

# XP8081

Silicon N-channel junction FET (Tr1)  
 Silicon NPN epitaxial planer transistor (Tr2)

For analog switching (Tr1)/switching (Tr2)

■ Features

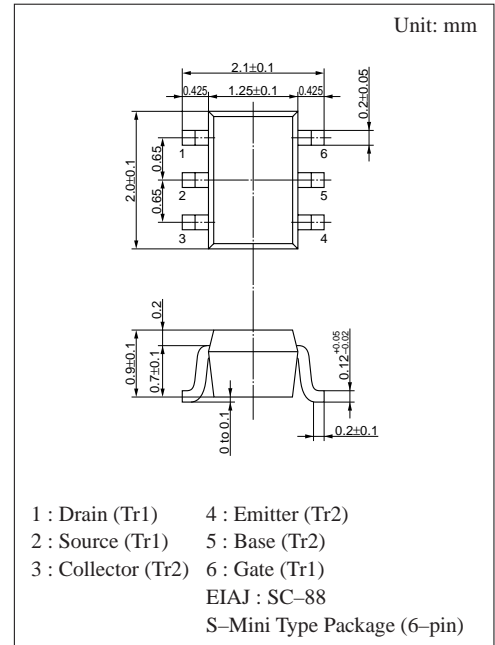
- Two elements incorporated into one package.
- Reduction of the mounting area and assembly cost by one half.

■ Basic Part Number of Element

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

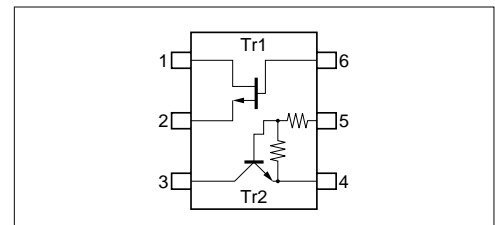
■ Absolute Maximum Ratings (Ta=25°C)

	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



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

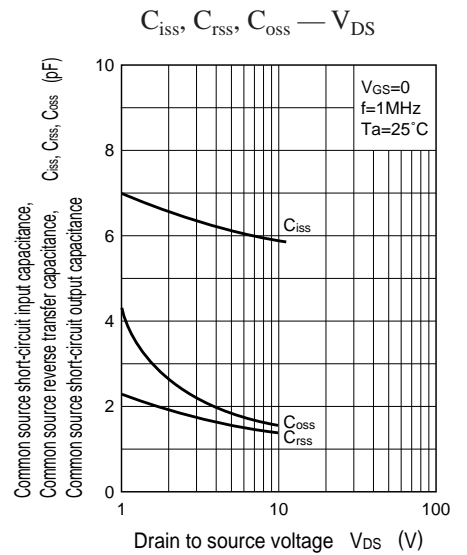
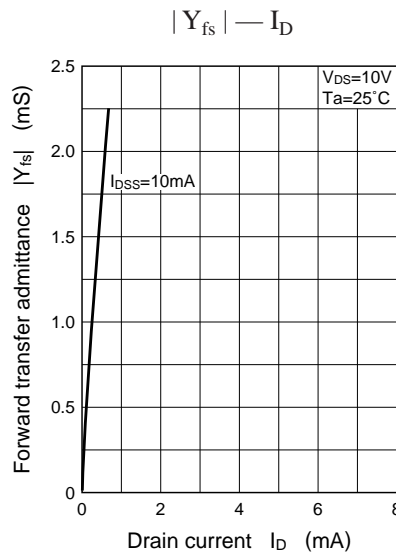
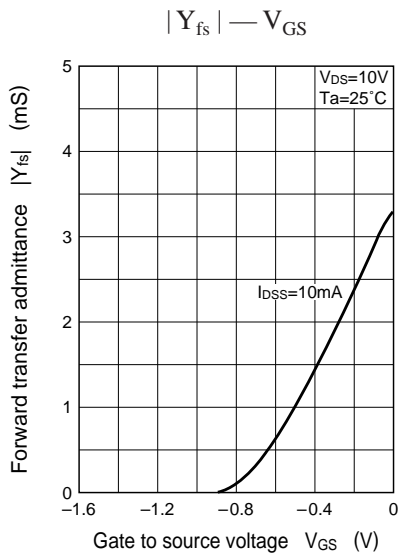
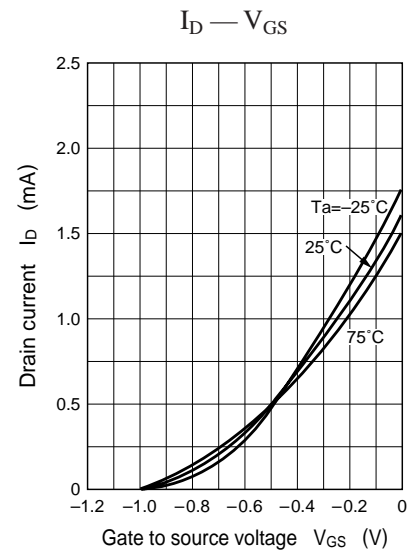
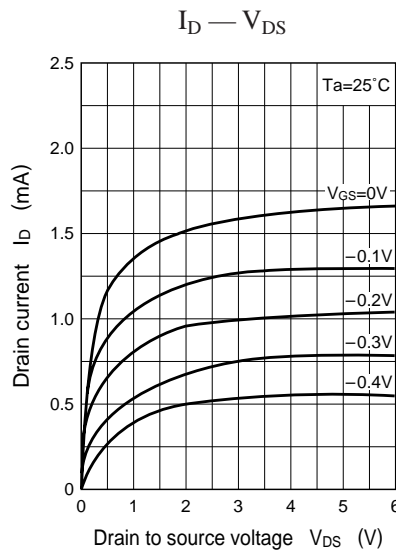
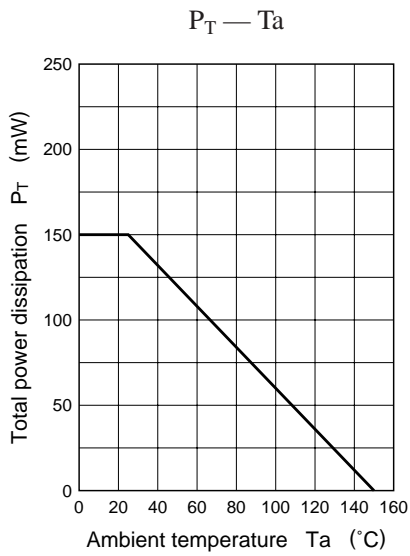
#### ● Tr1

Parameter	Symbol	Conditions	min	typ	max	Unit
Gate to drain voltage	$V_{GDS}$	$I_G = -10\mu A, V_{DS} = 0$	-50			V
Drain current	$I_{DSS}$	$V_{DS} = 10V, V_{GS} = 0$	0.2		2.2	mA
Gate cutoff current	$I_{GSS}$	$V_{GS} = -30V, V_{DS} = 0$			-10	nA
Gate to source cutoff voltage	$V_{GSC}$	$V_{DS} = 10V, I_D = 10\mu A$			-1.0	V
Mutual conductance	gm	$V_{DS} = 10V, I_D = 1mA, f = 1kHz$	1.8	2.5		mS
Drain resistance	$R_{DS(on)}$	$V_{DS} = 10mV, V_{GS} = 0$		400		$\Omega$
Common source short-circuit input capacitance	$C_{iss}$	$V_{DS} = 10V, V_{GS} = 0, f = 1MHz$		7		pF
Common source reverse transfer capacitance	$C_{rss}$	$V_{DS} = 10V, V_{GS} = 0, f = 1MHz$		1.5		pF
Common source short-circuit output capacitance	$C_{oss}$	$V_{DS} = 10V, V_{GS} = 0, f = 1MHz$		1.5		pF

#### ● Tr2

Parameter	Symbol	Conditions	min	typ	max	Unit
Collector to base voltage	$V_{CBO}$	$I_C = 10\mu A, I_E = 0$	50			V
Collector to emitter voltage	$V_{CEO}$	$I_C = 2mA, I_B = 0$	50			V
Collector cutoff current	$I_{CBO}$	$V_{CB} = 50V, I_E = 0$			0.1	$\mu A$
	$I_{CEO}$	$V_{CE} = 50V, I_B = 0$			0.5	$\mu A$
Emitter cutoff current	$I_{EBO}$	$V_{EB} = 6V, I_C = 0$			0.1	mA
Forward current transfer ratio	$h_{FE}$	$V_{CE} = 10V, I_C = 5mA$	80			
Collector to emitter saturation voltage	$V_{CE(sat)}$	$I_C = 10mA, I_B = 0.3mA$			0.25	V
Output voltage high level	$V_{OH}$	$V_{CC} = 5V, V_B = 0.5V, R_L = 1k\Omega$	4.9			V
Output voltage low level	$V_{OL}$	$V_{CC} = 5V, V_B = 3.5V, R_L = 1k\Omega$			0.2	V
Transition frequency	$f_T$	$V_{CB} = 10V, I_E = -1mA, f = 200MHz$		150		MHz
Input resistance	$R_1$		-30%	47	+30%	k $\Omega$
Resistance ratio	$R_1/R_2$		0.8	1.0	1.2	

Common characteristics chart



Characteristics charts of Tr2

