



SANYO Semiconductors

DATA SHEET

SOP8901

PNP Epitaxial Planar Silicon Transistor
N-Channel Silicon MOSFET

Motor Bridge Circuit Applications

Features

- Composite type with a PNP transistor and an N-ch Silicon MOSFET contained in one package facilitating high-density mounting.

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
[TR]				
Collector-to-Base Voltage	V _{CBO}		-30	V
Collector-to-Emitter Voltage	V _{CEO}		-30	V
Emitter-to-Base Voltage	V _{EBO}		-5	V
Collector Current	I _C		-3	A
Collector Current (Pulse)	I _{CP}		-5	A
Collector Dissipation	P _C	Mounted on a ceramic board (2000mm ² ×0.8mm)1unit	1.4	W
		T _c =25°C	2.0	W
Junction Temperature	T _J		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C
[FET]				
Drain-to-Source Voltage	V _{DSS}		30	V
Gate-to-Source Voltage	V _{GSS}		±20	V
Drain Current	I _D		3.5	A
Drain Current (Pulse)	I _{DP}	PW≤10μs, duty cycle≤1%	14	A
Allowable Power Dissipation	P _D	Mounted on a ceramic board (2000mm ² ×0.8mm)1unit	1.4	W
		T _c =25°C	2.0	W
Channel Temperature	T _{ch}		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C

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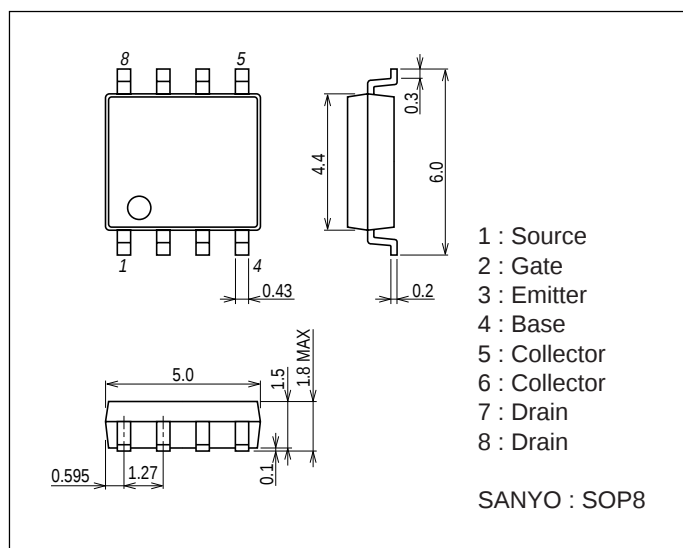
Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[TR]						
Collector Cutoff Current	ICBO	V _{CB} =-30V, I _E =0A			-100	nA
Emitter Cutoff Current	IEBO	V _{EB} =-4V, I _C =0A			-100	nA
DC Current Gain	h _{FE}	V _{CE} =-2V, I _C =-500mA	200		560	
Gain-Bandwidth Product	f _T	V _{CE} =-10V, I _C =-500mA		400		MHz
Output Capacitance	C _{ob}	V _{CB} =10V, f=1MHz		25		pF
Collector-to-Emitter Saturation Voltage	V _{CE(sat)}	I _C =-1.5A, I _B =-30mA		-180	-270	mV
Base-to-Emitter Saturation Voltage	V _{BE(sat)}	I _C =-1.5A, I _B =-30mA		-0.83	-1.2	V
Collector-to-Base Breakdown Voltage	V _{(BR)CBO}	I _C =-10μA, I _E =0A	-30			V
Collector-to-Emitter Breakdown Voltage	V _{(BR)CEO}	I _C =-1mA, R _{BE} =∞	-30			V
Emitter-to-Base Breakdown Voltage	V _{(BR)EBO}	I _E =-10μA, I _C =0A	-5			V
Turn-ON Time	t _{on}	See specified Test Circuit.		50		ns
Storage Time	t _{stg}	See specified Test Circuit.		270		ns
Fall Time	t _f	See specified Test Circuit.		27		ns
[FET]						
Drain-to-Source Breakdown Voltage	V _{(BR)DSS}	I _D =1mA, V _{GS} =0V	30			V
Zero-Gate Voltage Drain Current	I _{DSS}	V _{DS} =30V, V _{GS} =0V			1	μA
Gate-to-Source Leakage Current	I _{GSS}	V _{GS} =±16V, V _{DS} =0V			±10	μA
Cutoff Voltage	V _{GS(off)}	V _{DS} =10V, I _D =250μA	1.2		2.5	V
Forward Transfer Admittance	y _{fs}	V _{DS} =10V, I _D =3.5A	3.7	5.3		S
Static Drain-to-Source On-State Resistance	R _{DS(on)1}	I _D =3.5A, V _{GS} =10V		64	84	mΩ
	R _{DS(on)2}	I _D =1.8A, V _{GS} =4.5V		105	150	mΩ
Input Capacitance	C _{iss}	V _{DS} =10V, f=1MHz		180		pF
Output Capacitance	C _{oss}	V _{DS} =10V, f=1MHz		42		pF
Reverse Transfer Capacitance	C _{rss}	V _{DS} =10V, f=1MHz		25		pF
Turn-ON Delay Time	t _{d(on)}	See specified Test Circuit.		7		ns
Rise Time	t _r	See specified Test Circuit.		3		ns
Turn-OFF Delay Time	t _{d(off)}	See specified Test Circuit.		20		ns
Fall Time	t _f	See specified Test Circuit.		6		ns
Total Gate Charge	Q _g	V _{DS} =10V, V _{GS} =10V, I _D =3.5A		5.0		nC
Gate-to-Source Charge	Q _{gs}	V _{DS} =10V, V _{GS} =10V, I _D =3.5A		0.9		nC
Gate-to-Drain "Miller" Charge	Q _{gd}	V _{DS} =10V, V _{GS} =10V, I _D =3.5A		0.6		nC
Diode Forward Voltage	V _{SD}	I _S =3.5A, V _{GS} =0V		0.88	1.2	V

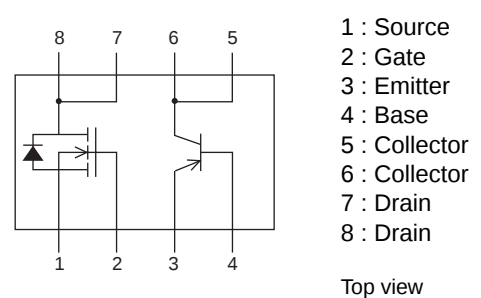
Package Dimensions

unit : mm

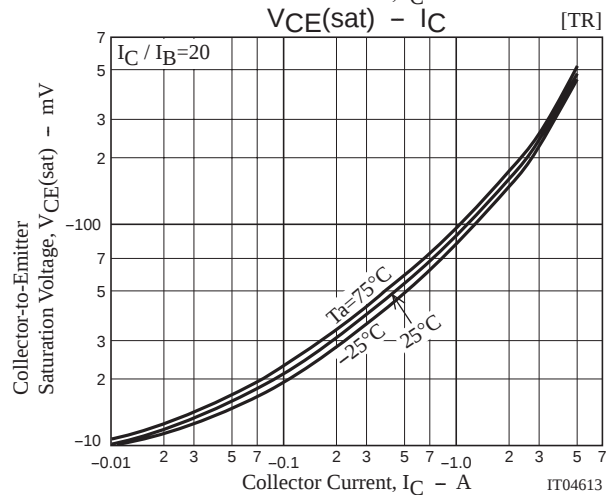
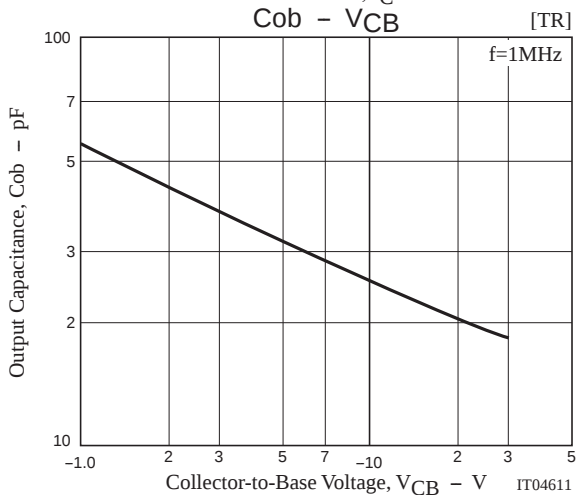
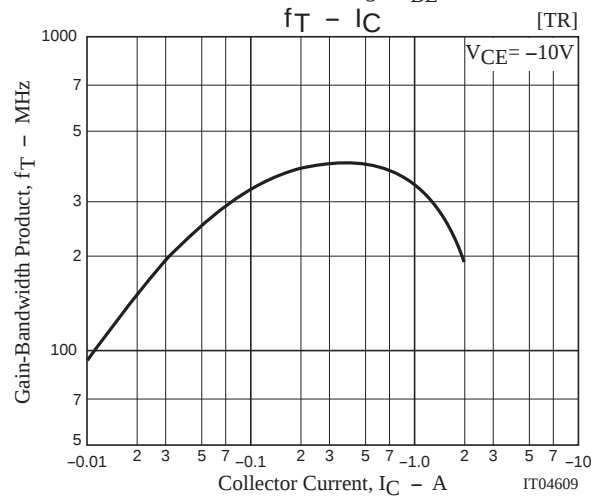
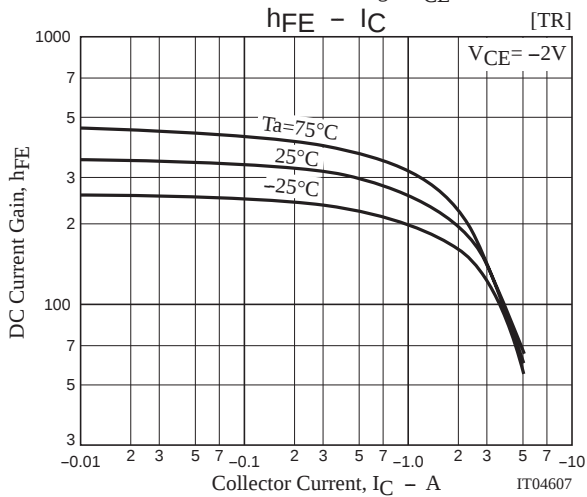
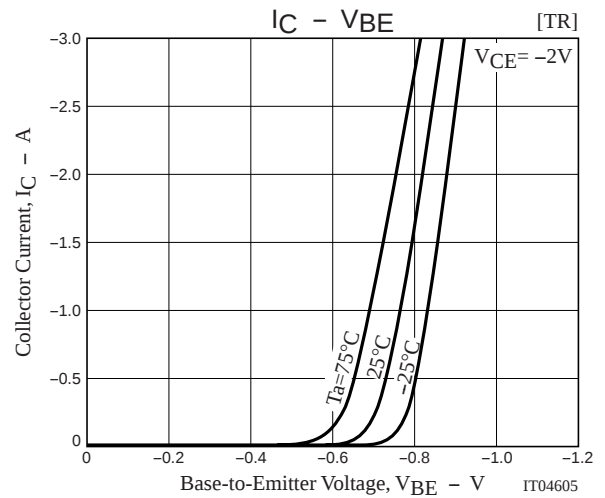
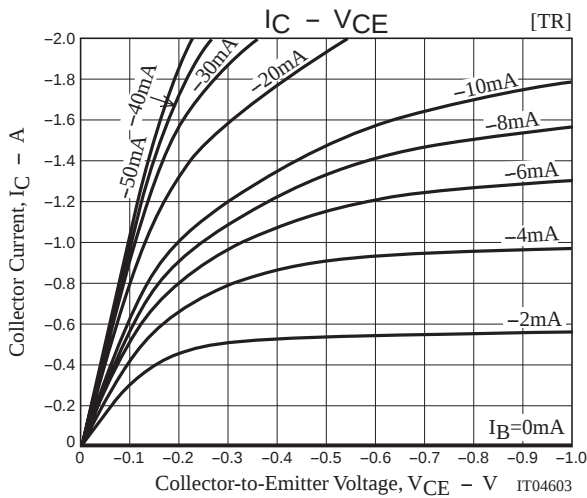
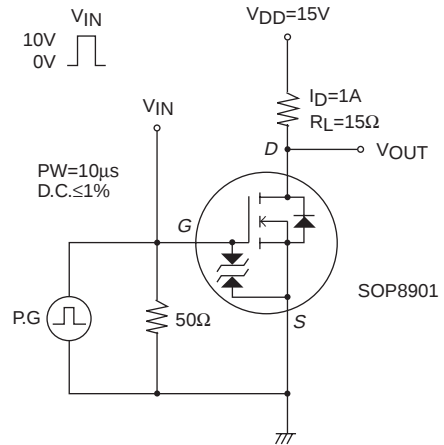
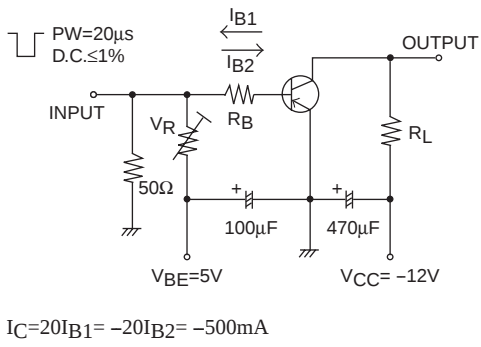
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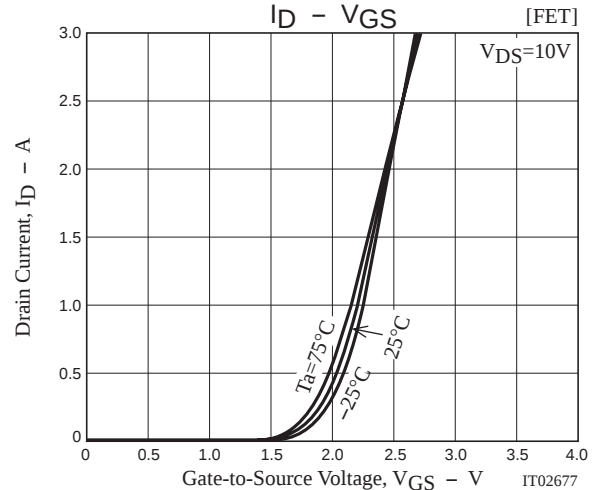
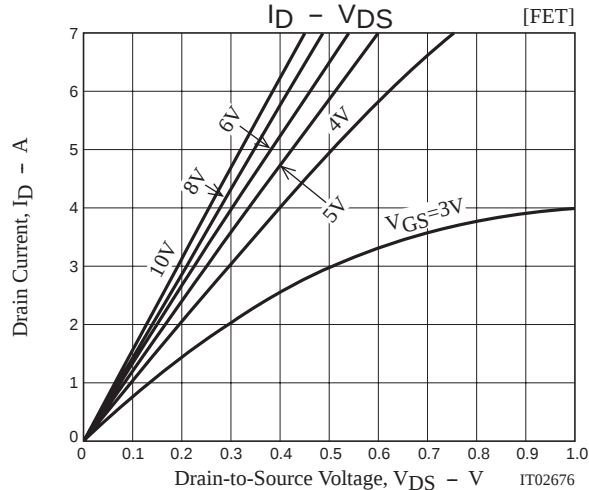
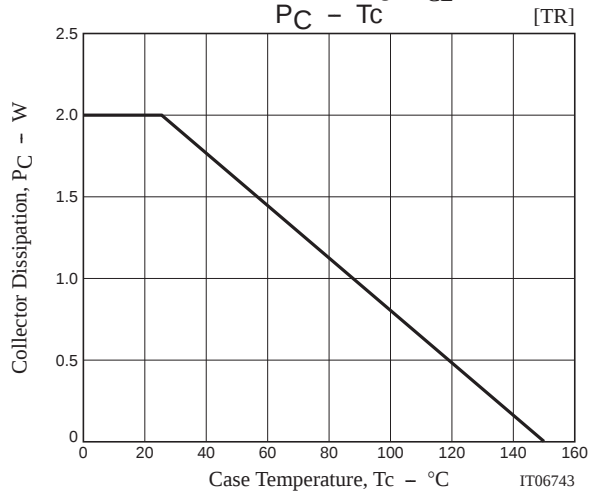
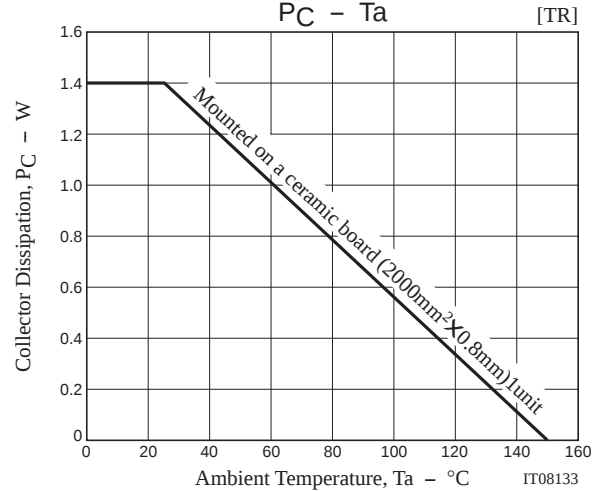
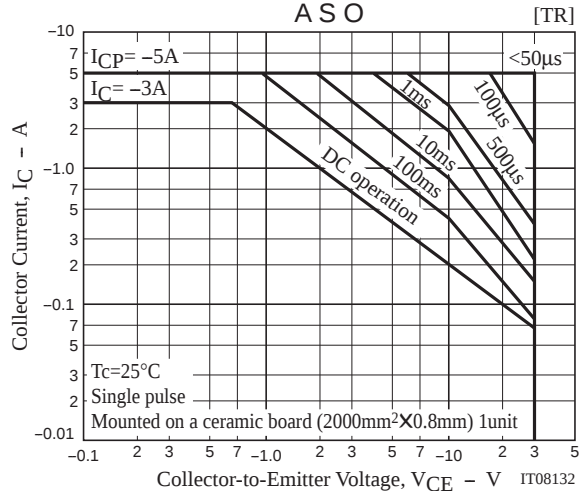
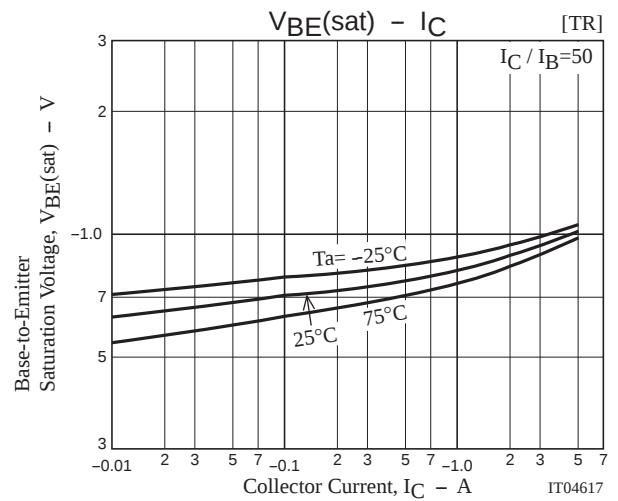
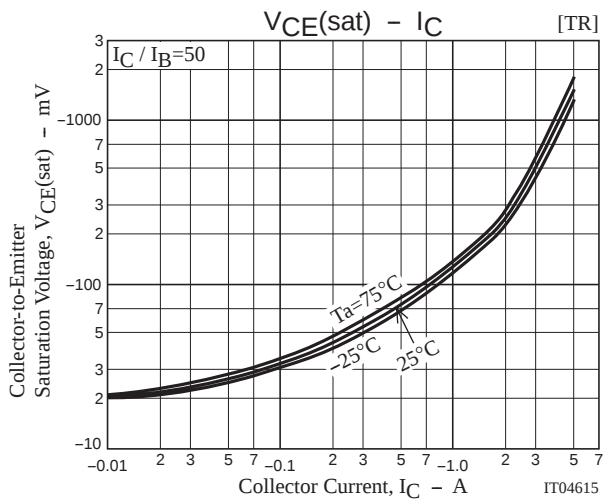


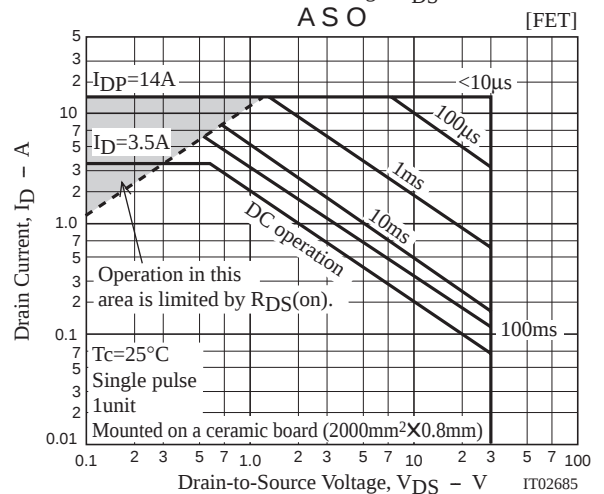
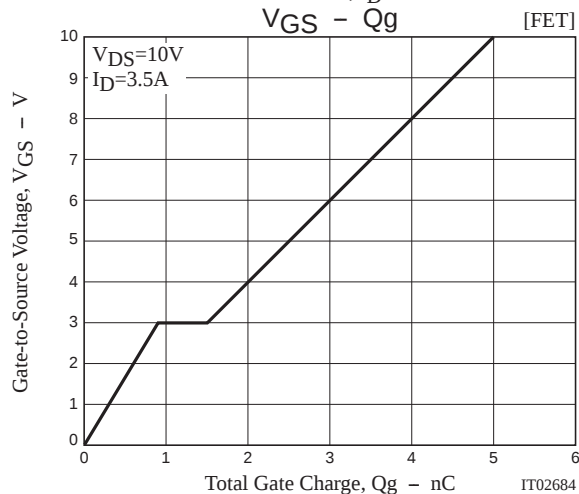
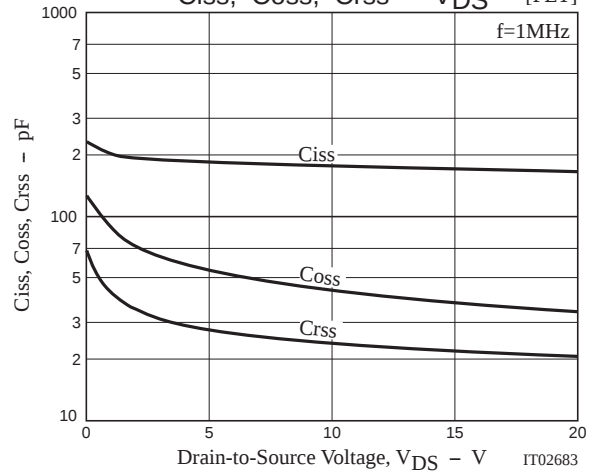
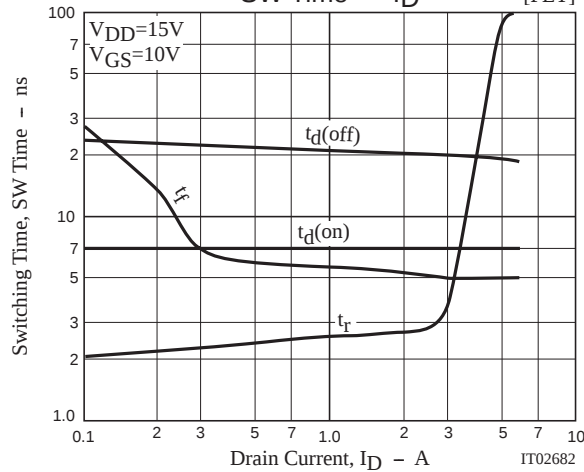
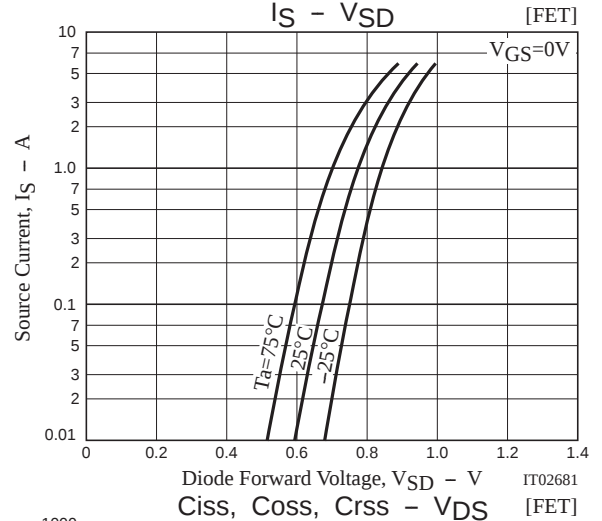
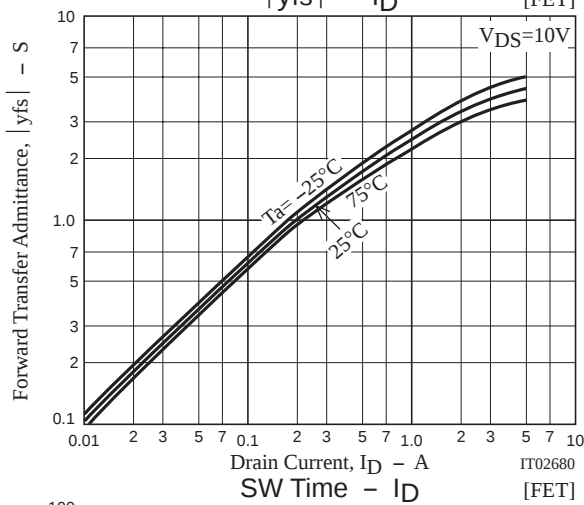
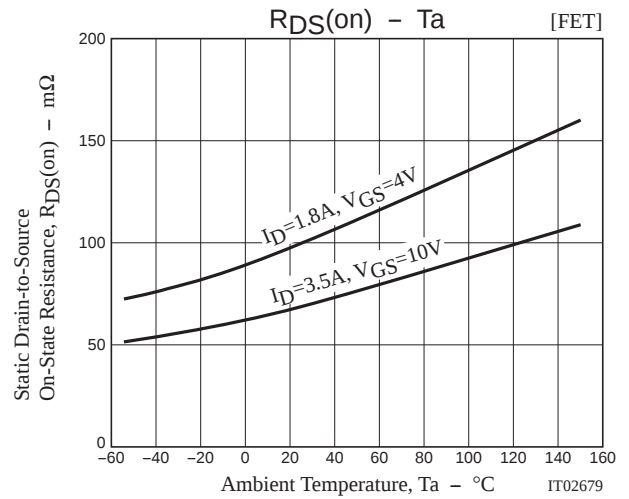
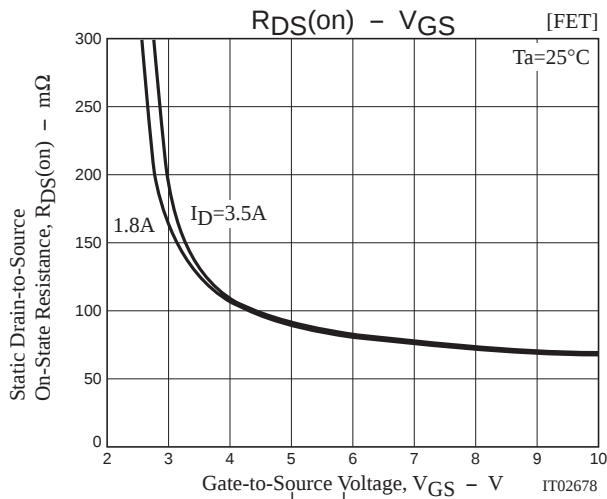
Electrical Connection

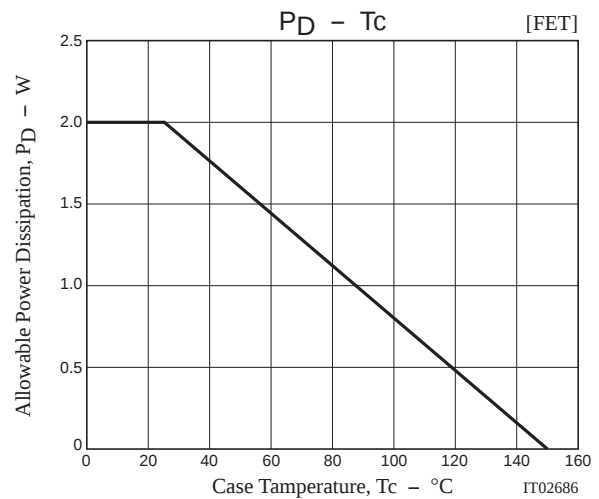
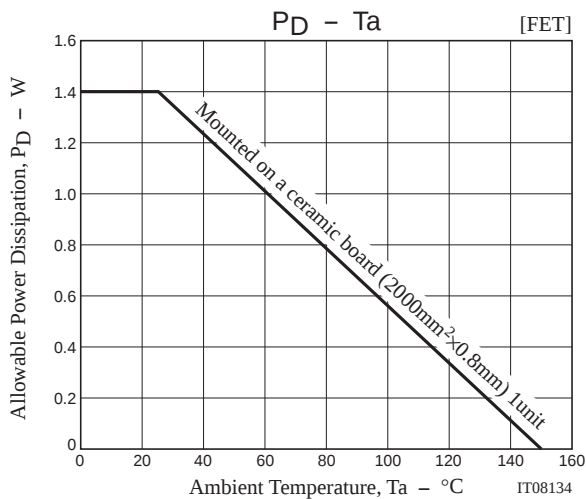


Switching Time Test Circuit









Note on usage : Since the SOP8901 includes MOSFET, please avoid using this device in the vicinity of highly charged objects.

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