

UNR121x Series (UN121x Series)

Silicon NPN epitaxial planar type

For digital circuits

■ Features

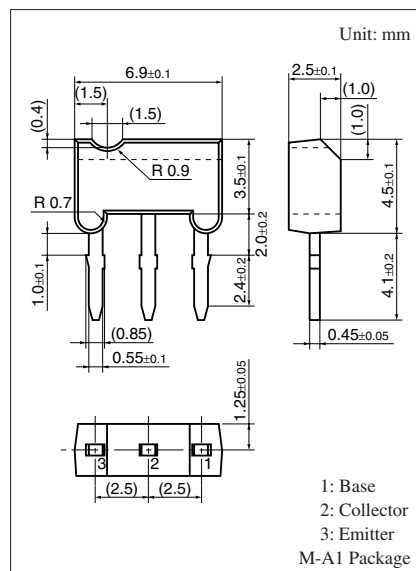
- Costs can be reduced through downsizing of the equipment and reduction of the number of parts
- M type package allowing easy automatic and manual insertion as well as stand-alone fixing to the printed circuit board

■ Resistance by Part Number

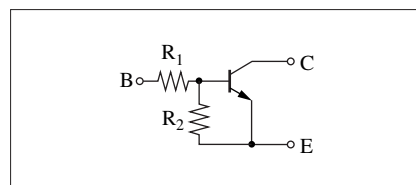
	(R ₁)	(R ₂)
• UNR1210 (UN1210)	47 kΩ	—
• UNR1211 (UN1211)	10 kΩ	10 kΩ
• UNR1212 (UN1212)	22 kΩ	22 kΩ
• UNR1213 (UN1213)	47 kΩ	47 kΩ
• UNR1214 (UN1214)	10 kΩ	47 kΩ
• UNR1215 (UN1215)	10 kΩ	—
• UNR1216 (UN1216)	4.7 kΩ	—
• UNR1217 (UN1217)	22 kΩ	—
• UNR1218 (UN1218)	0.51 kΩ	5.1 kΩ
• UNR1219 (UN1219)	1 kΩ	10 kΩ
• UNR121D (UN121D)	47 kΩ	10 kΩ
• UNR121E (UN121E)	47 kΩ	22 kΩ
• UNR121F (UN121F)	4.7 kΩ	10 kΩ
• UNR121K (UN121K)	10 kΩ	4.7 kΩ
• UNR121L (UN121L)	4.7 kΩ	4.7 kΩ

■ Absolute Maximum Ratings T_a = 25°C

Parameter	Symbol	Rating	Unit
Collector-base voltage (Emitter open)	V _{CBO}	50	V
Collector-emitter voltage (Base open)	V _{CEO}	50	V
Collector current	I _C	100	mA
Total power dissipation	P _T	400	mW
Junction temperature	T _j	150	°C
Storage temperature	T _{stg}	-55 to +150	°C



Internal Connection



Note) The part numbers in the parenthesis show conventional part number.

■ Electrical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

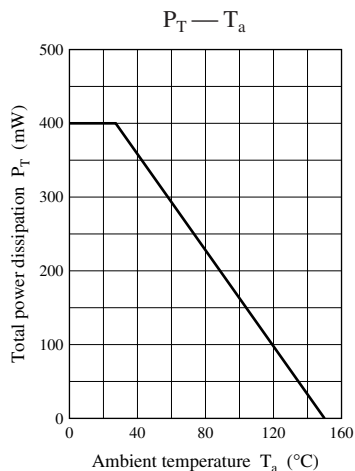
Parameter		Symbol	Conditions	Min	Typ	Max	Unit
Collector-base voltage (Emitter open)		V_{CBO}	$I_C = 10\ \mu\text{A}$, $I_E = 0$	50			V
Collector-emitter voltage (Base open)		V_{CEO}	$I_C = 2\ \text{mA}$, $I_B = 0$	50			V
Collector-base cutoff current (Emitter open)		I_{CBO}	$V_{CB} = 50\ \text{V}$, $I_E = 0$			0.1	μA
Collector-emitter cutoff current (Base open)		I_{CEO}	$V_{CE} = 50\ \text{V}$, $I_B = 0$			0.5	μA
Emitter-base cutoff current (Collector open)	UNR1211	I_{EBO}	$V_{EB} = 6\ \text{V}$, $I_C = 0$			0.5	mA
	UNR1212/1214/121D/121E					0.2	
	UNR1213					0.1	
	UNR1210/1215/1216/1217					0.01	
	UNR121F/121K					1.0	
	UNR1219					1.5	
	UNR1218/121L					2.0	
Forward current transfer ratio	UNR1211	h_{FE}	$V_{CE} = 10\ \text{V}$, $I_C = 5\ \text{mA}$	35			—
	UNR1212/121E			60			
	UNR1213/1214			80			
	UNR1210*/1215*/1216*/ 1217*			160		460	
	UNR1219/121D/121F			30			
	UNR1218/121K/121L			20			
Collector-emitter saturation voltage		$V_{CE(sat)}$	$I_C = 10\ \text{mA}$, $I_B = 0.3\ \text{mA}$			0.25	V
Output voltage high-level		V_{OH}	$V_{CC} = 5\ \text{V}$, $V_B = 0.5\ \text{V}$, $R_L = 1\ \text{k}\Omega$	4.9			V
Output voltage low-level		V_{OL}	$V_{CC} = 5\ \text{V}$, $V_B = 2.5\ \text{V}$, $R_L = 1\ \text{k}\Omega$			0.2	V
	UNR1213/121K		$V_{CC} = 5\ \text{V}$, $V_B = 3.5\ \text{V}$, $R_L = 1\ \text{k}\Omega$				
	UNR121D		$V_{CC} = 5\ \text{V}$, $V_B = 10\ \text{V}$, $R_L = 1\ \text{k}\Omega$				
	UNR121E		$V_{CC} = 5\ \text{V}$, $V_B = 6\ \text{V}$, $R_L = 1\ \text{k}\Omega$				
Transition frequency		f_T	$V_{CB} = 10\ \text{V}$, $I_E = -2\ \text{mA}$, $f = 200\ \text{MHz}$		80		MHz
Input resistance	UNR1211/1214/1215/121K	R_1		-30%	10	+30%	k Ω
	UNR1212/1217				22		
	UNR1210/1213/121D/121E				47		
	UNR1216/121F/121L				4.7		
	UNR1218				0.51		
	UNR1219				1		
Resistance ratio	UNR1211/1212/1213/121L	R_1/R_2		0.8	1.0	1.2	—
	UNR1214			0.17	0.21	0.25	
	UNR1218/1219			0.08	0.1	0.12	
	UNR121D				4.7		
	UNR121E				2.14		
	UNR121F				0.47		
	UNR121K				2.13		

Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

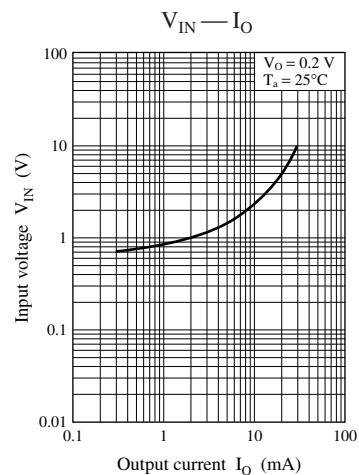
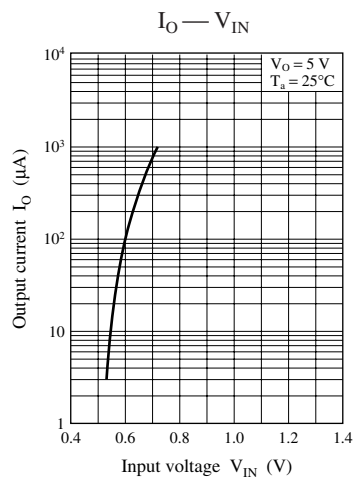
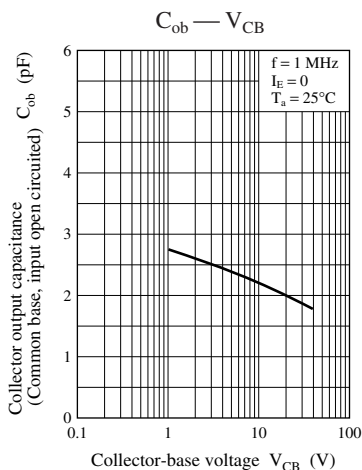
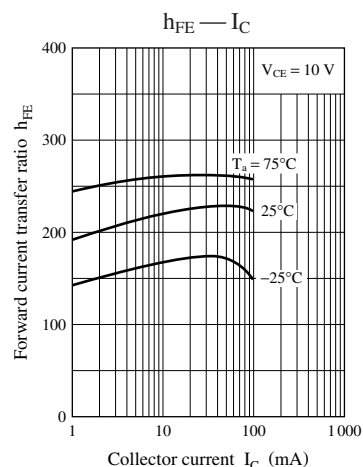
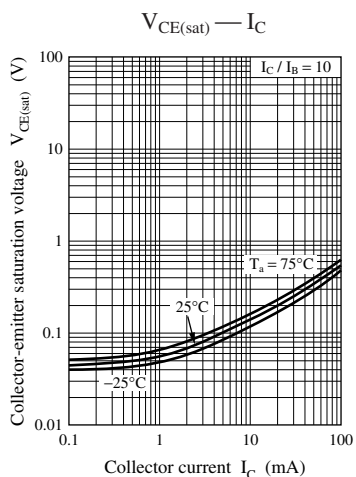
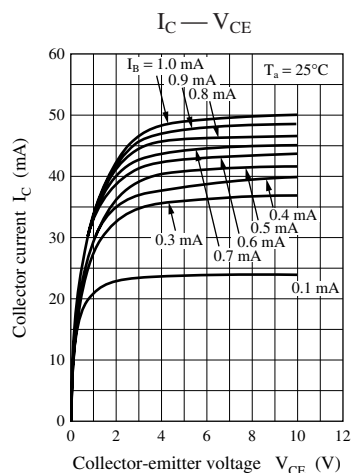
2. *: Rank classification (UNR1110/1115/1116/1117)

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

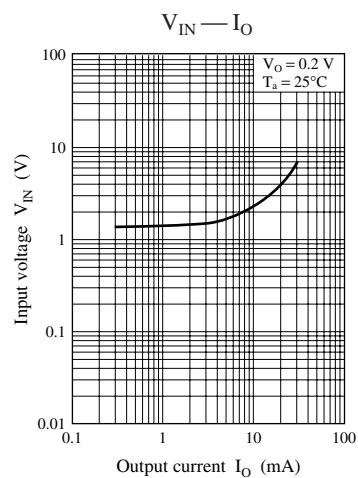
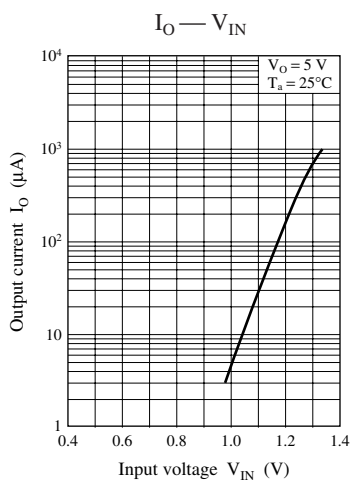
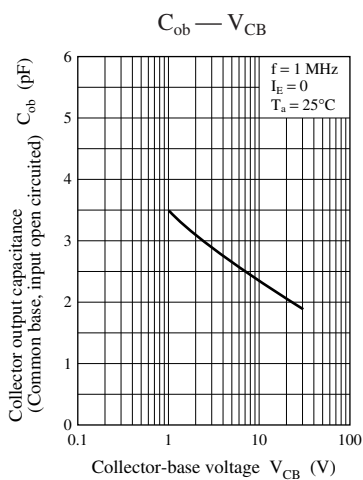
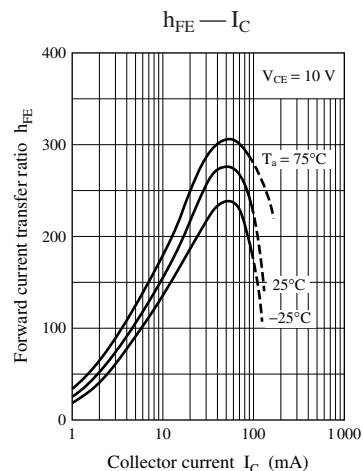
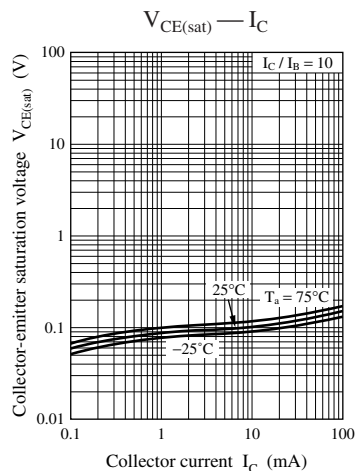
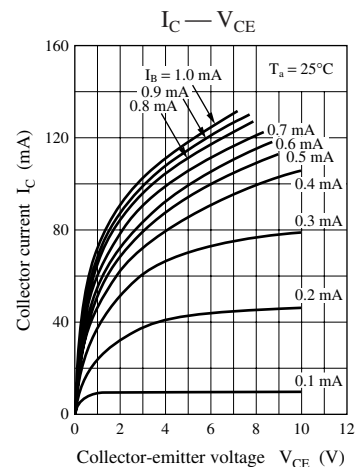
Common characteristics chart



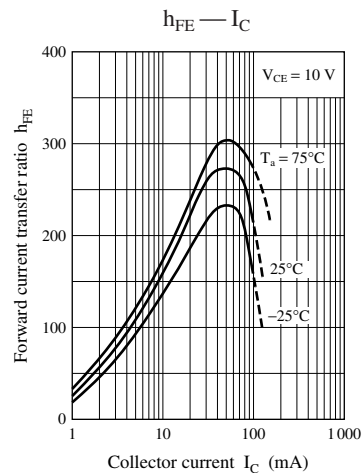
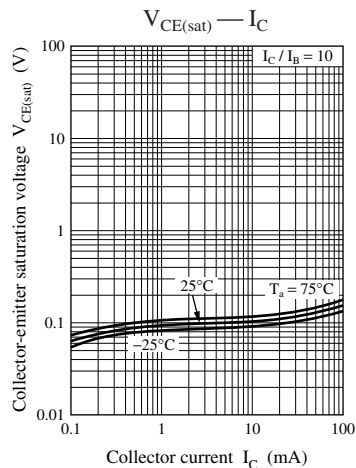
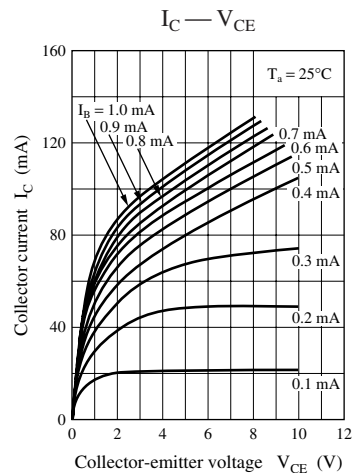
Characteristics charts of UNR1210

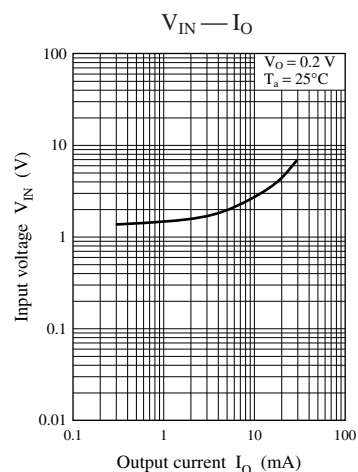
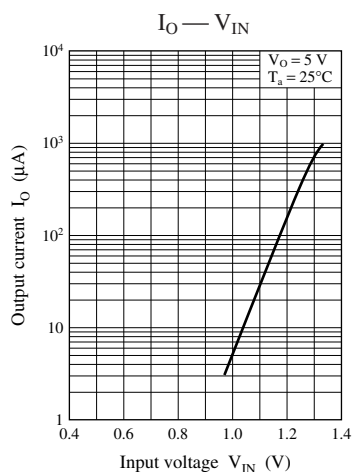
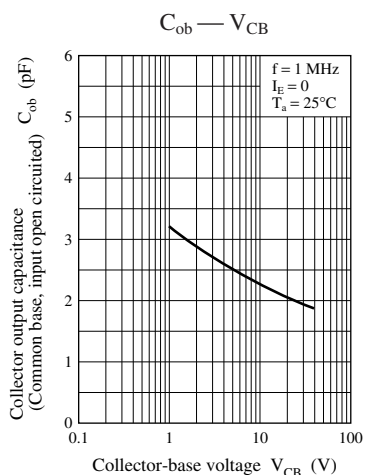


Characteristics charts of UNR1211

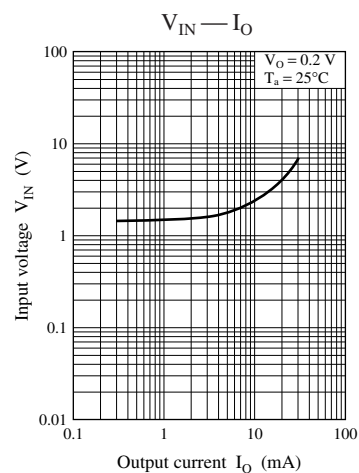
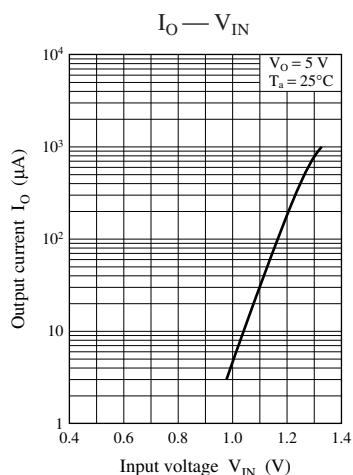
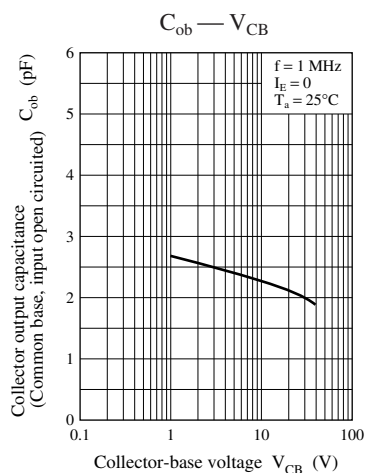
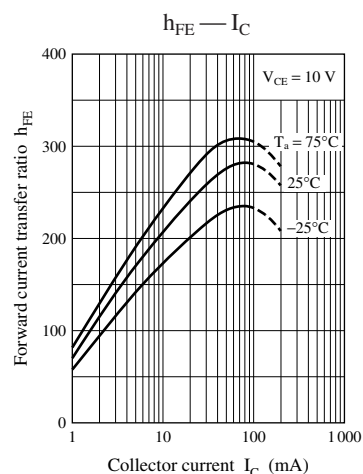
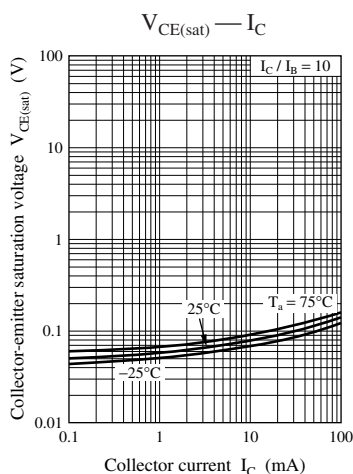
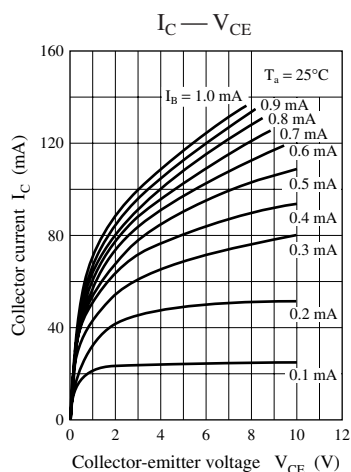


Characteristics charts of UNR1212

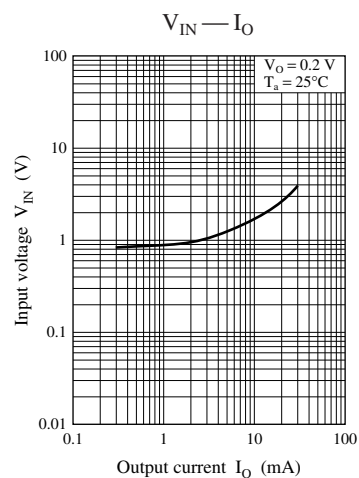
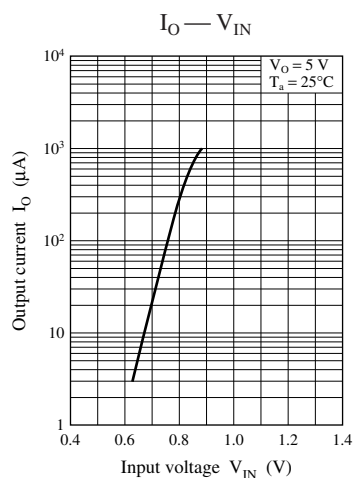
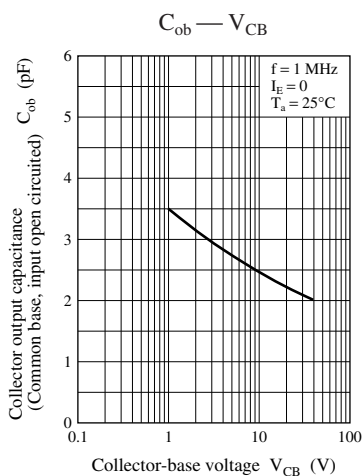
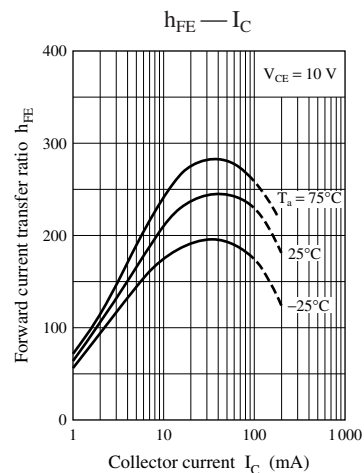
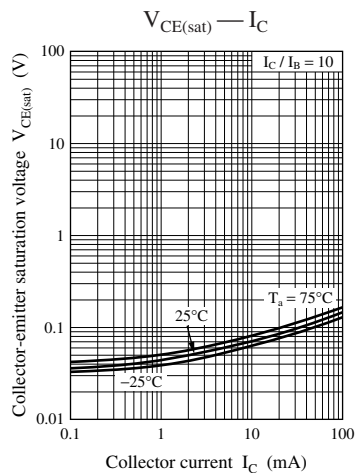
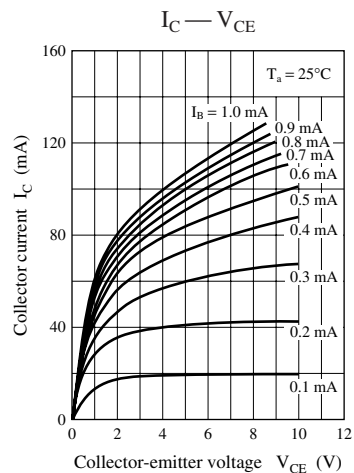




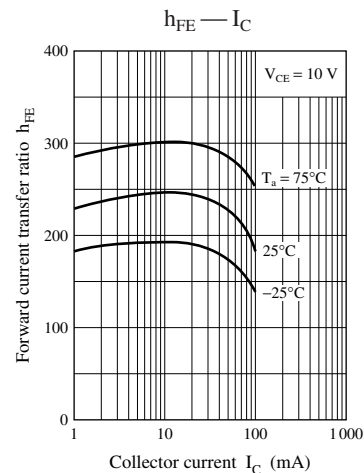
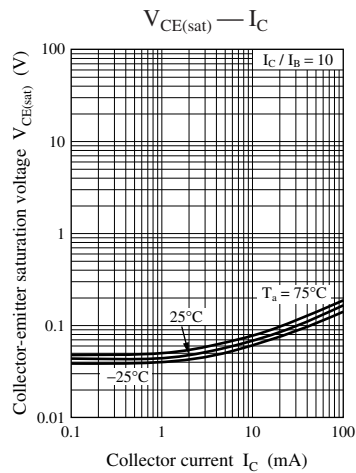
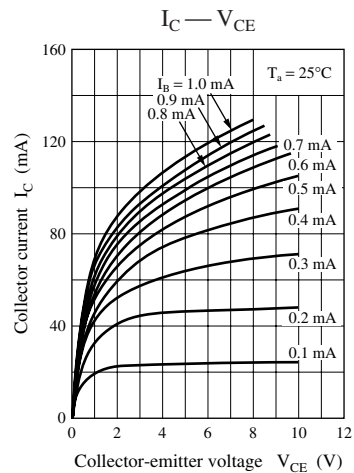
Characteristics charts of UNR1213

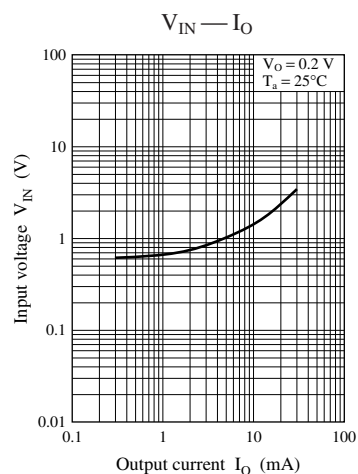
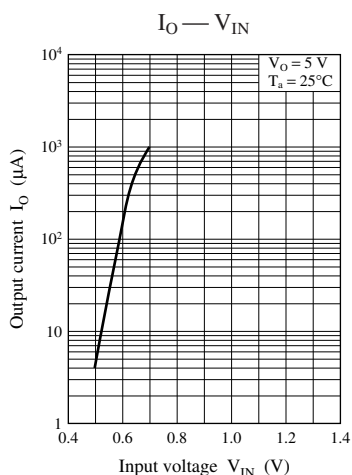
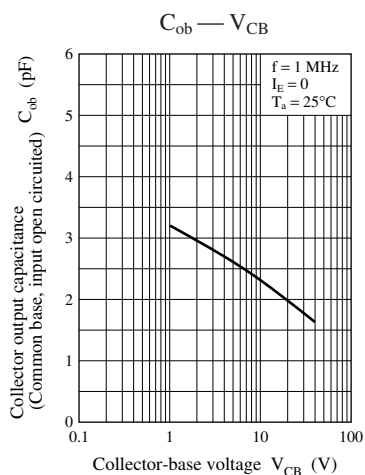


Characteristics charts of UNR1214

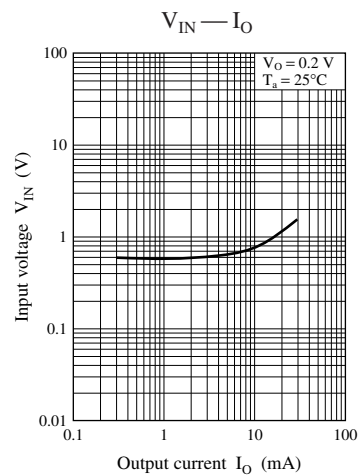
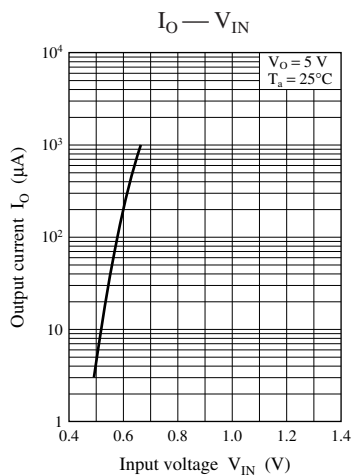
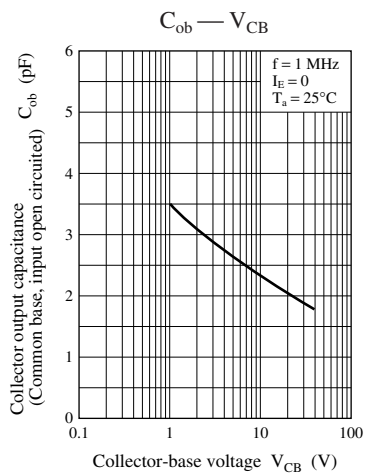
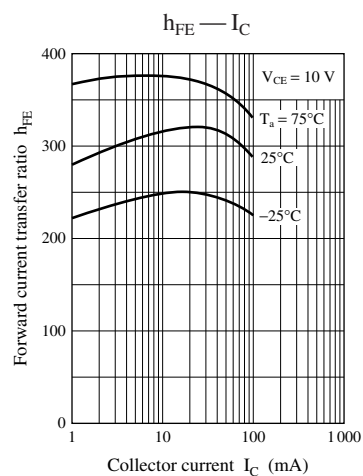
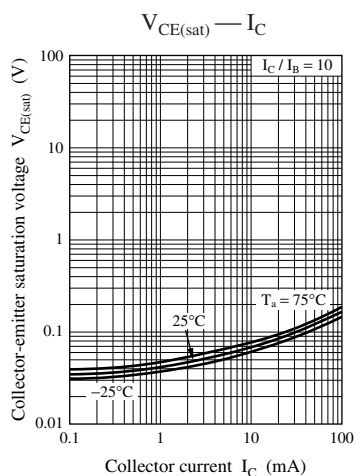
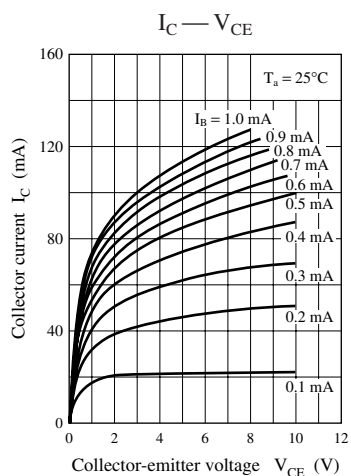


Characteristics charts of UNR1215

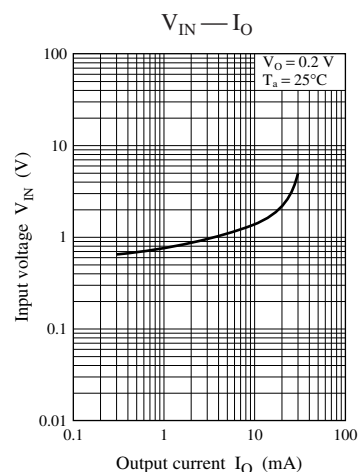
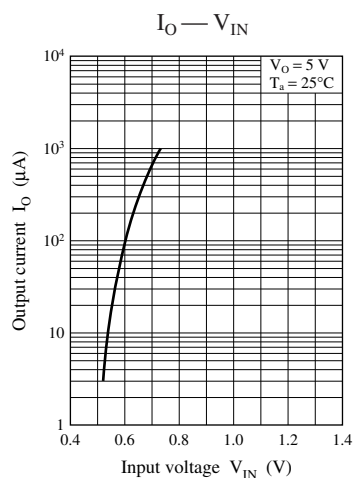
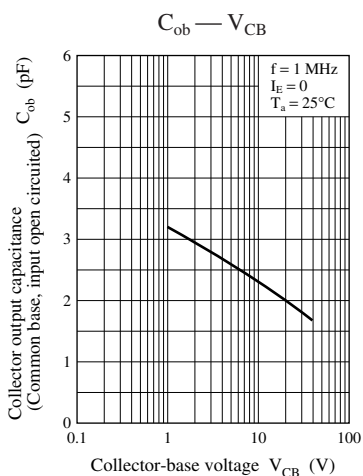
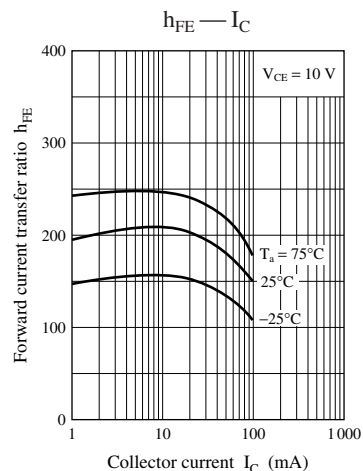
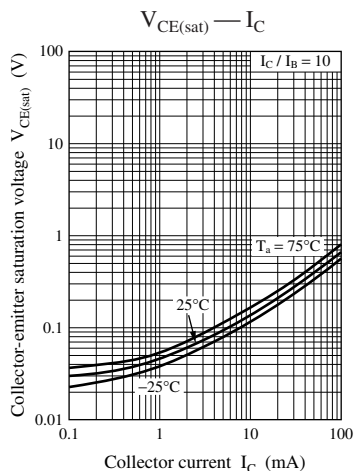
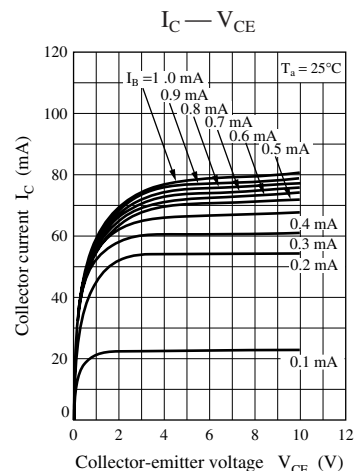




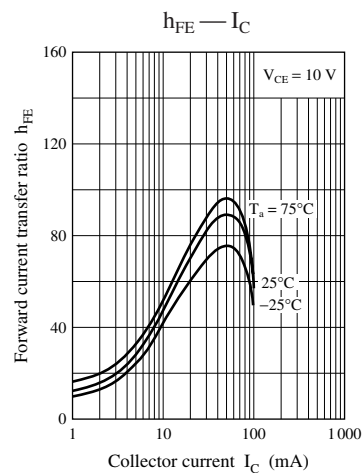
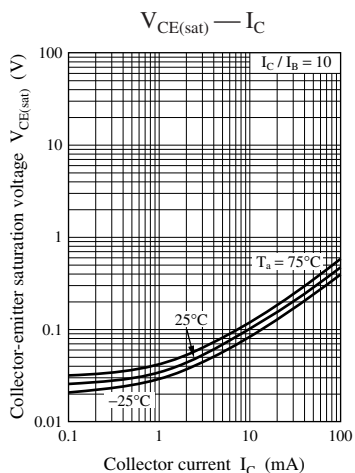
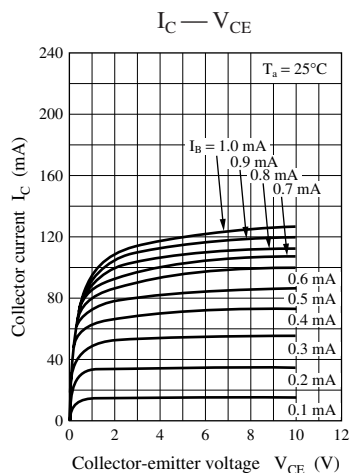
Characteristics charts of UNR1216

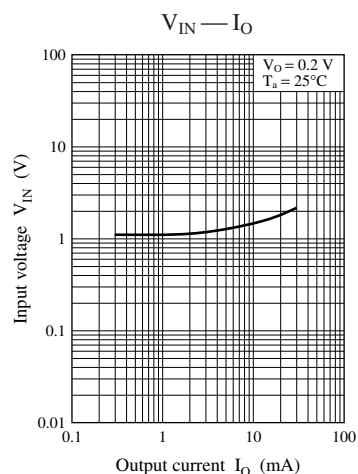
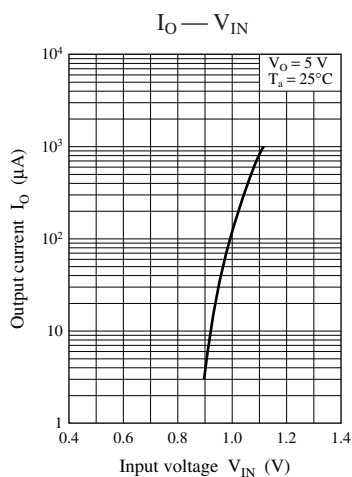
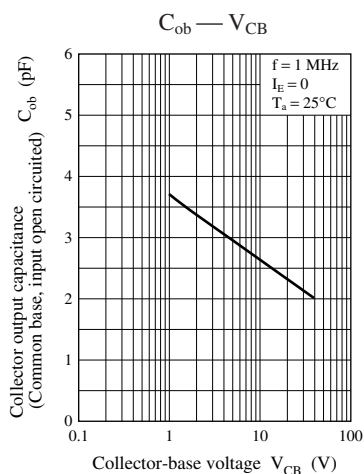


Characteristics charts of UNR1217

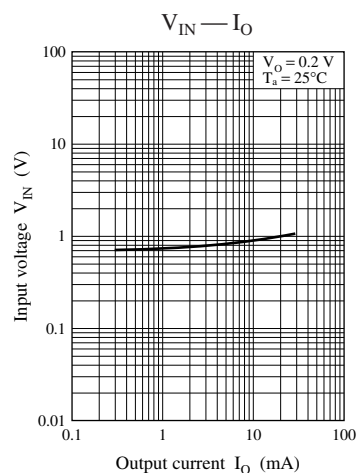
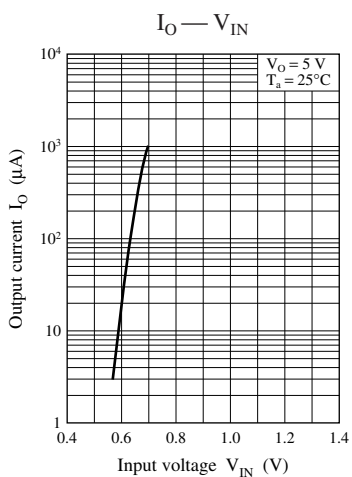
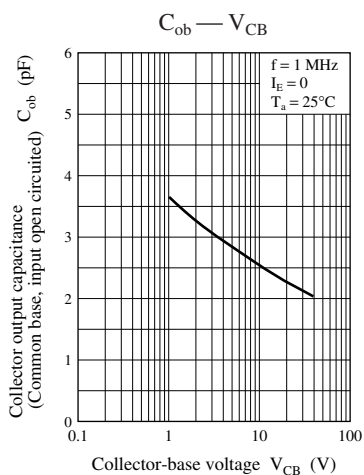
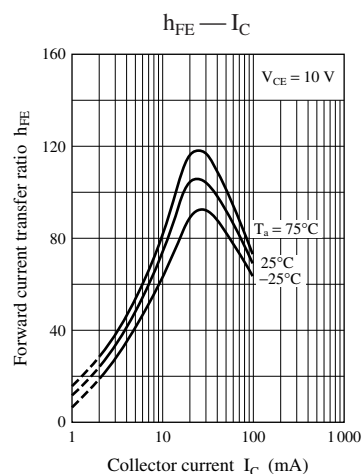
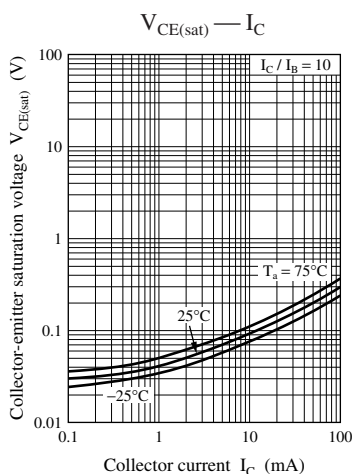
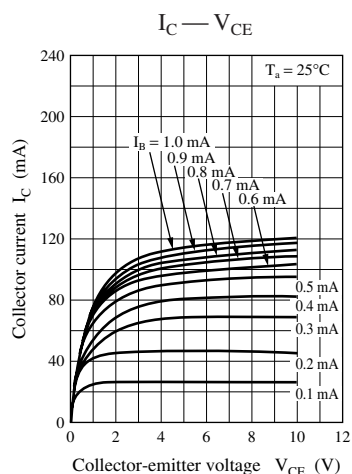


Characteristics charts of UNR1218

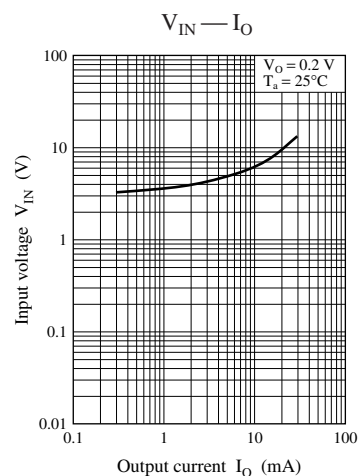
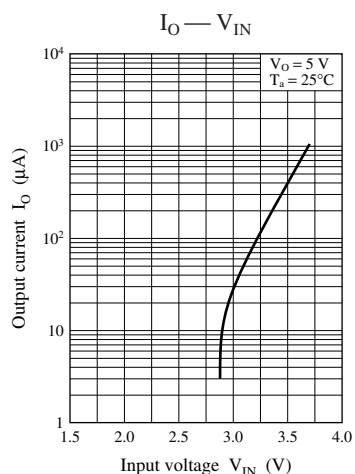
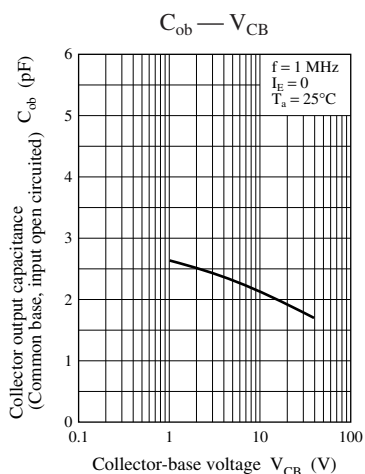
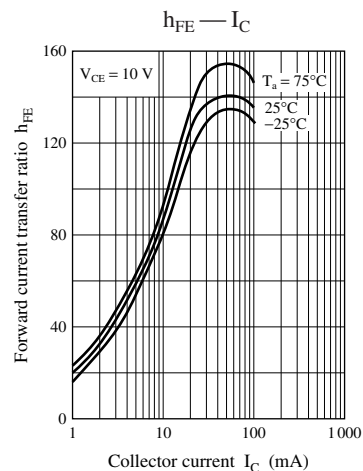
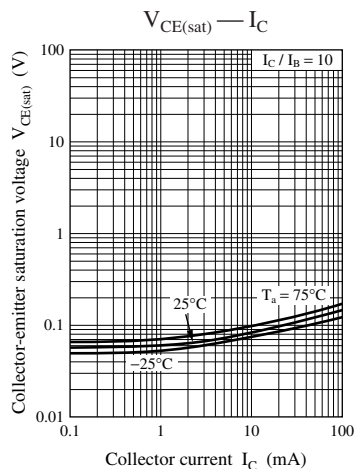
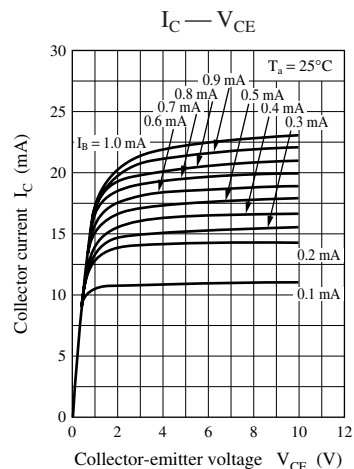




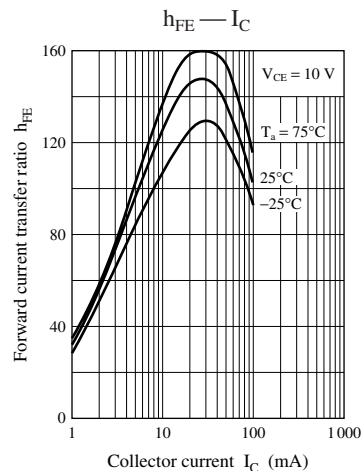
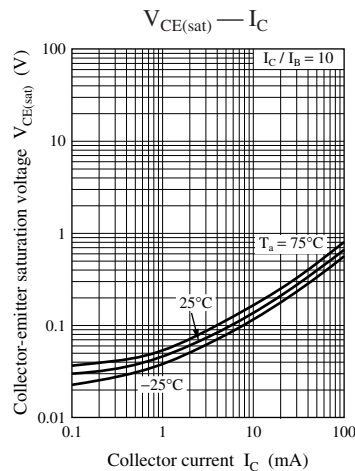
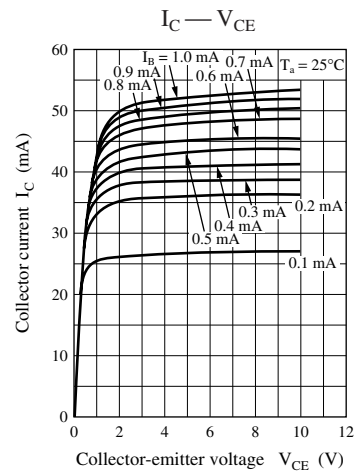
Characteristics charts of UNR1219

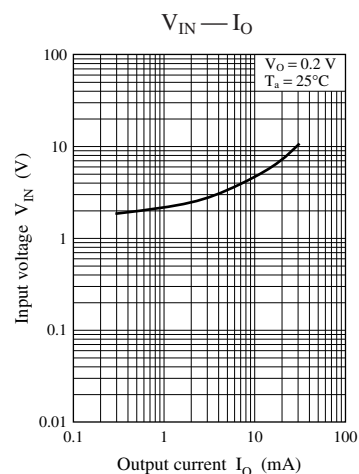
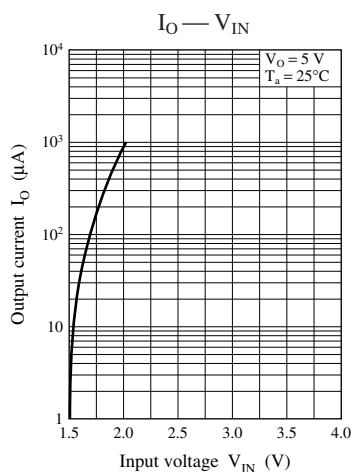
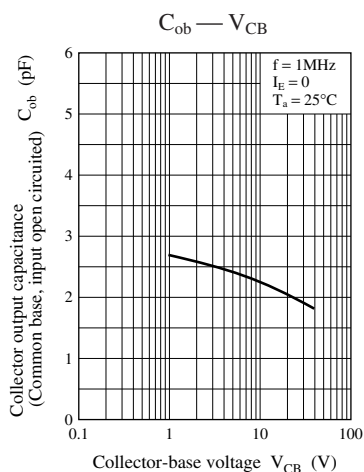


Characteristics charts of UNR121D

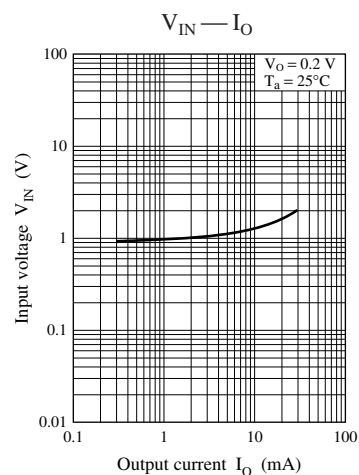
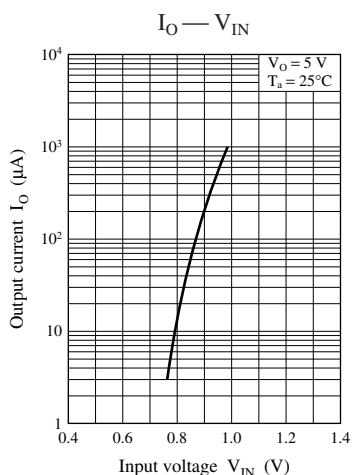
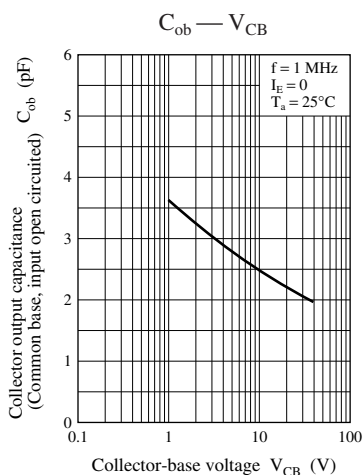
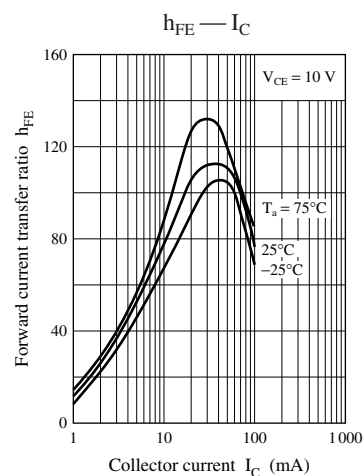
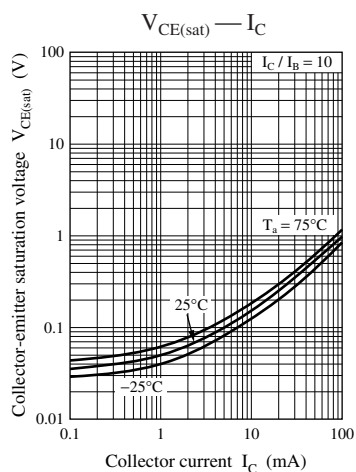
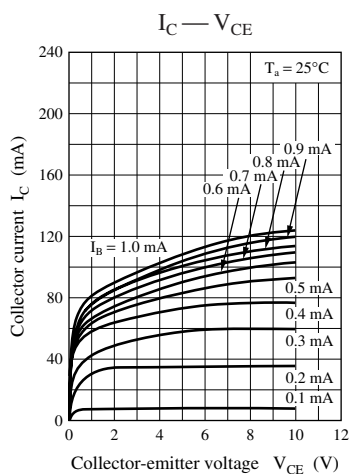


Characteristics charts of UNR121E

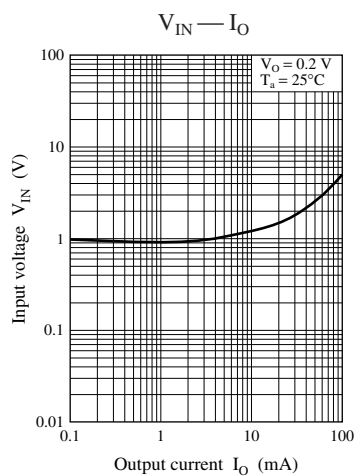
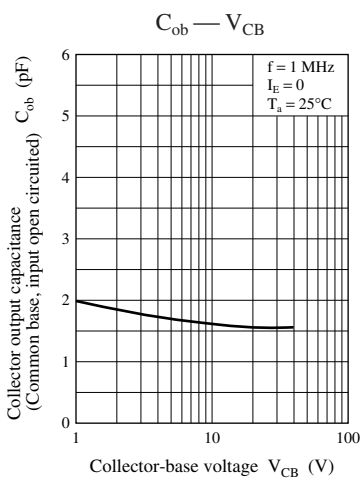
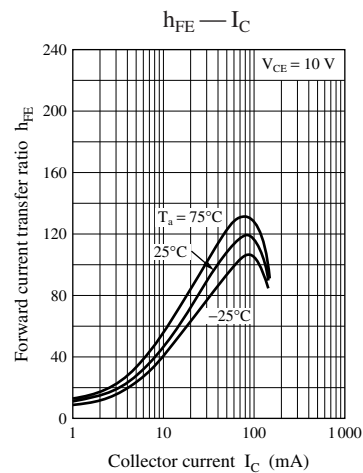
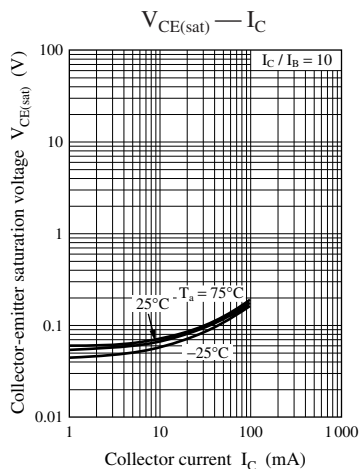
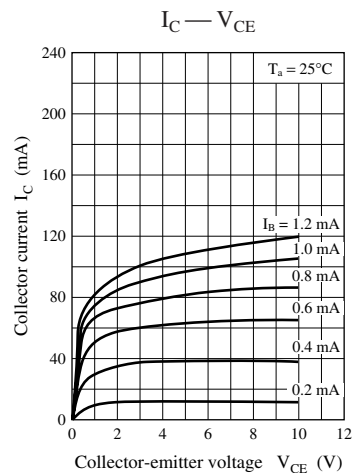




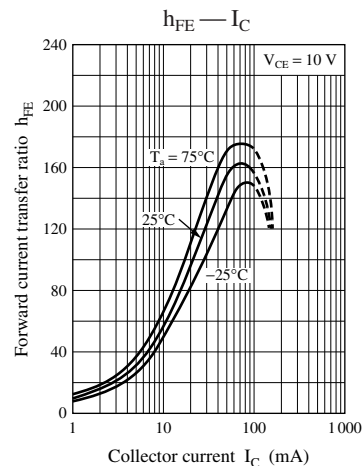
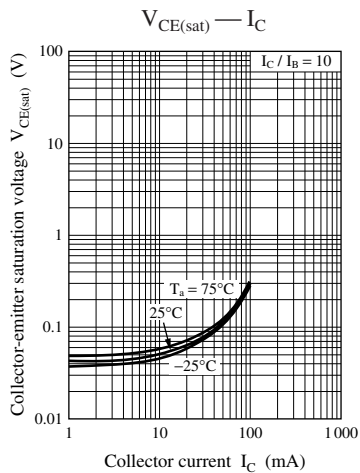
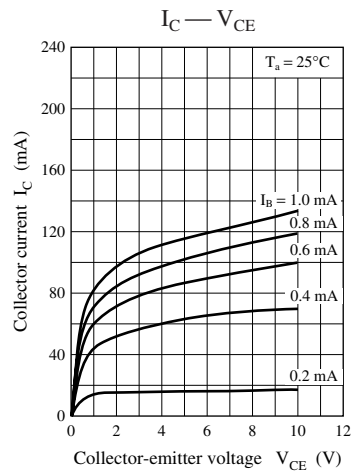
Characteristics charts of UNR121F

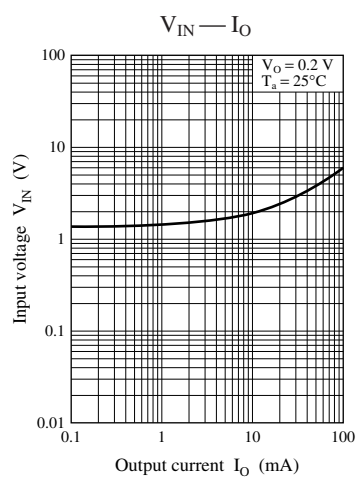
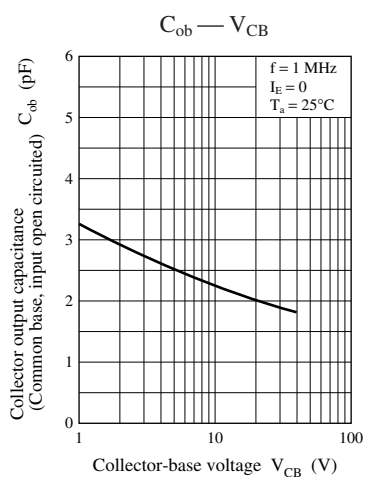


Characteristics charts of UNR121K



Characteristics charts of UNR121L





Request for your special attention and precautions in using the technical information and semiconductors described in this material

- (1) An export permit needs to be obtained from the competent authorities of the Japanese Government if any of the products or technical information described in this material and controlled under the "Foreign Exchange and Foreign Trade Law" is to be exported or taken out of Japan.
- (2) The technical information described in this material is limited to showing representative characteristics and applied circuits examples of the products. It neither warrants non-infringement of intellectual property right or any other rights owned by our company or a third party, nor grants any license.
- (3) We are not liable for the infringement of rights owned by a third party arising out of the use of the technical information as described in this material.
- (4) The products described in this material are intended to be used for standard applications or general electronic equipment (such as office equipment, communications equipment, measuring instruments and household appliances).
Consult our sales staff in advance for information on the following applications:
 - Special applications (such as for airplanes, aerospace, automobiles, traffic control equipment, combustion equipment, life support systems and safety devices) in which exceptional quality and reliability are required, or if the failure or malfunction of the products may directly jeopardize life or harm the human body.
 - Any applications other than the standard applications intended.
- (5) The products and product specifications described in this material are subject to change without notice for modification and/or improvement. At the final stage of your design, purchasing, or use of the products, therefore, ask for the most up-to-date Product Standards in advance to make sure that the latest specifications satisfy your requirements.
- (6) When designing your equipment, comply with the guaranteed values, in particular those of maximum rating, the range of operating power supply voltage, and heat radiation characteristics. Otherwise, we will not be liable for any defect which may arise later in your equipment.
Even when the products are used within the guaranteed values, take into the consideration of incidence of break down and failure mode, possible to occur to semiconductor products. Measures on the systems such as redundant design, arresting the spread of fire or preventing glitch are recommended in order to prevent physical injury, fire, social damages, for example, by using the products.
- (7) When using products for which damp-proof packing is required, observe the conditions (including shelf life and amount of time let standing of unsealed items) agreed upon when specification sheets are individually exchanged.
- (8) This material may be not reprinted or reproduced whether wholly or partially, without the prior written permission of Matsushita Electric Industrial Co., Ltd.



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

Телефон: 8 (812) 309 58 32 (многоканальный)

Факс: 8 (812) 320-02-42

Электронная почта: org@eplast1.ru

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.