

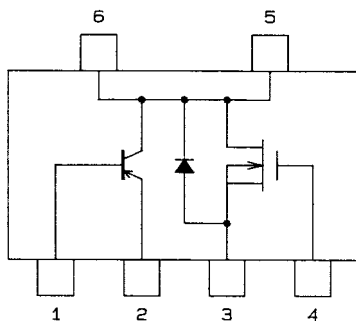
**FX901**

PNP Epitaxial Planar Silicon Transistor
 N-Channel MOS Silicon FET
 Silicon Schottky Barrier Diode
DC-DC Converter Applications

Features

- Composite type with a PNP transistor and a 2.5V drive N-channel MOSFET with a built-in low forward-voltage Schottky barrier diode facilitating high-density mounting.

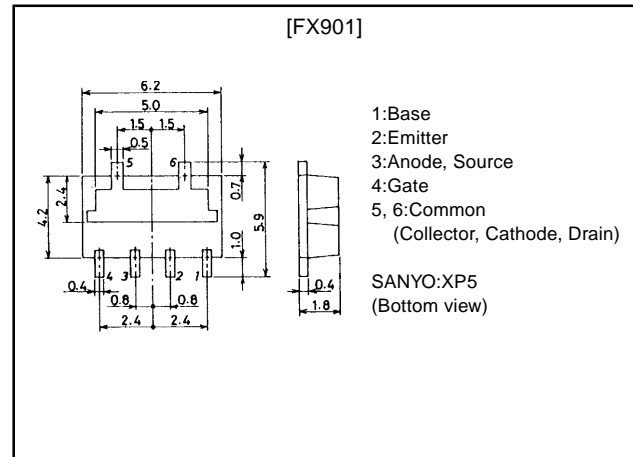
Electrical Connection



Package Dimensions

unit:mm

2133



Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Allowable Power Dissipation	P	$T_c=25^\circ\text{C}$, 1 unit	8	W
	P	Mounted on ceramic board (750mm ² ×0.8mm) 1 unit	1.5	W
Total Power Dissipation	P_T	Mounted on ceramic board (750mm ² ×0.8mm)	2	W
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$
[TR]				
Collector-to-Base Voltage	V_{CBO}		-15	V
Collector-to-Emitter Voltage	V_{CEO}		-11	V
Emitter-to-Base Voltage	V_{EBO}		-7	V
Collector Current	I_C		-3	A
Collector Current (Pulse)	I_{CP}		-5	A
Base Current	I_B		-600	mA
Junction Temperature	T_J		150	$^\circ\text{C}$
[MOSFET]				
Drain-to-Source Voltage	V_{DSS}		11	V
Gate-to-Source Voltage	V_{GSS}		±10	V
Drain Current (DC)	I_D		2	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu\text{s}$, duty cycle $\leq 1\%$	8	A
Channel Temperature	T_{ch}		150	$^\circ\text{C}$
[SBD]				
Average Rectified Current	I_O		500	mA

· Marking:901

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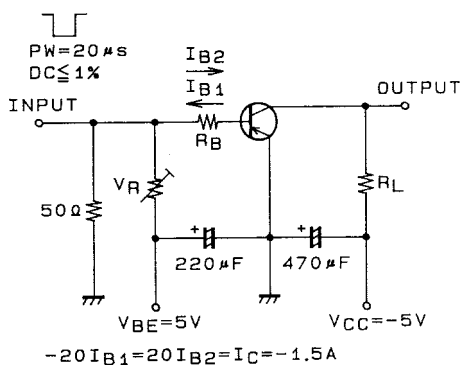
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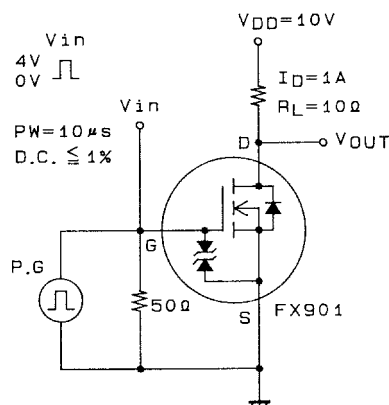
Electrical Characteristics at Ta = 25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[TR]						
Collector Cutoff Current	I_{CBO}	$V_{CB}=-12V, I_E=0$			-0.1	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=-6V, I_C=0$			-0.1	μA
DC Current Gain	$h_{FE(1)}$	$V_{CE}=-2V, I_C=-0.5A$	140		560	
	$h_{FE(2)}$	$V_{CE}=-2V, I_C=-3A$	70			
Gain-Bandwidth Product	f_T	$V_{CE}=-2V, I_C=-0.3A$		400		MHz
Output Capacitance	C_{ob}	$V_{CB}=-10V, f=1MHz$		26		pF
C-E Saturation Voltage	$V_{CE(sat)}$	$I_C=-1.5A, I_B=-30mA$		-0.22	-0.4	V
B-E Saturation Voltage	$V_{BE(sat)}$	$I_C=-1.5A, I_B=-30mA$		-0.9	-1.2	V
C-B Breakdown Voltage	$V_{(BR)CBO}$	$I_C=-10\mu A, I_E=0$	-15			V
C-E Breakdown Voltage	$V_{(BR)CEO}$	$I_C=-1mA, R_{BE}=\infty$	-11			V
E-B Breakdown Voltage	$V_{(BR)EBO}$	$I_E=-10\mu A, I_C=0$	-7			V
Turn-ON time	t_{on}	See specified Test Circuit		25		ns
Storage Time	t_{stg}	See specified Test Circuit		200		ns
Fall Time	t_f	See specified Test Circuit		10		ns
[MOSFET]						
D-S Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1mA, V_{GS}=0$	11			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=10.4V, V_{GS}=0$			400	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 8V, V_{DS}=0$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10V, I_D=1mA$	0.5		1.5	V
Forward Transfer Admittance	$ Y_{fs} $	$V_{DS}=10V, I_D=1A$	1.8	2.8		S
Static Drain-to-Source ON-Resistance	$R_{DS(on)}$	$I_D=1A, V_{GS}=4V$		140	200	m Ω
	$R_{DS(on)}$	$I_D=500mA, V_{GS}=2.5V$		200	320	m Ω
Input Capacitance	C_{iss}	$V_{DS}=10V, f=1MHz$		185		pF
Output Capacitance	C_{oss}	$V_{DS}=10V, f=1MHz$		210		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=10V, f=1MHz$		40		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit		15		ns
Rise Time	t_r	See specified Test Circuit		40		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit		50		ns
Fall Time	t_f	See specified Test Circuit		35		ns
[SBD]						
Forward Voltage	V_F	$I_F=500mA$		0.4	0.45	V
Reverse Recovery Time	t_{rr}	$I_F=500mA, di/dt=50A/\mu s$		20	30	ns

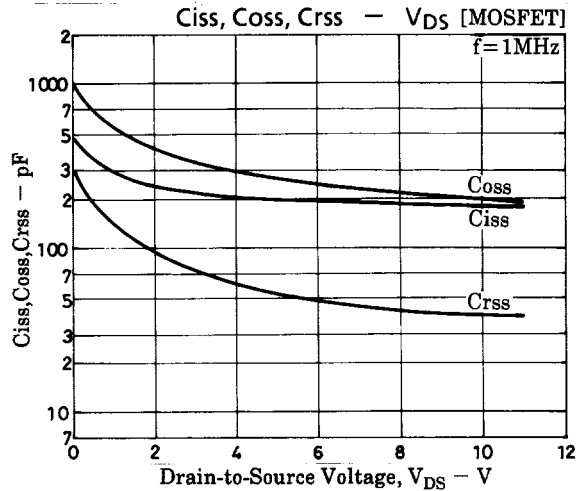
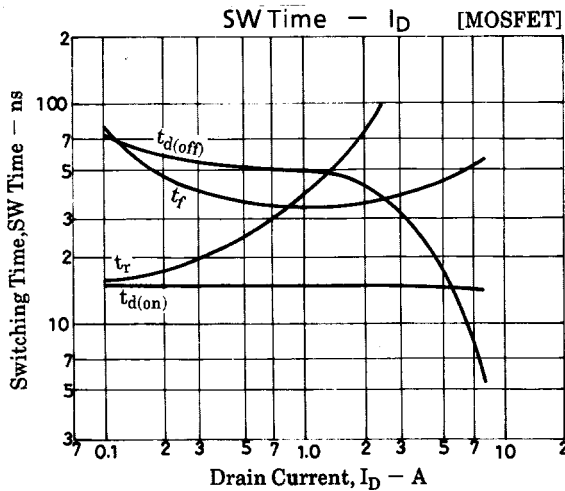
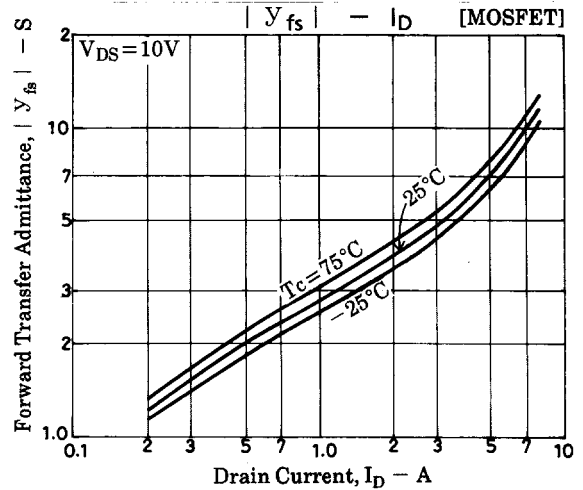
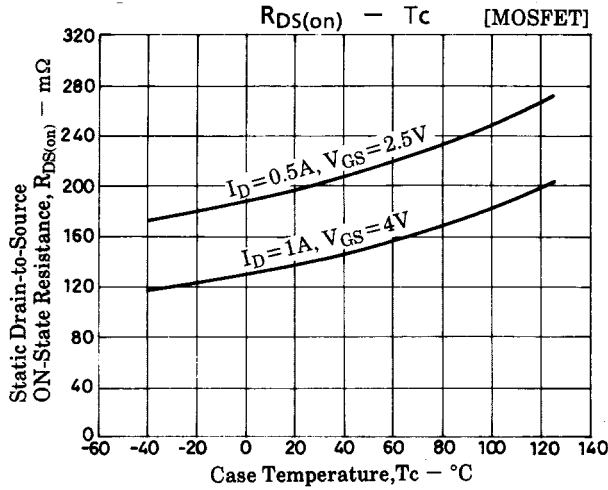
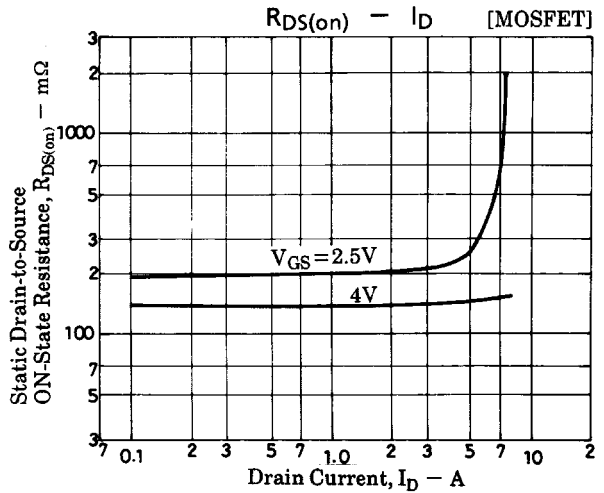
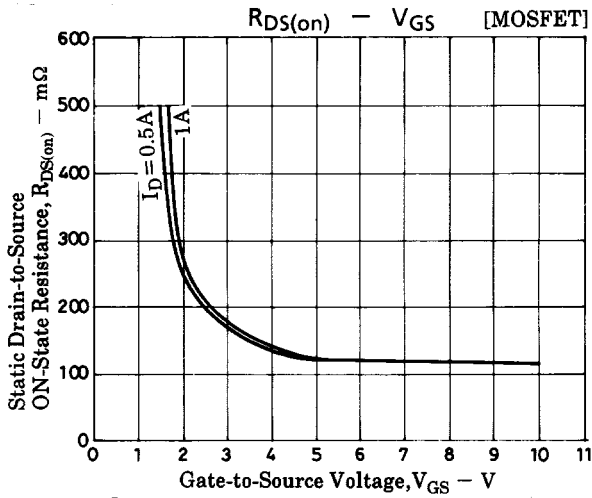
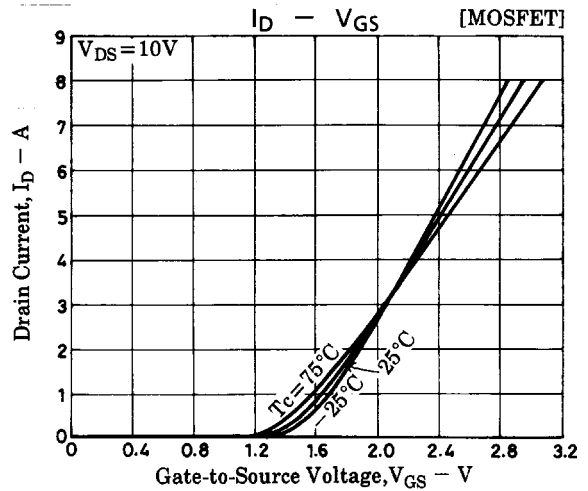
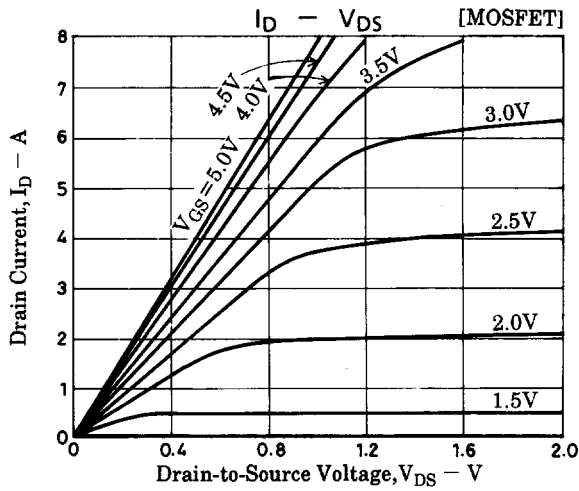
Switching Time Test Circuit [TR]



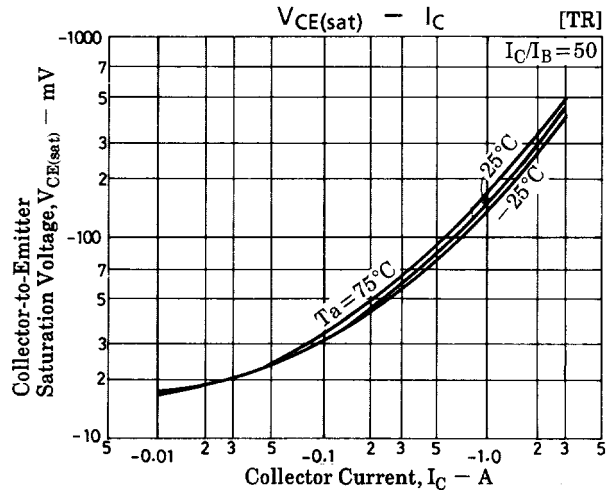
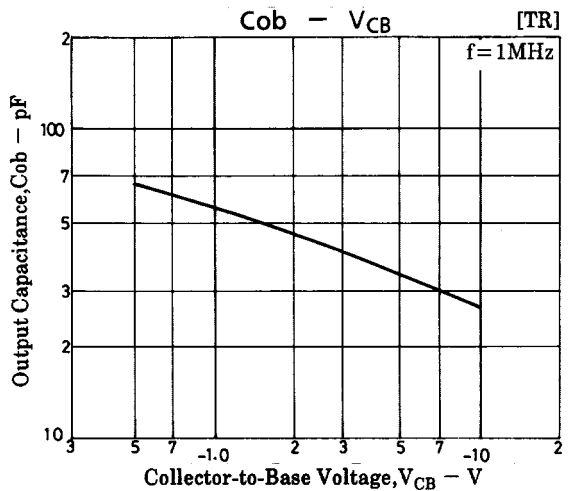
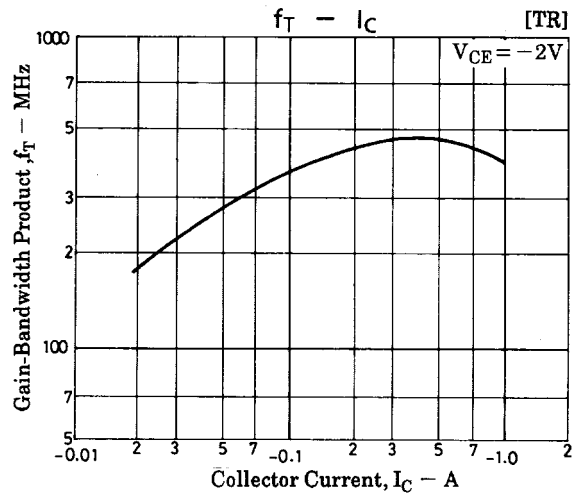
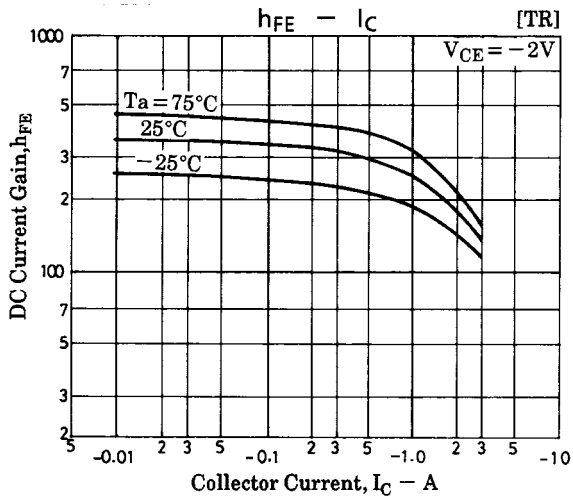
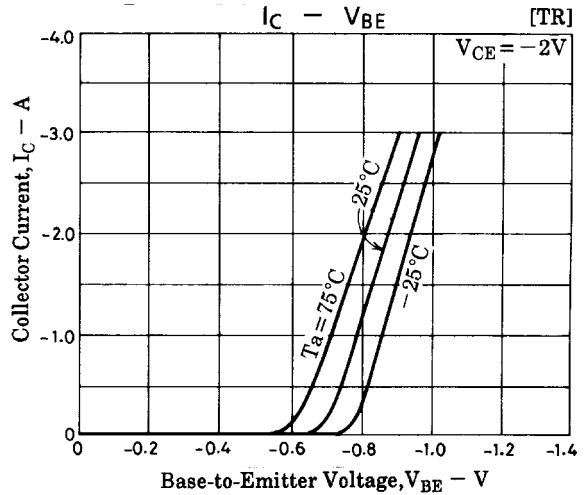
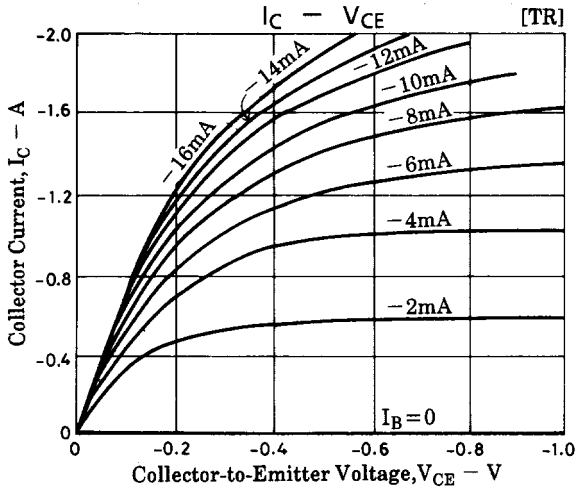
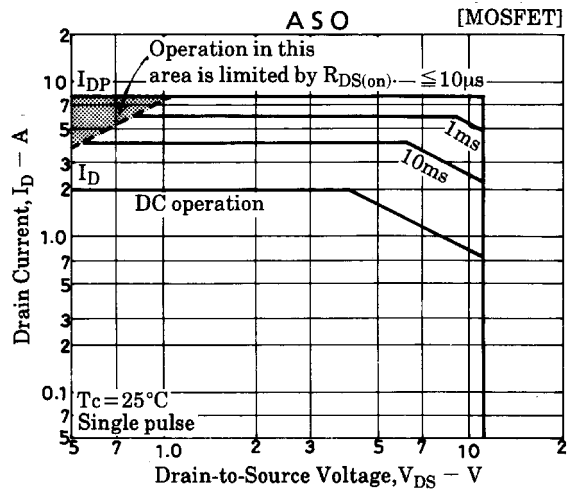
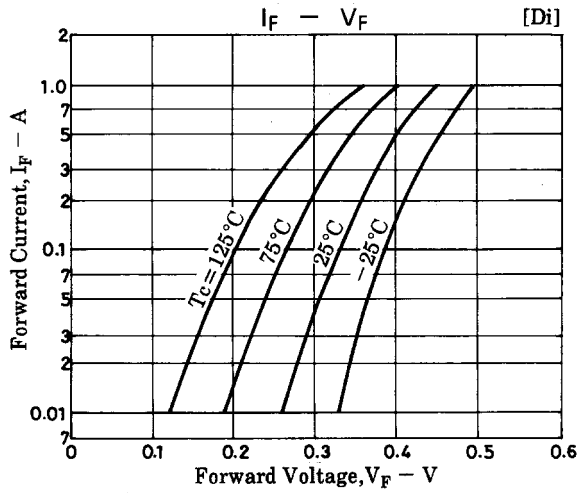
t_{rr} Test Circuit [MOSFET]



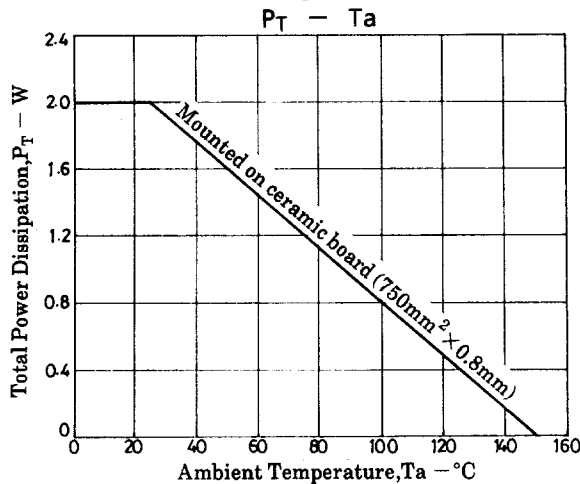
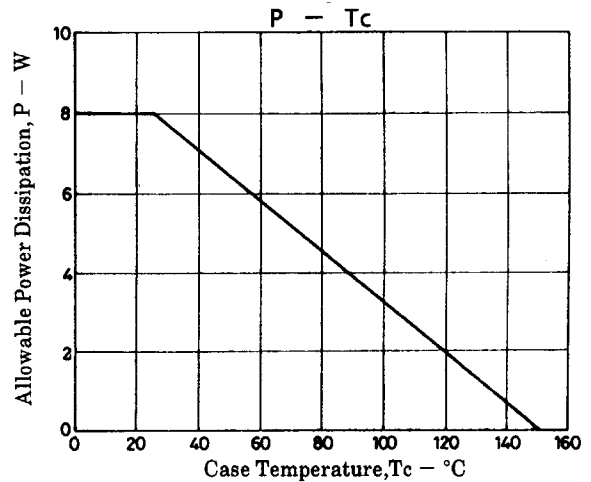
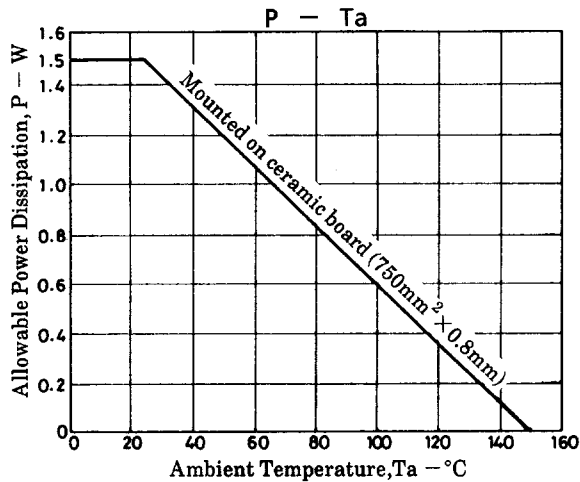
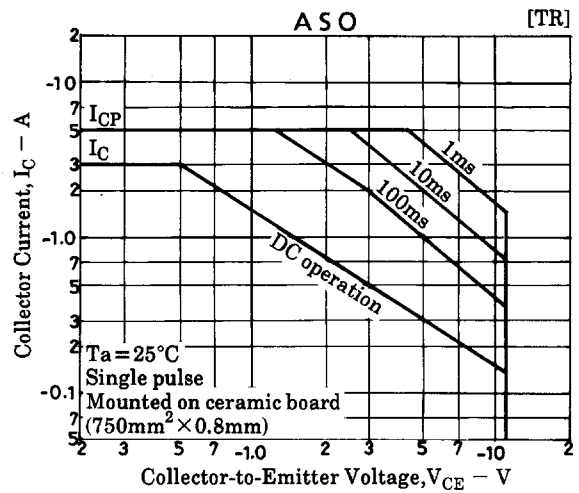
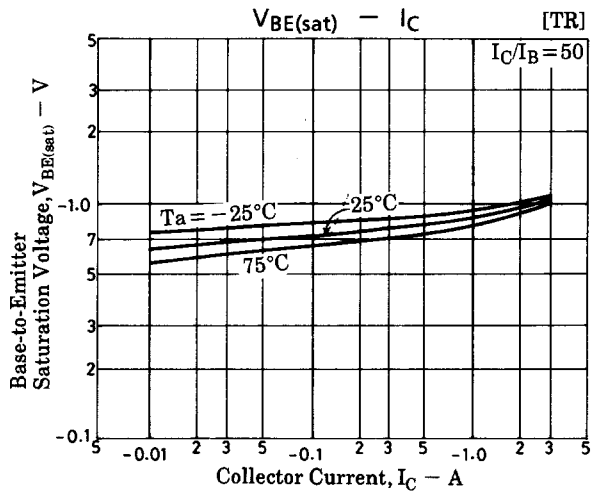
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