

# XP08081 (XP8081)

Silicon N-channel junction FET (Tr1)

Silicon NPN epitaxial planar transistor (Tr2)

For analog switching (Tr1)/switching (Tr2)

## Features

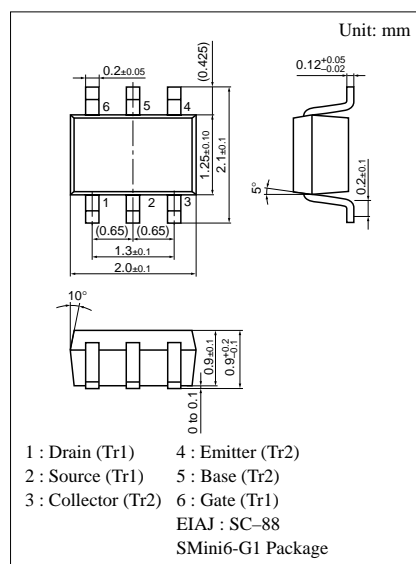
- Two elements incorporated into one package.
- Reduction of the mounting area and assembly cost by one half.

## Basic Part Number of Element

- 2SK1103+UNR1213(UN1213) (transistors with built-in resistor)

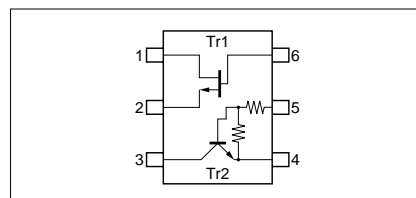
## Absolute Maximum Ratings (Ta=25°C)

	Parameter	Symbol	Ratings	Unit
Tr1	Gate to drain voltage	$V_{GDS}$	-50	V
	Drain current	$I_D$	20	mA
	Gate current	$I_G$	10	mA
Tr2	Collector to base voltage	$V_{CBO}$	50	V
	Collector to emitter voltage	$V_{CEO}$	50	V
	Collector current	$I_C$	100	mA
Overall	Total power dissipation	$P_T$	150	mW
	Junction temperature	$T_j$	150	°C
	Storage temperature	$T_{stg}$	-55 to +150	°C



Marking Symbol: 9Z

Internal Connection



Note) The Part number in the Parenthesis shows conventional part number.

# ■ Electrical Characteristics (T<sub>a</sub>=25°C)

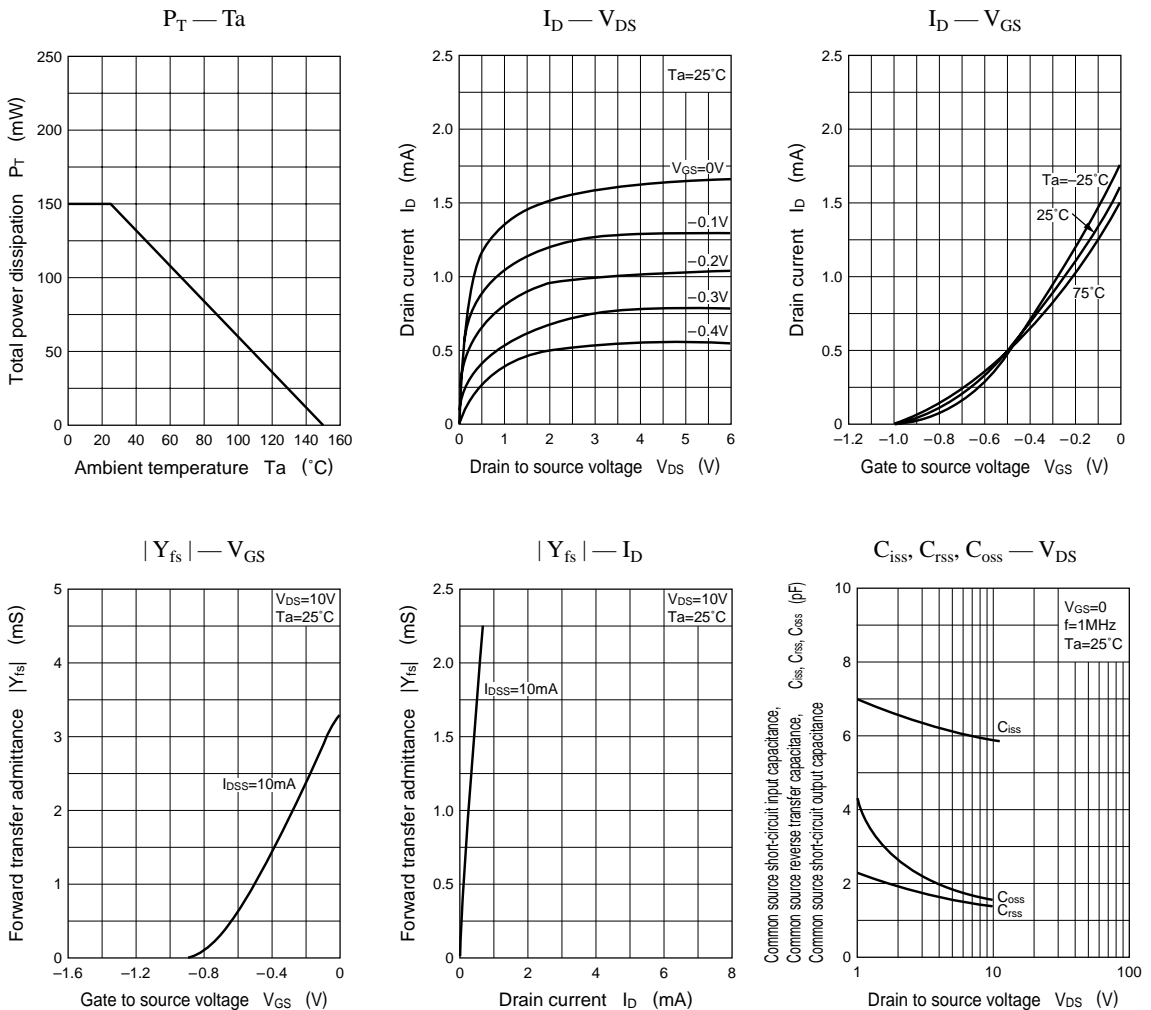
## ● Tr1

Parameter	Symbol	Conditions	min	typ	max	Unit
Gate to drain voltage	V <sub>GDS</sub>	I <sub>G</sub> = -10μA, V <sub>DS</sub> = 0	-50			V
Drain current	I <sub>DSS</sub>	V <sub>DS</sub> = 10V, V <sub>GS</sub> = 0	0.2		2.2	mA
Gate cutoff current	I <sub>GSS</sub>	V <sub>GS</sub> = -30V, V <sub>DS</sub> = 0			-10	nA
Gate to source cutoff voltage	V <sub>GSC</sub>	V <sub>DS</sub> = 10V, I <sub>D</sub> = 10μA			-1.0	V
Mutual conductance	gm	V <sub>DS</sub> = 10V, I <sub>D</sub> = 1mA, f = 1kHz	1.8	2.5		mS
Drain resistance	R <sub>DS(on)</sub>	V <sub>DS</sub> = 10mV, V <sub>GS</sub> = 0		400		Ω
Common source short-circuit input capacitance	C <sub>iss</sub>	V <sub>DS</sub> = 10V, V <sub>GS</sub> = 0, f = 1MHz		7		pF
Common source reverse transfer capacitance	C <sub>rss</sub>	V <sub>DS</sub> = 10V, V <sub>GS</sub> = 0, f = 1MHz		1.5		pF
Common source short-circuit output capacitance	C <sub>oss</sub>	V <sub>DS</sub> = 10V, V <sub>GS</sub> = 0, f = 1MHz		1.5		pF

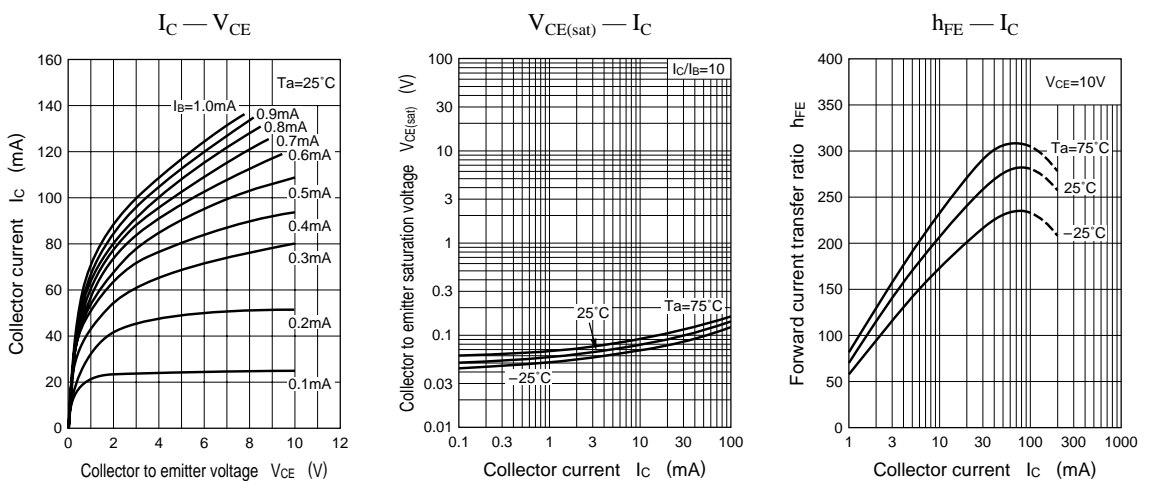
## ● Tr2

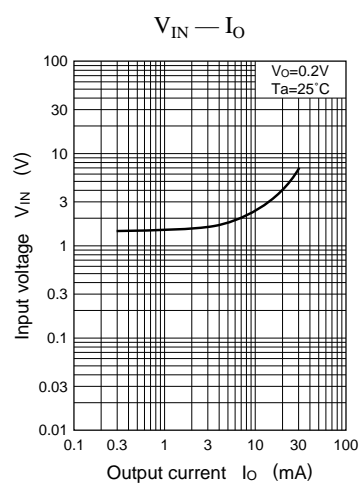
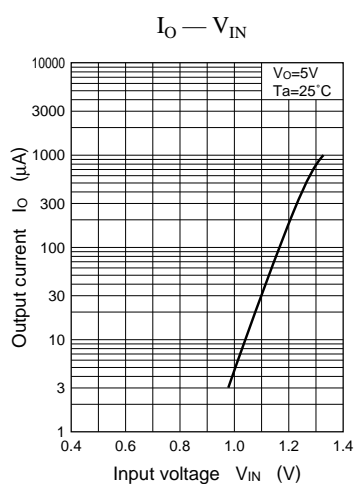
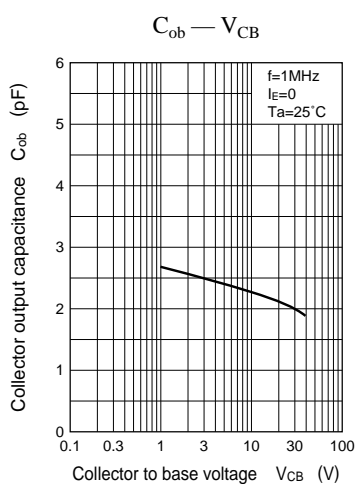
Parameter	Symbol	Conditions	min	typ	max	Unit
Collector to base voltage	V <sub>CBO</sub>	I <sub>C</sub> = 10μA, I <sub>E</sub> = 0	50			V
Collector to emitter voltage	V <sub>CEO</sub>	I <sub>C</sub> = 2mA, I <sub>B</sub> = 0	50			V
Collector cutoff current	I <sub>CBO</sub>	V <sub>CB</sub> = 50V, I <sub>E</sub> = 0			0.1	μA
	I <sub>CEO</sub>	V <sub>CE</sub> = 50V, I <sub>B</sub> = 0			0.5	μA
Emitter cutoff current	I <sub>EBO</sub>	V <sub>EB</sub> = 6V, I <sub>C</sub> = 0			0.1	mA
Forward current transfer ratio	h <sub>FE</sub>	V <sub>CE</sub> = 10V, I <sub>C</sub> = 5mA	80			
Collector to emitter saturation voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> = 10mA, I <sub>B</sub> = 0.3mA			0.25	V
Output voltage high level	V <sub>OH</sub>	V <sub>CC</sub> = 5V, V <sub>B</sub> = 0.5V, R <sub>L</sub> = 1kΩ	4.9			V
Output voltage low level	V <sub>OL</sub>	V <sub>CC</sub> = 5V, V <sub>B</sub> = 3.5V, R <sub>L</sub> = 1kΩ			0.2	V
Transition frequency	f <sub>T</sub>	V <sub>CB</sub> = 10V, I <sub>E</sub> = -1mA, f = 200MHz		150		MHz
Input resistance	R <sub>I</sub>		-30%	47	+30%	kΩ
Resistance ratio	R <sub>1</sub> /R <sub>2</sub>		0.8	1.0	1.2	

Common characteristics chart



Characteristics charts of Tr2





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