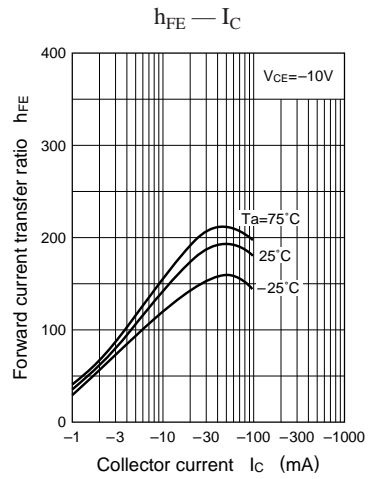
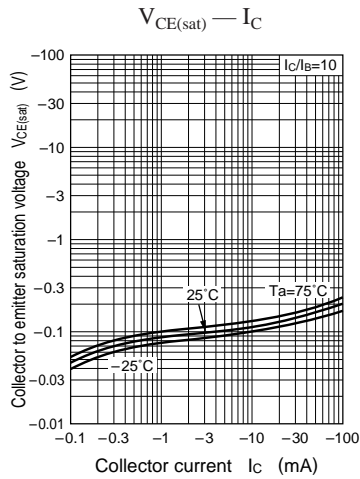
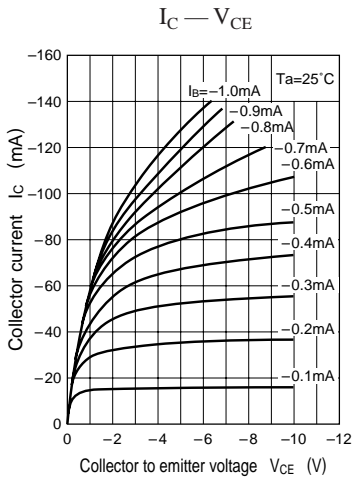


Characteristics charts of UN5111

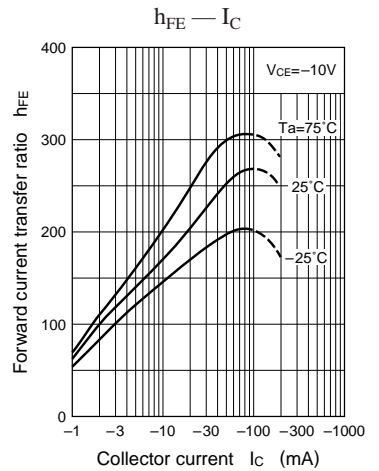
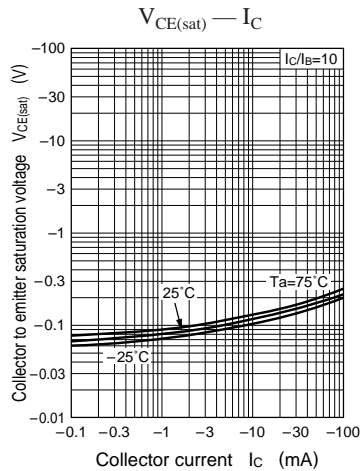
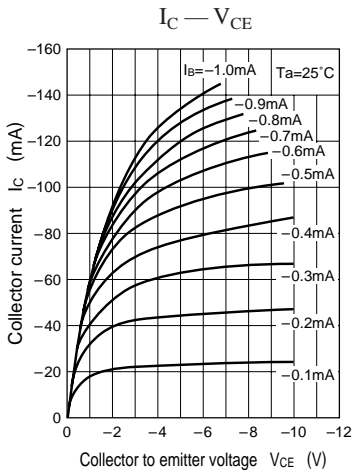


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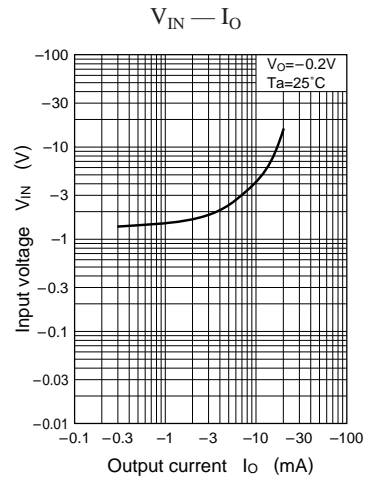
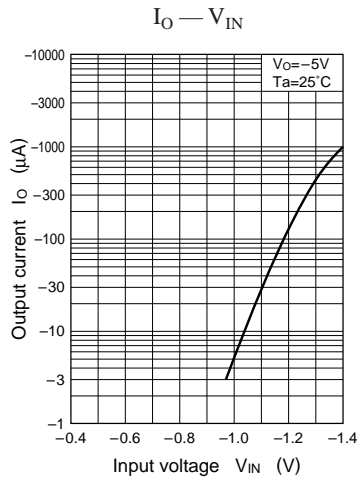
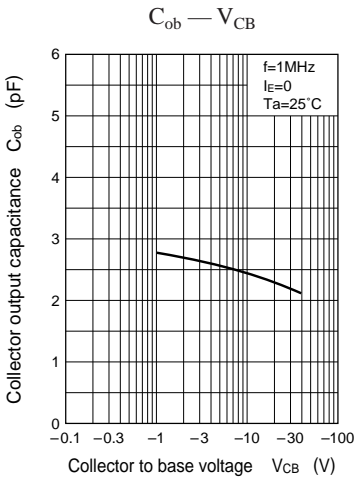
Characteristics charts of UN5112



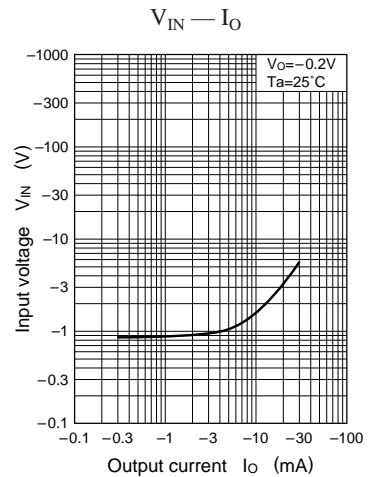
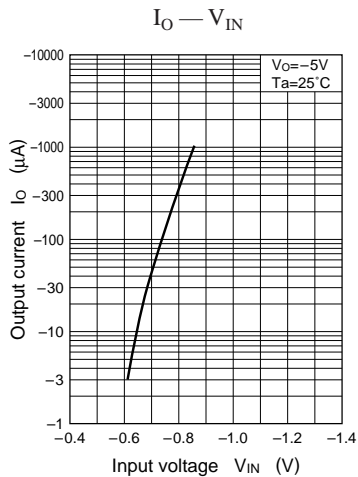
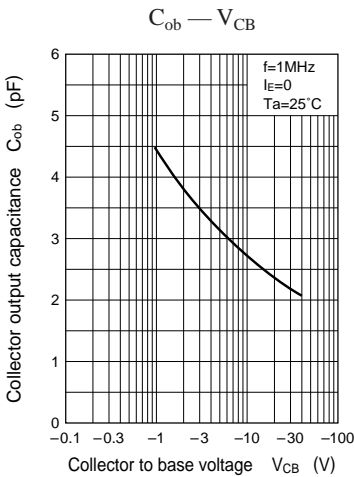
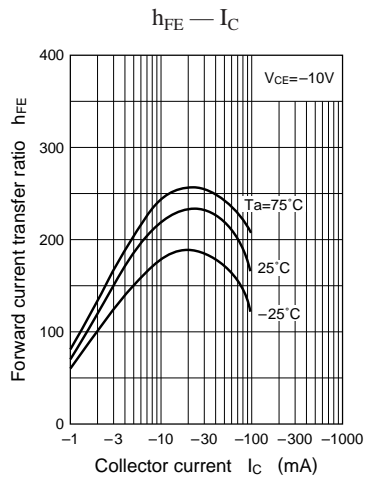
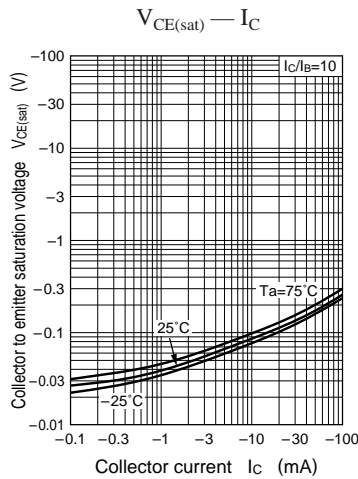
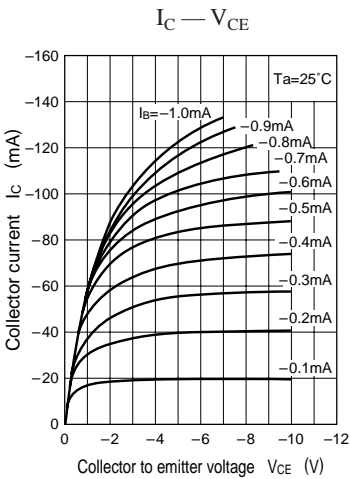
Characteristics charts of UN5113



UN5111/5112/5113/5114/5115/5116/5117/5118/5119/5110/
Transistors with built-in Resistor 511D/511E/511F/511H/511L/511M/511N/511T/511V/511Z

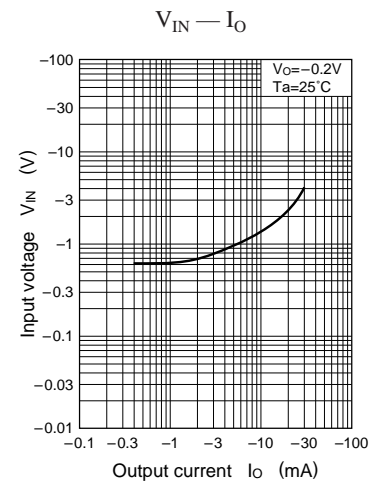
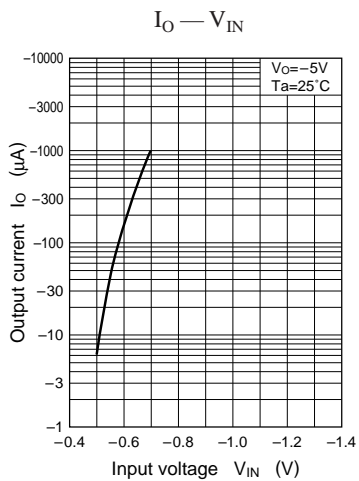
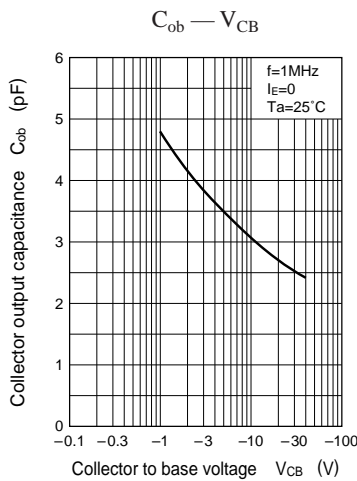
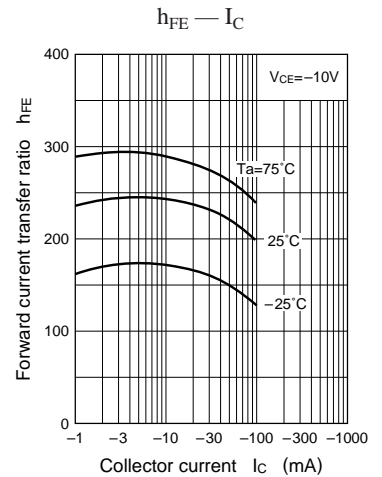
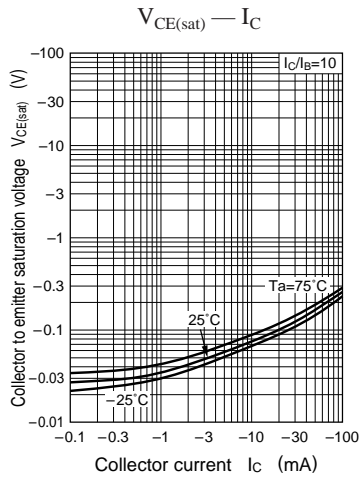
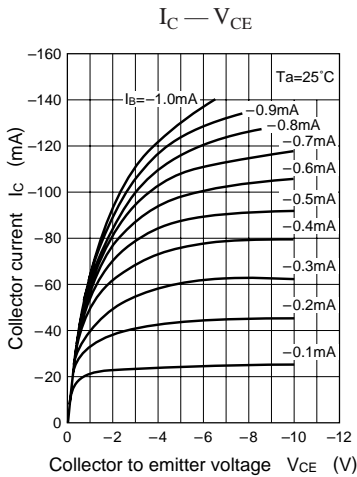


Characteristics charts of UN5114

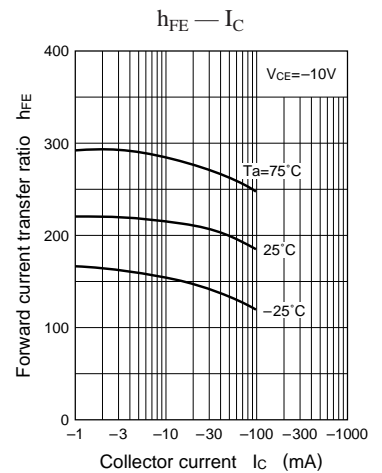
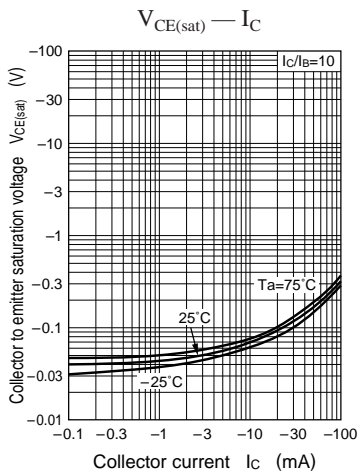
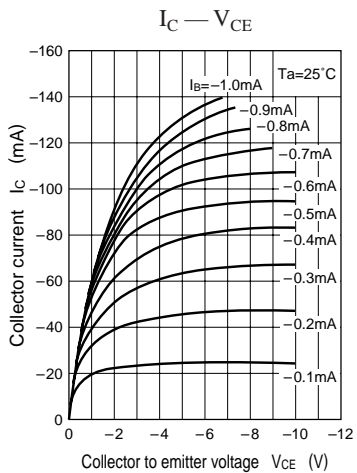


UN5111/5112/5113/5114/5115/5116/5117/5118/5119/5110/
Transistors with built-in Resistor 511D/511E/511F/511H/511L/511M/511N/511T/511V/511Z

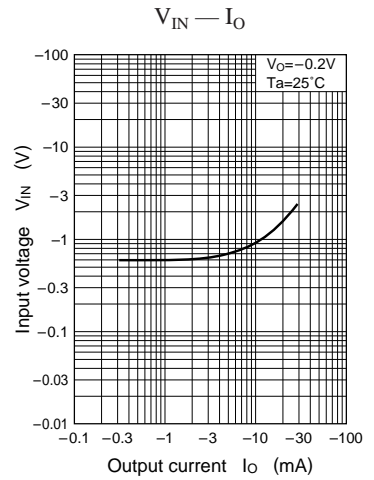
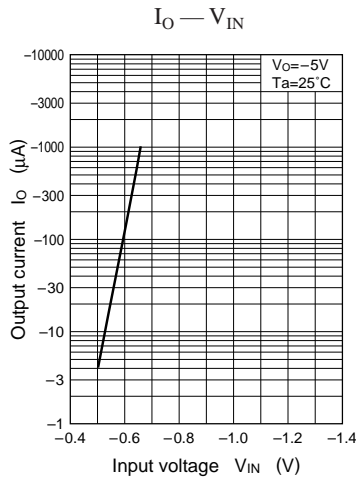
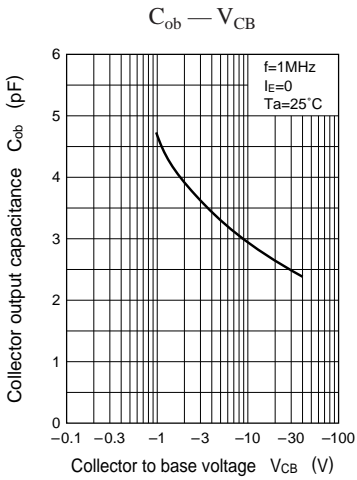
Characteristics charts of UN5115



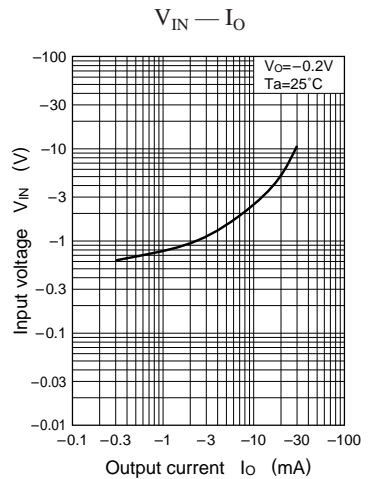
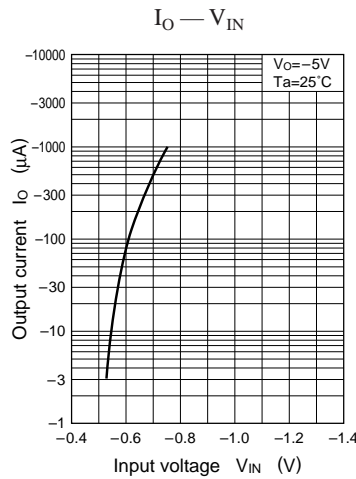
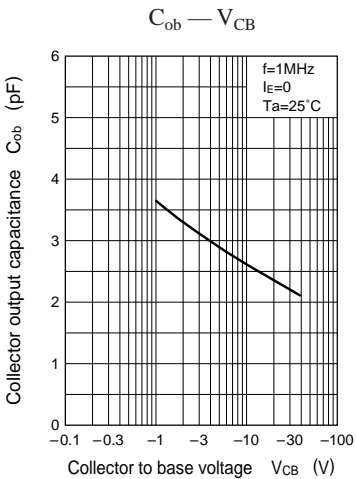
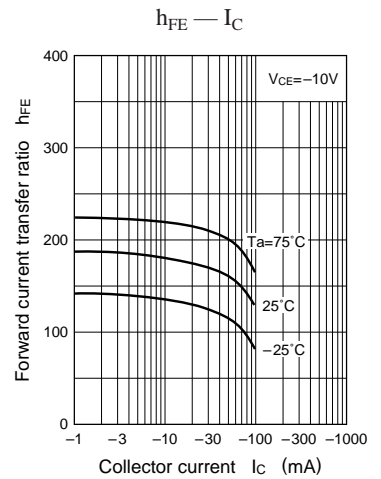
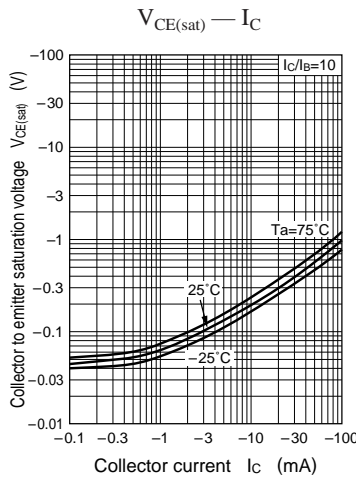
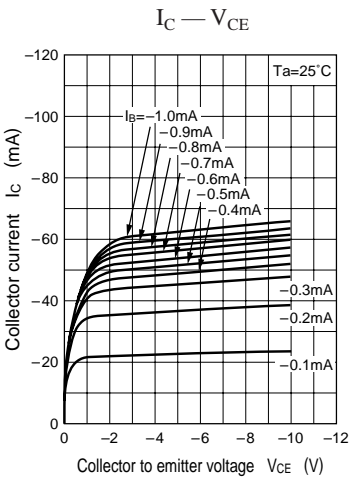
Characteristics charts of UN5116



UN5111/5112/5113/5114/5115/5116/5117/5118/5119/5110/
Transistors with built-in Resistor 511D/511E/511F/511H/511L/511M/511N/511T/511V/511Z

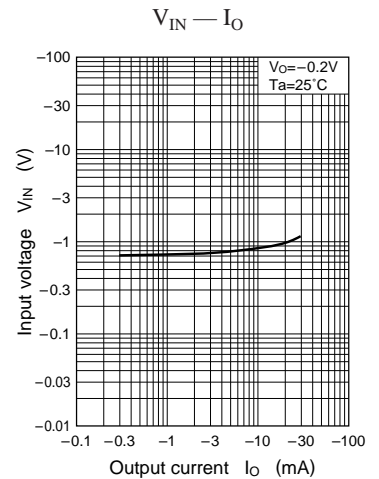
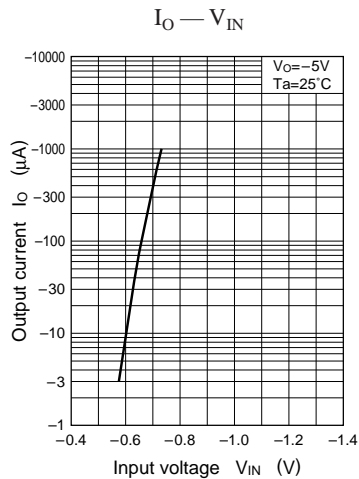
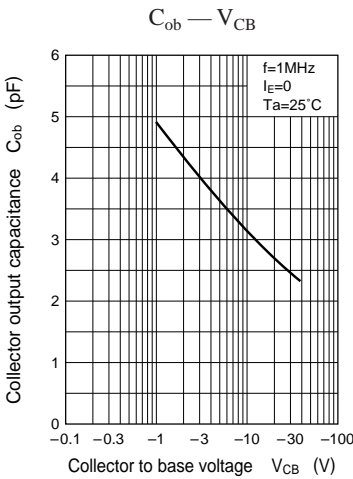
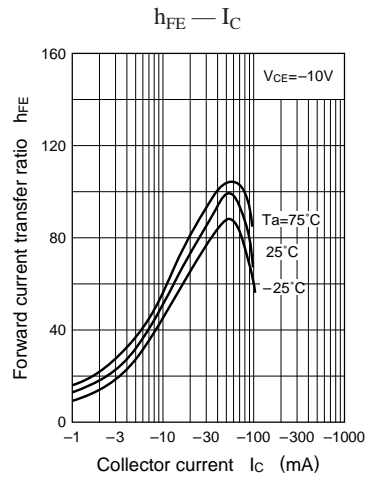
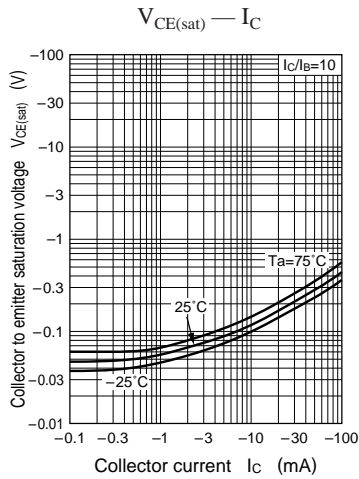
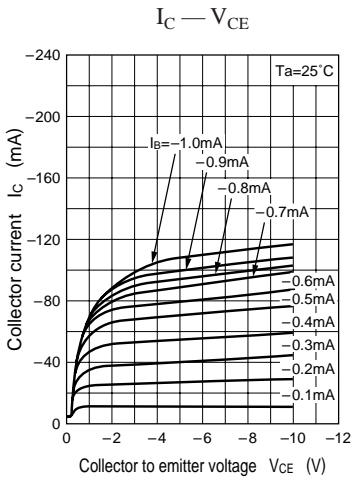


Characteristics charts of UN5117

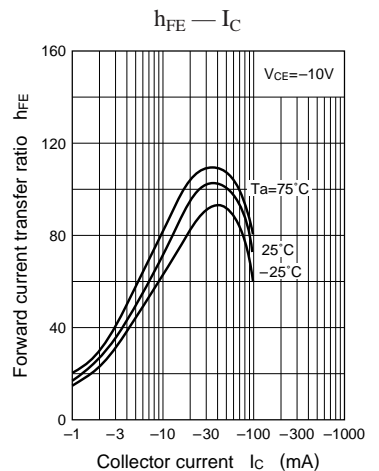
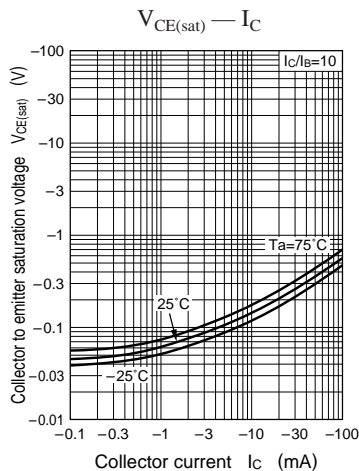
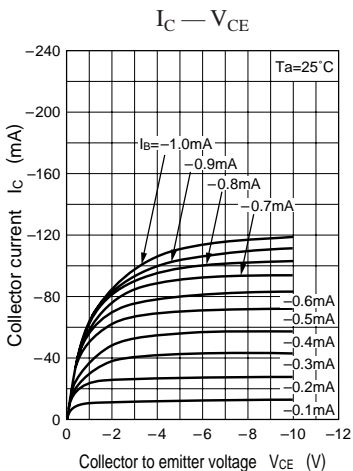


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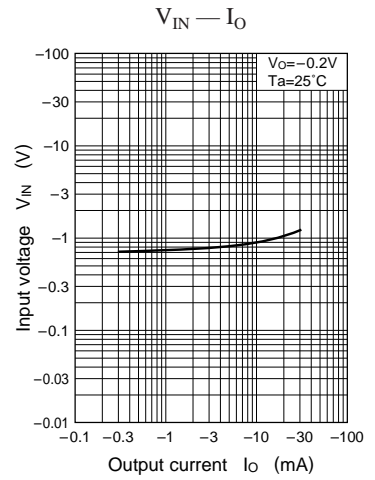
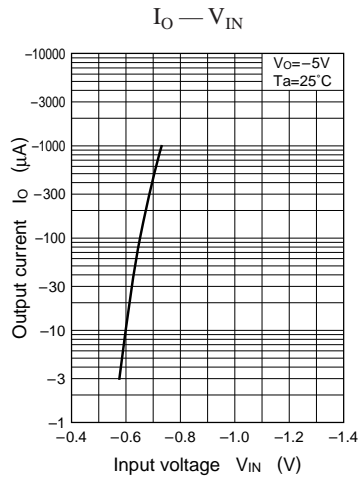
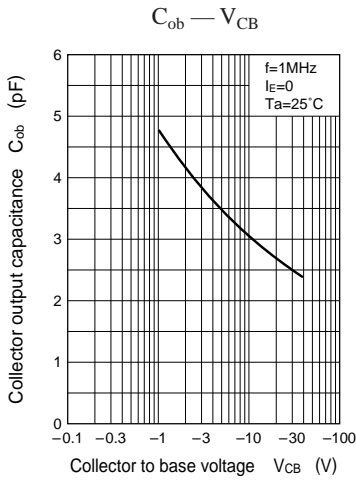
Characteristics charts of UN5118



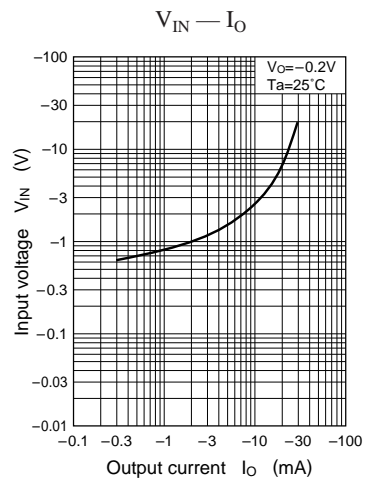
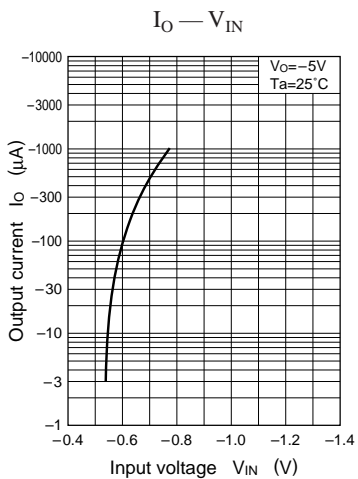
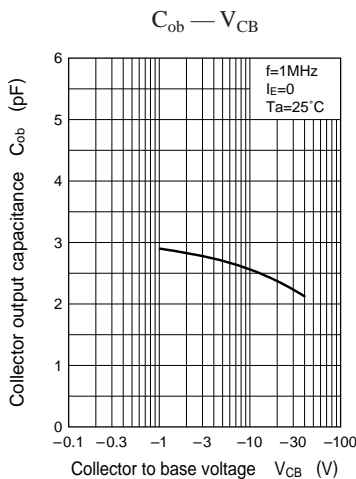
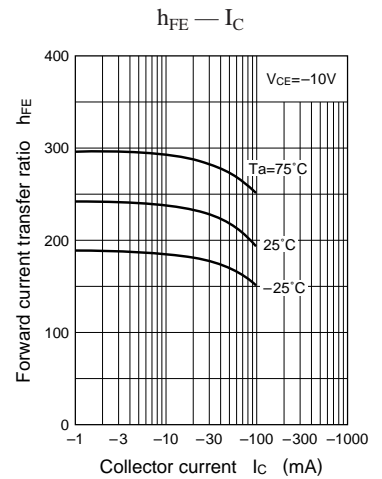
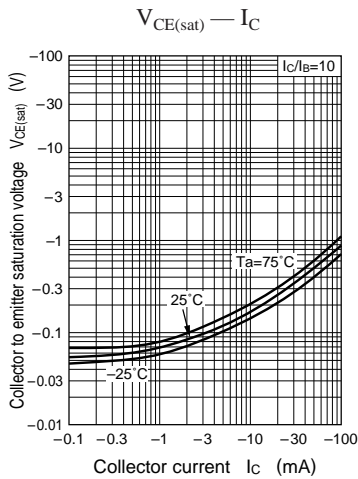
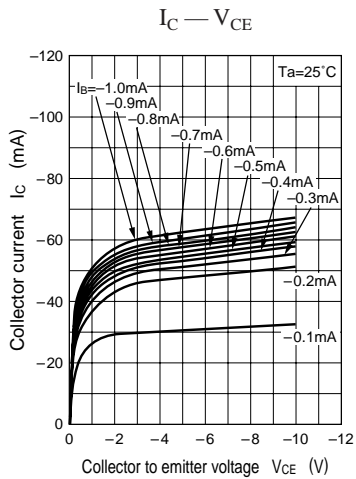
Characteristics charts of UN5119



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Transistors with built-in Resistor 511D/511E/511F/511H/511L/511M/511N/511T/511V/511Z

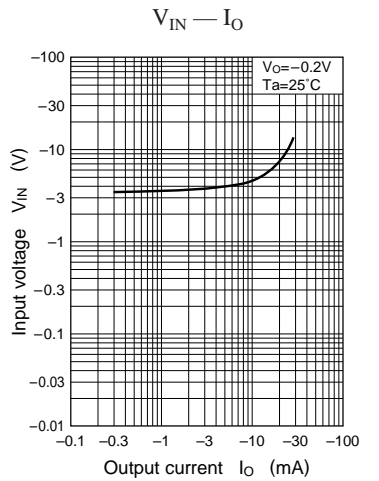
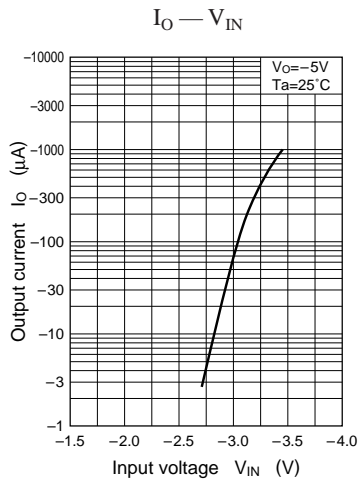
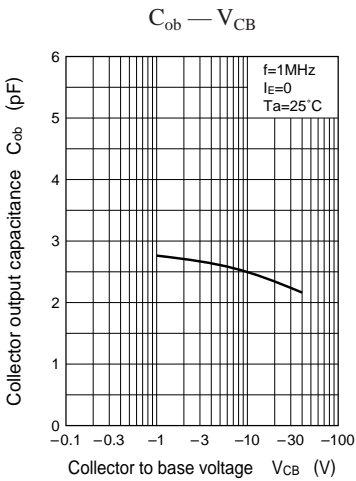
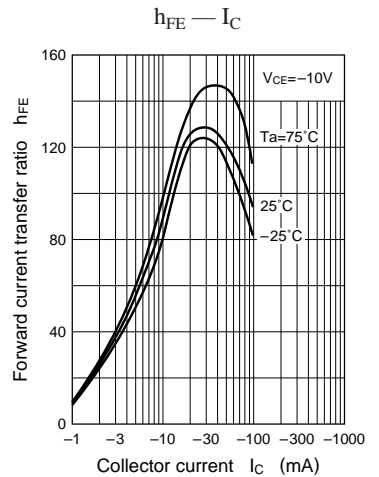
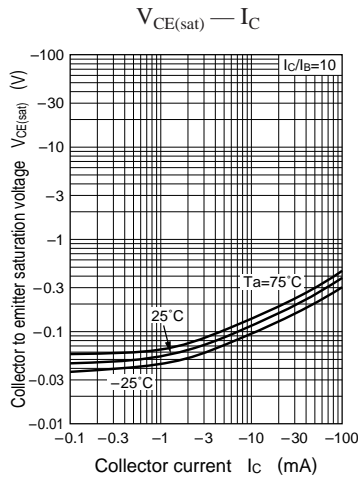
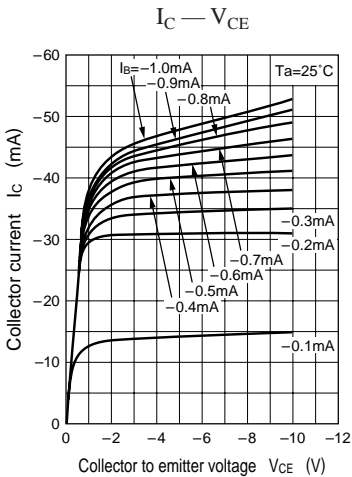


Characteristics charts of UN5110

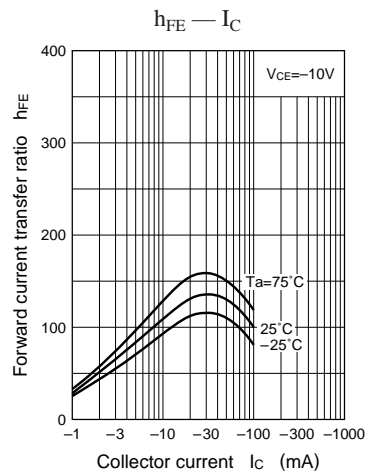
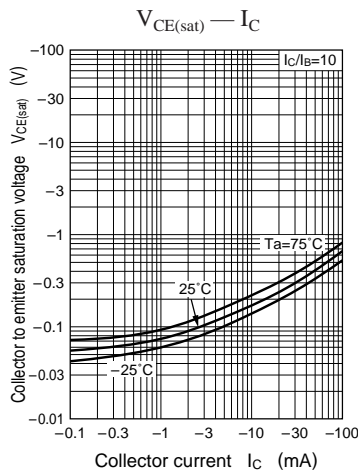
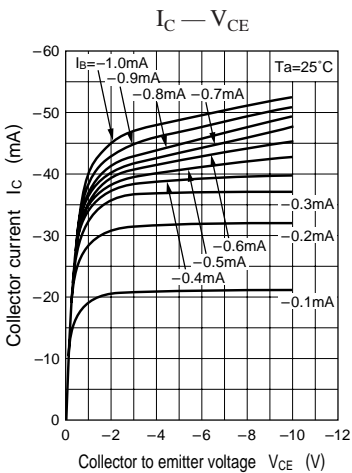


UN5111/5112/5113/5114/5115/5116/5117/5118/5119/5110/
Transistors with built-in Resistor 511D/511E/511F/511H/511L/511M/511N/511T/511V/511Z

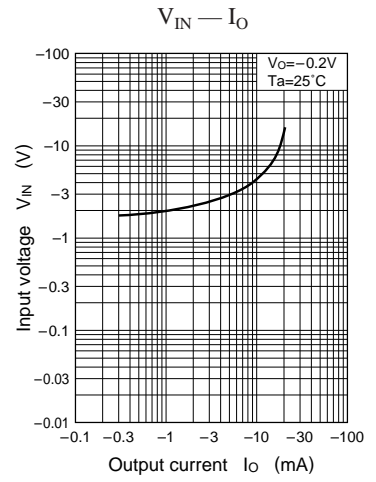
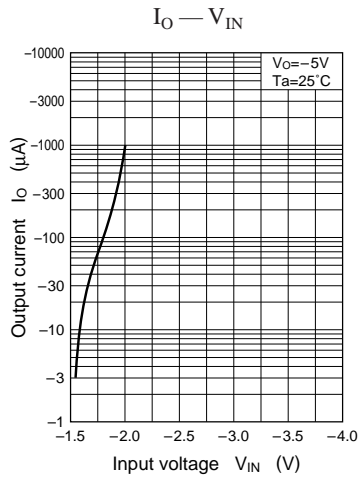
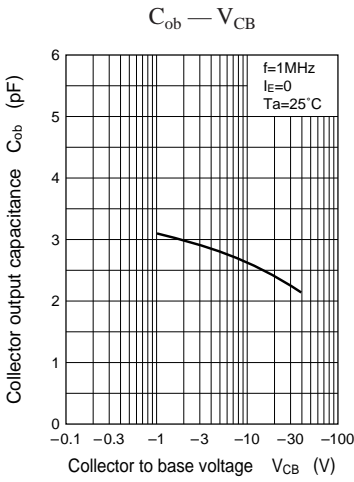
Characteristics charts of UN511D



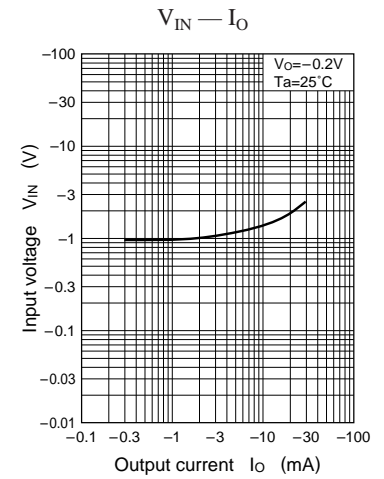
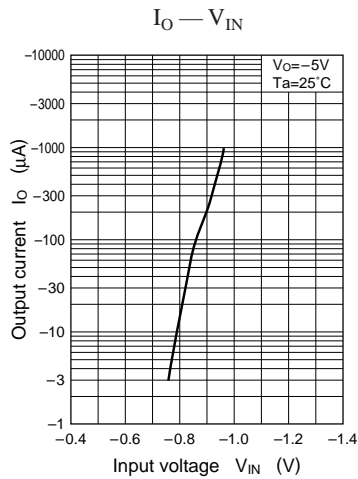
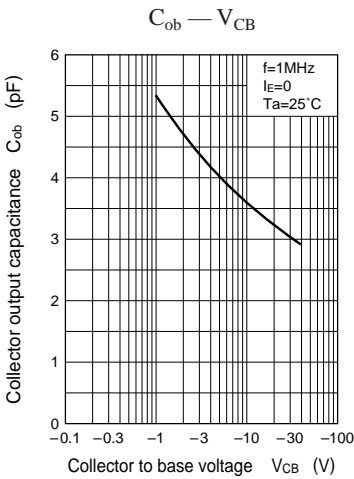
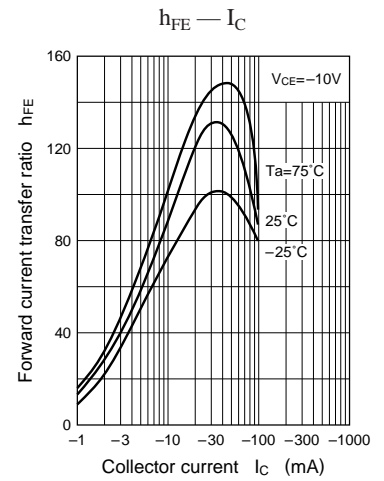
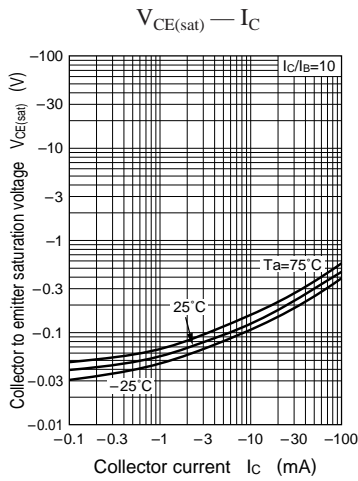
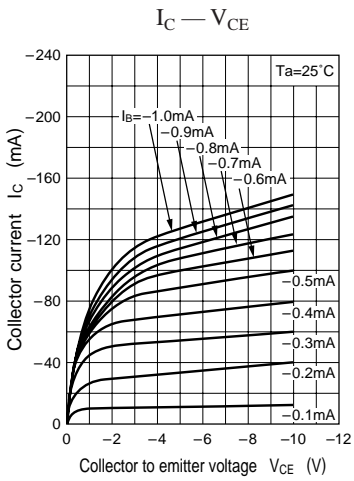
Characteristics charts of UN511E



UN5111/5112/5113/5114/5115/5116/5117/5118/5119/5110/
Transistors with built-in Resistor 511D/511E/511F/511H/511L/511M/511N/511T/511V/511Z

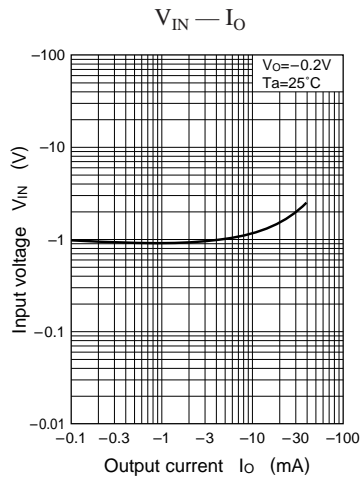
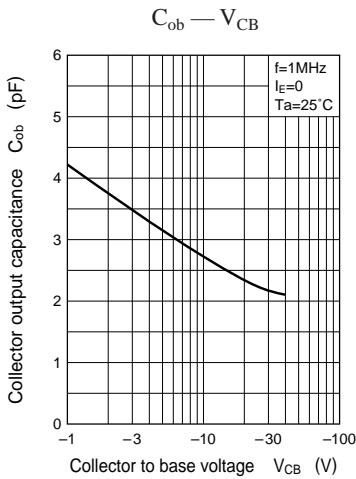
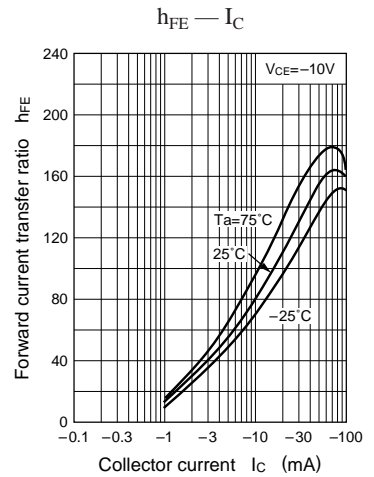
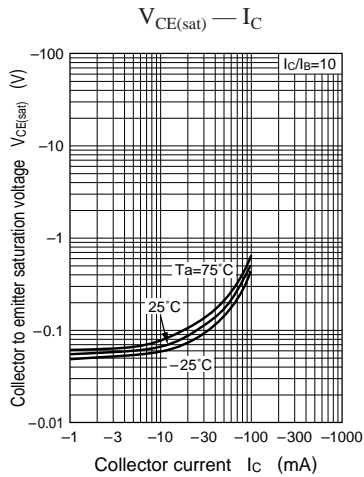
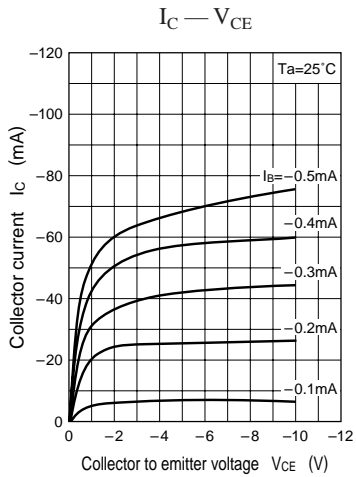


Characteristics charts of UN511F

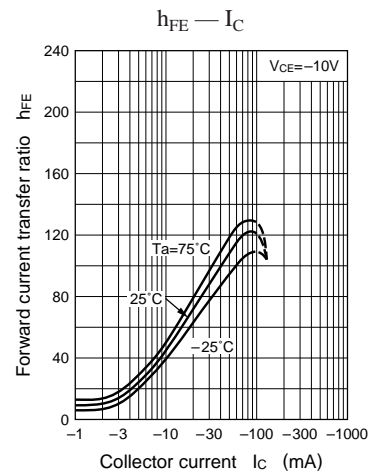
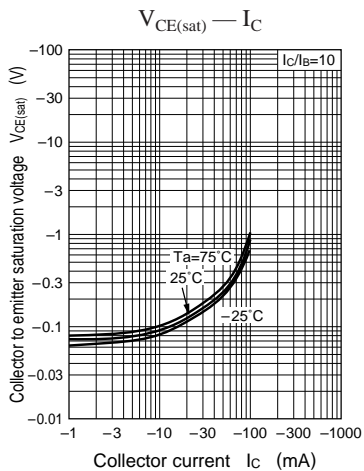
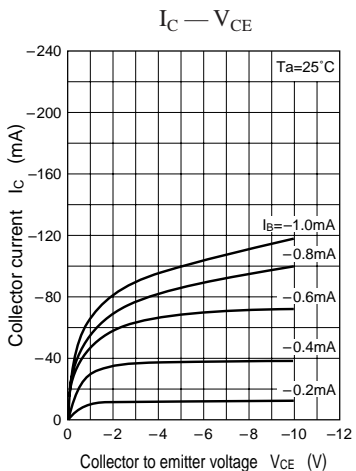


UN5111/5112/5113/5114/5115/5116/5117/5118/5119/5110/
Transistors with built-in Resistor 511D/511E/511F/511H/511L/511M/511N/511T/511V/511Z

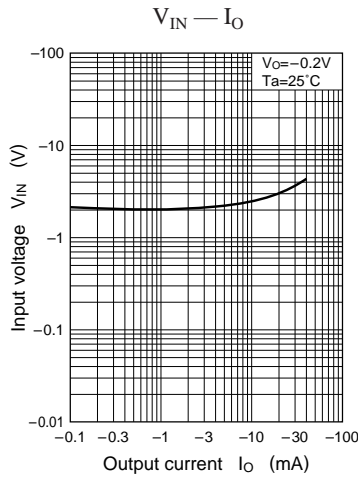
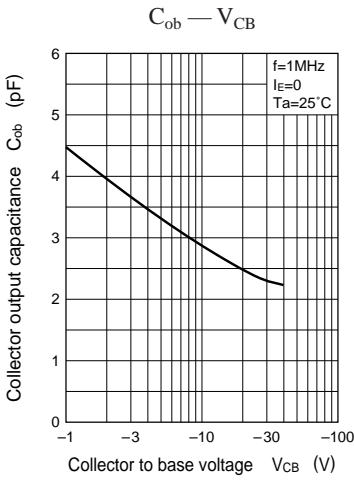
Characteristics charts of UN511H



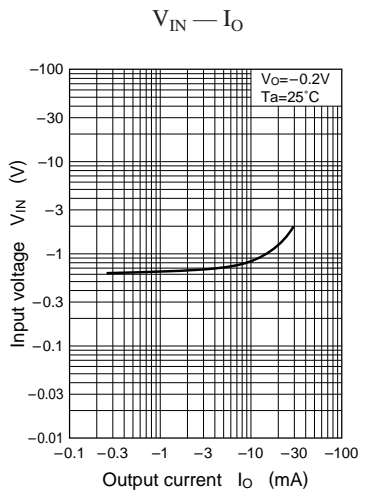
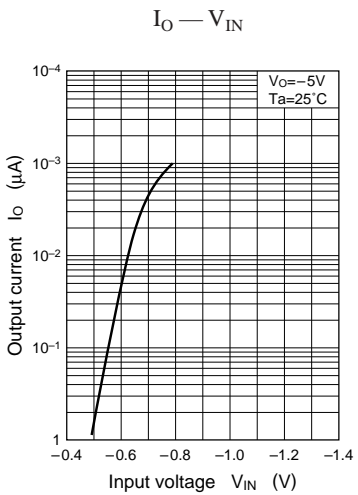
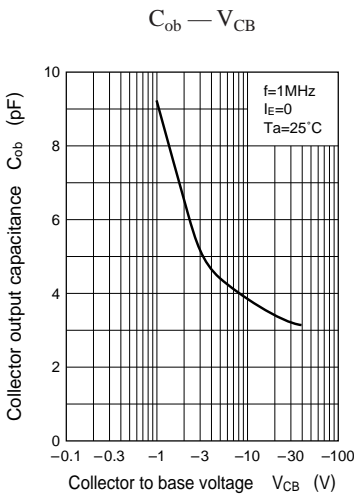
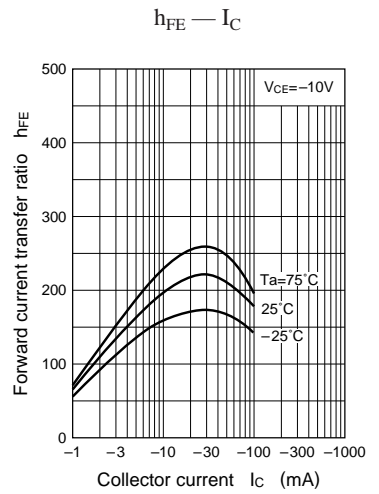
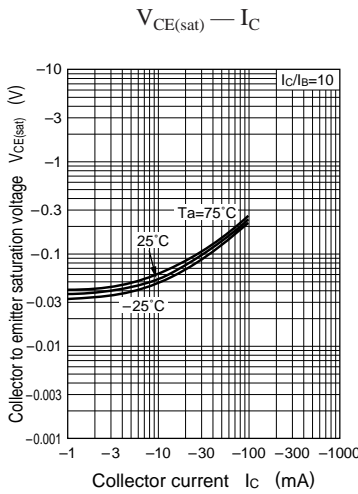
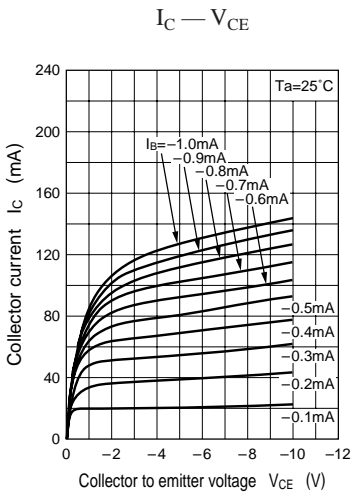
Characteristics charts of UN511L



UN5111/5112/5113/5114/5115/5116/5117/5118/5119/5110/
Transistors with built-in Resistor 511D/511E/511F/511H/511L/511M/511N/511T/511V/511Z

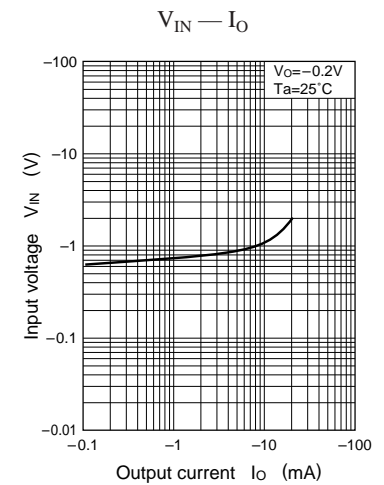
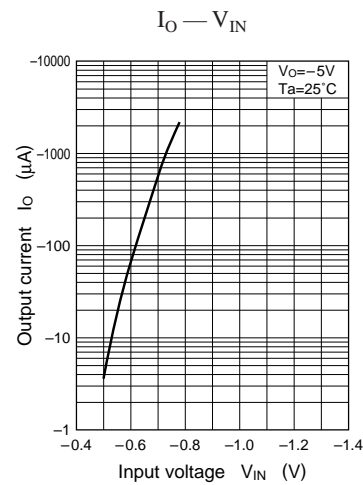
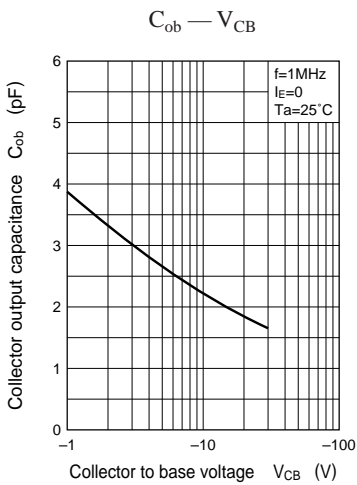
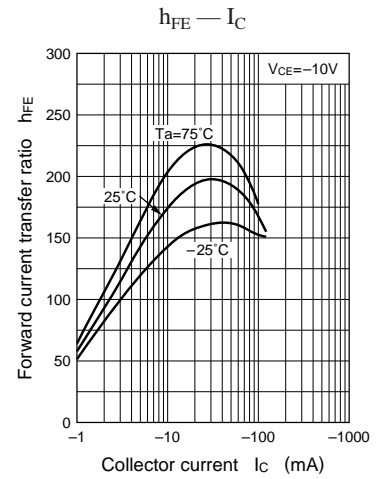
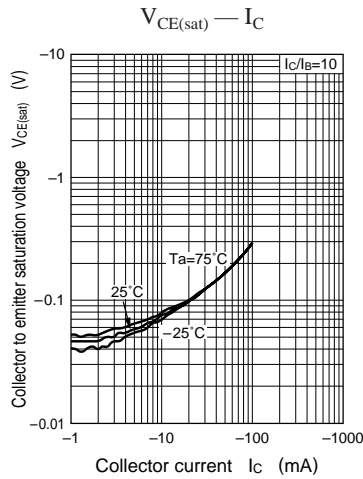
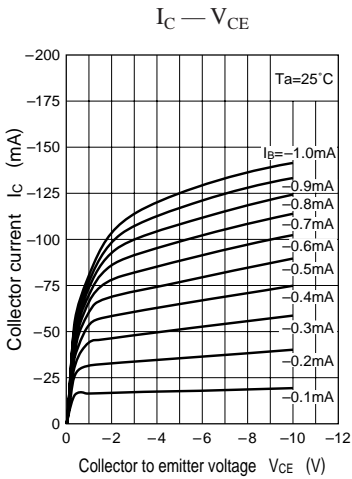


Characteristics charts of UN511M

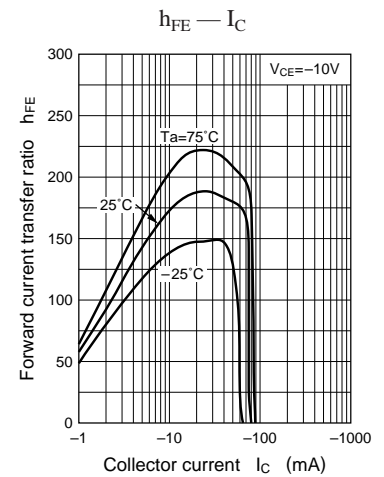
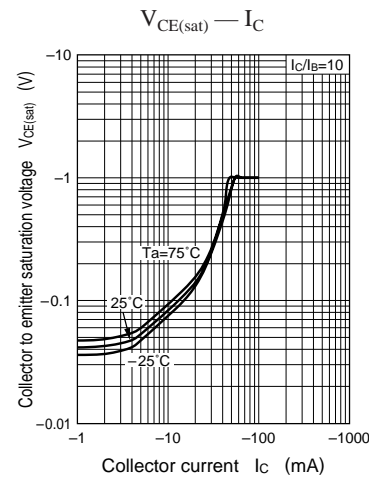
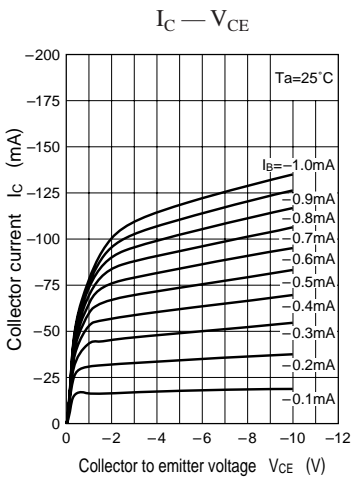


UN5111/5112/5113/5114/5115/5116/5117/5118/5119/5110/
Transistors with built-in Resistor 511D/511E/511F/511H/511L/511M/511N/511T/511V/511Z

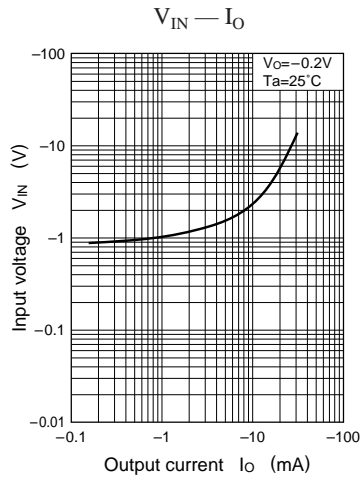
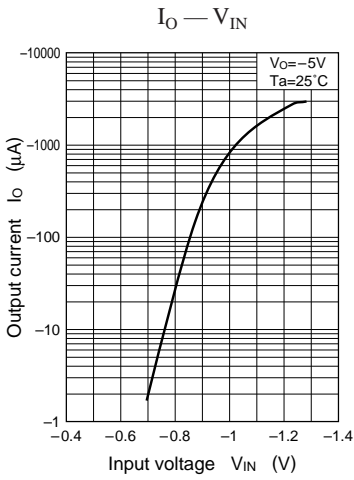
Characteristics charts of UN511N



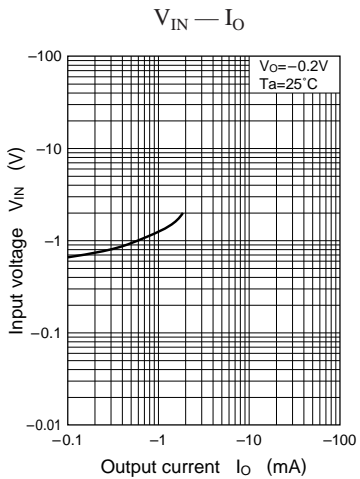
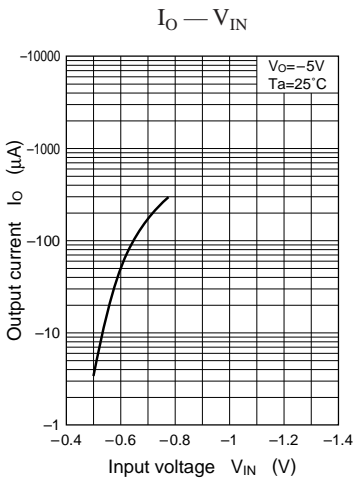
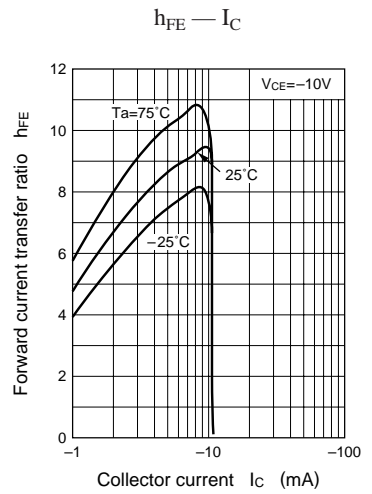
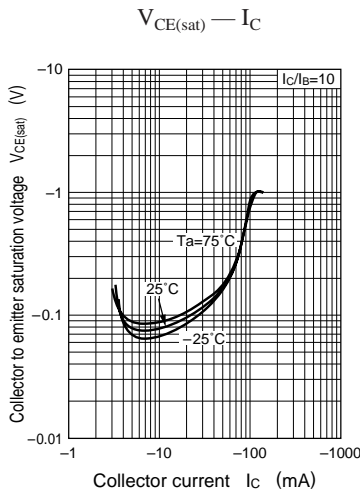
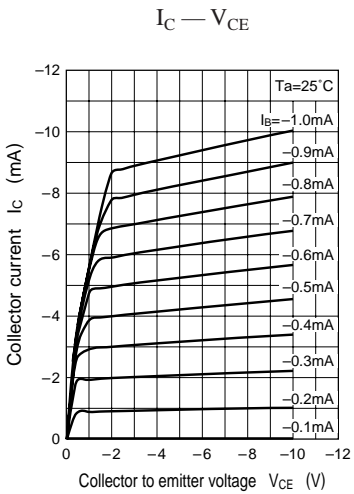
Characteristics charts of UN511T



UN5111/5112/5113/5114/5115/5116/5117/5118/5119/5110/
Transistors with built-in Resistor 511D/511E/511F/511H/511L/511M/511N/511T/511V/511Z



Characteristics charts of UN511V



UN5111/5112/5113/5114/5115/5116/5117/5118/5119/5110/
Transistors with built-in Resistor 511D/511E/511F/511H/511L/511M/511N/511T/511V/511Z

Characteristics charts of UN511Z

