

DMR935E1

Silicon PNP epitaxial planar type (Tr)
Silicon epitaxial planar type (CCD load device)

For CCD output circuits

■ Features

- Two elements incorporated into one package (Tr + CCD load device)
- High transition frequency f_T
- Halogen-free / RoHS compliant
(EU RoHS / UL-94 V-0 / MSL: Level 1 compliant)

■ Marking Symbol: X4

■ Packaging

DMR935E10R Embossed type (Thermo-compression sealing): 8000 pcs / reel (standard)

■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

	Parameter	Symbol	Rating	Unit
Tr1	Collector-base voltage (Emitter open)	V_{CBO}	-24	V
	Collector-emitter voltage (Base open)	V_{CEO}	-20	V
	Emitter-base voltage (Collector open)	V_{EBO}	-3	V
	Collector current	I_C	-50	mA
CCD load device	Limiting element voltage	V_{max}	40	V
	Limiting element current	I_{max}	10	mA
Overall	Total power dissipation *1	P_T	125	mW
	Junction temperature	T_j	150	$^\circ\text{C}$
	Operating ambient temperature	T_{opr}	-40 to +85	$^\circ\text{C}$
	Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

Note) *1: Measuring on substrate at 17 mm × 10 mm × 1 mm

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

• Tr1

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base voltage (Emitter open)	V_{CBO}	$I_C = -100 \mu\text{A}$, $I_E = 0$	-24			V
Emitter-base voltage (Collector open)	V_{EBO}	$I_E = -10 \mu\text{A}$, $I_C = 0$	-3			V
Base-emitter voltage	V_{BE}	$V_{CE} = -10 \text{ V}$, $I_C = -2 \text{ mA}$		720		mV
Forward current transfer ratio	h_{FE}	$V_{CE} = -10 \text{ V}$, $I_C = -2 \text{ mA}$	100		250	—
Transition frequency *1	f_T	$V_{CE} = -10 \text{ V}$, $I_C = -2 \text{ mA}$		1 400		MHz

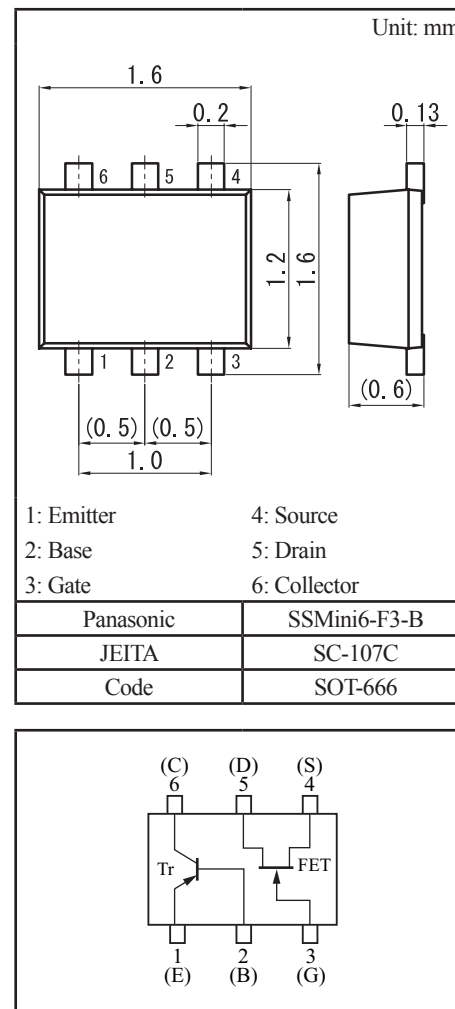
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

2. *1: Pulse measurement

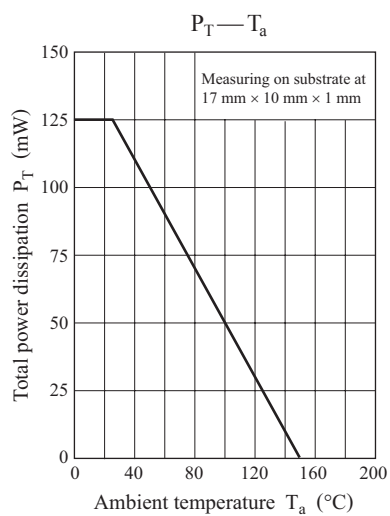
• CCD load device

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Pinchi off current	I_P	$V_{DS} = 10 \text{ V}$, $V_G = 0$	3.8		5.2	mA
Output impedance	Z_O	$V_{DS} = 10 \text{ V}$, $V_G = 0$		0.05		$\text{M}\Omega$

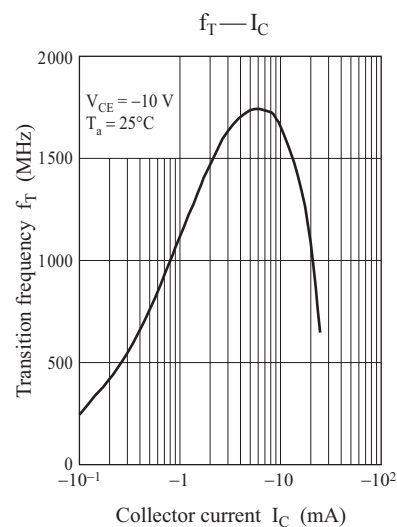
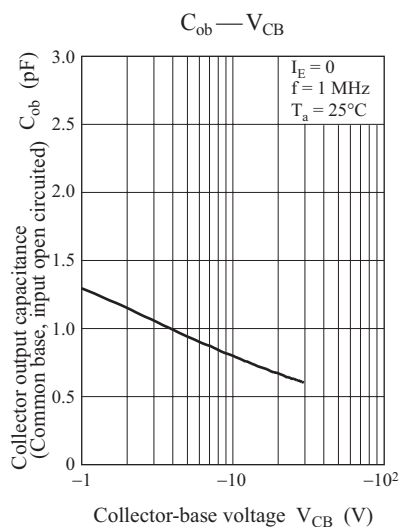
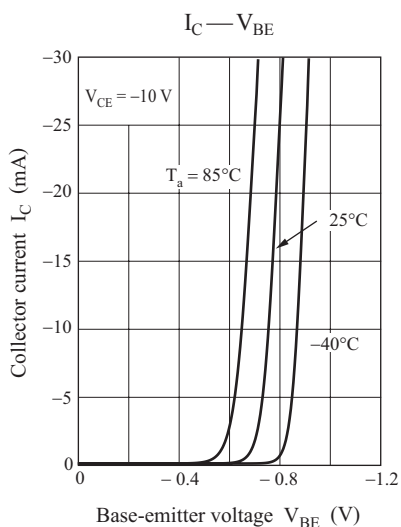
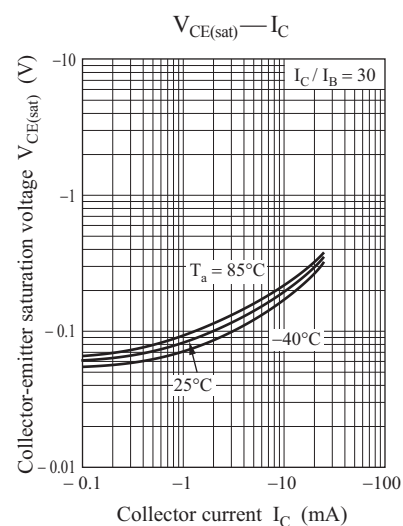
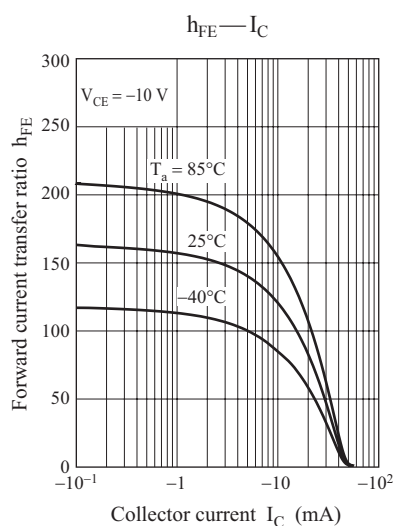
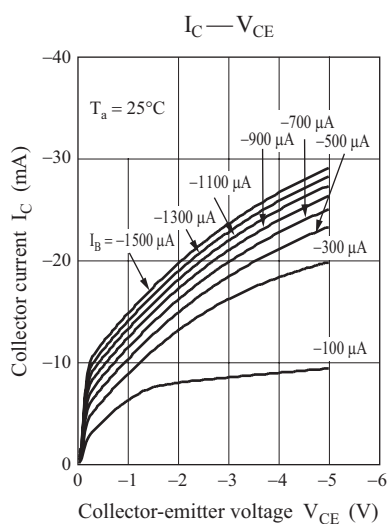
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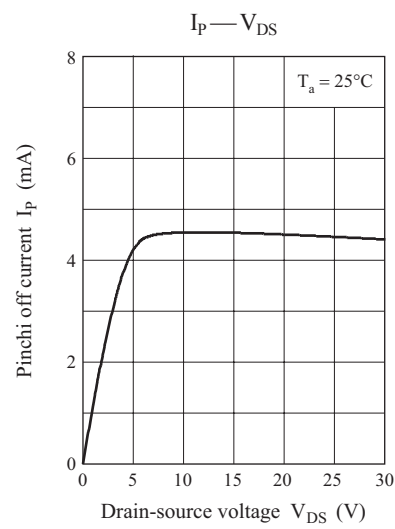
Common characteristics chart



Characteristics charts of Tr



Characteristics charts of CCD



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