



SANYO Semiconductors

DATA SHEET

ECH8901

PNP Epitaxial Planar Silicon Transistor
P-Channel Silicon MOSFETGeneral-Purpose Switching Device
Applications

Applications

- Charger.

Features

- Composite type, facilitating high-density mounting.
- Mounting height 0.9mm.
- IECO is guaranteed for preventing reverse flow from the collector to the emitter.
- Halogen free compliance.

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}		-6	A
Base Current	I _B		-600	mA
Collector Dissipation	P _C	When mounted on ceramic substrate (900mm ² ×0.8mm) 1unit	1.3	W
Junction Temperature	T _J		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C
[FET]				
Drain-to-Source Voltage	V _{DSS}		-12	V
Gate-to-Source Voltage	V _{GSS}		±10	V
Drain Current (DC)	I _D		-6	A
Drain Current (Pulse)	I _{DP}	PW≤10μs, duty cycle≤1%	-40	A

Marking : LA

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ECH8901

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Parameter	Symbol	Conditions	Ratings	Unit
Allowable Power Dissipation	P_D	When mounted on ceramic substrate (900mm ² ×0.8mm) 1unit	1.3	W
Total Dissipation	P_T	When mounted on ceramic substrate (900mm ² ×0.8mm)	1.5	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		-55 to +150	°C

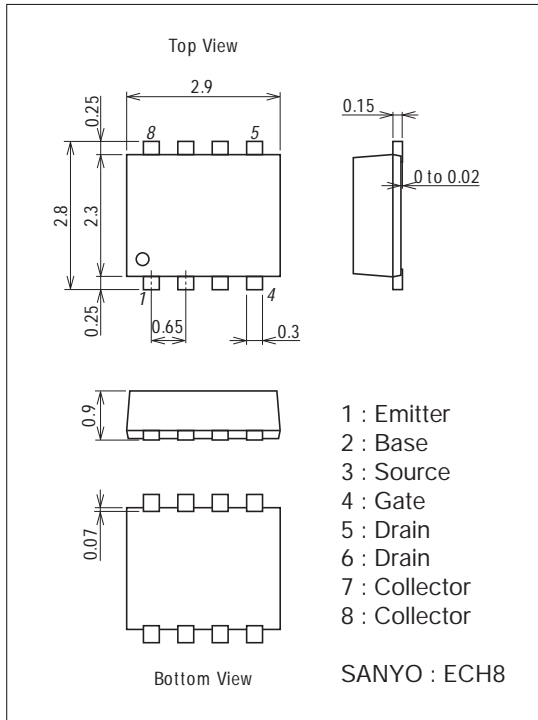
Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[TR]						
Collector Cutoff Current	I_{CBO}	$V_{CB} = -30V, I_E = 0A$			-0.1	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = -4V, I_C = 0A$			-0.1	μA
	I_{ECO}	$V_{EC} = -4.5V, I_B = 0A$			-1	μA
DC Current Gain	h_{FE}	$V_{CE} = -2V, I_C = -500mA$	200		560	
Gain-Bandwidth Product	f_T	$V_{CE} = -10V, I_C = -500mA$		380		MHz
Output Capacitance	Cob	$V_{CB} = -10V, f = 1MHz$		25		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)1}$	$I_C = -1.5A, I_B = -30mA$		-140	-200	mV
	$V_{CE(sat)2}$	$I_C = -1.5A, I_B = -75mA$		-90	-135	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.		25		ns
[FET]						
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = -1mA, V_{GS} = 0V$	-12			V
Zero-Gate Voltage Drain Current	I_{DSS1}	$V_{DS} = -8V, V_{GS} = 0V$			-1	μA
	I_{DSS2}	$V_{DS} = -12V, V_{GS} = 0V$			-10	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS} = ±8V, V_{DS} = 0V$			±10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS} = -6V, I_D = -1mA$	-0.4		-1.4	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS} = -6V, I_D = -3A$	6.6	11		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D = -3A, V_{GS} = -4.5V$		21	28	mΩ
	$R_{DS(on)2}$	$I_D = -1.5A, V_{GS} = -2.5V$		31	45	mΩ
	$R_{DS(on)3}$	$I_D = -0.5A, V_{GS} = -1.8V$		49	78	mΩ
Input Capacitance	Ciss	$V_{DS} = -6V, f = 1MHz$		1000		pF
Output Capacitance	Coss	$V_{DS} = -6V, f = 1MHz$		320		pF
Reverse Transfer Capacitance	Crss	$V_{DS} = -6V, f = 1MHz$		250		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit.		11		ns
Rise Time	t_r	See specified Test Circuit.		72		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit.		105		ns
Fall Time	t_f	See specified Test Circuit.		87		ns
Total Gate Charge	Qg	$V_{DS} = -6V, V_{GS} = -4.5V, I_D = -6A$		11		nC
Gate-to-Source Charge	Qgs	$V_{DS} = -6V, V_{GS} = -4.5V, I_D = -6A$		1.5		nC
Gate-to-Drain "Miller" Charge	Qgd	$V_{DS} = -6V, V_{GS} = -4.5V, I_D = -6A$		2.9		nC
Diode Forward Voltage	V_{SD}	$I_S = -6A, V_{GS} = 0V$		-0.81	-1.2	V

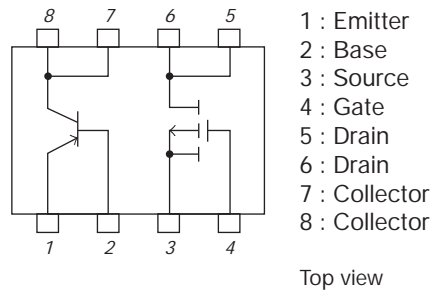
Note : The specifications shown above are for each individual transistor.

Package Dimensions

unit : mm (typ)
7011A-006

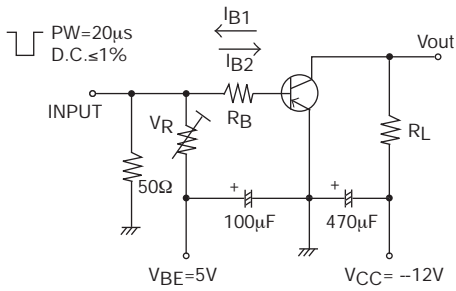


Electrical Connection



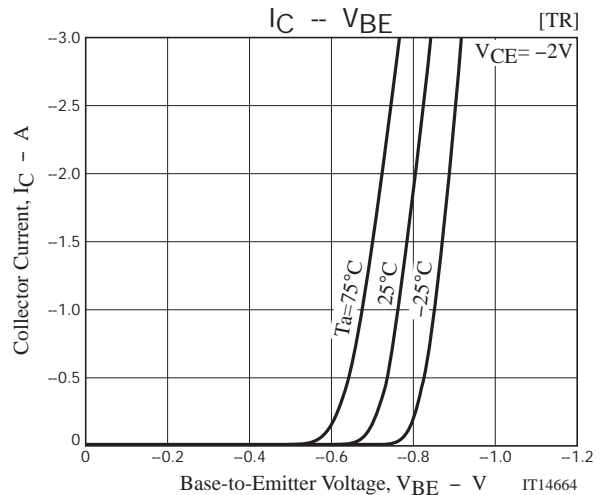
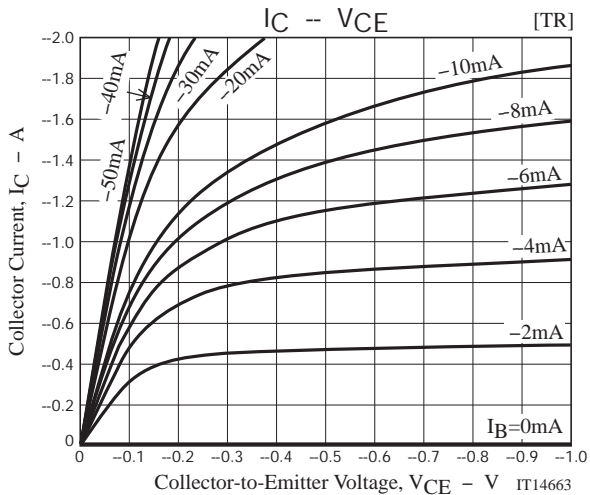
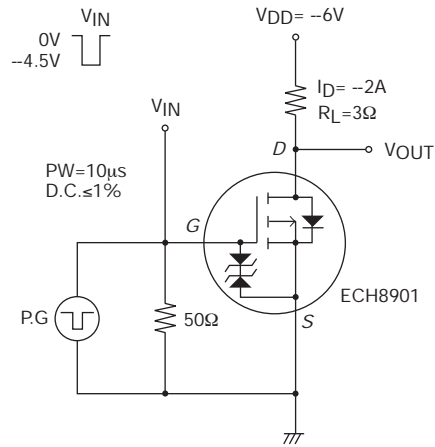
Switching Time Test Circuit

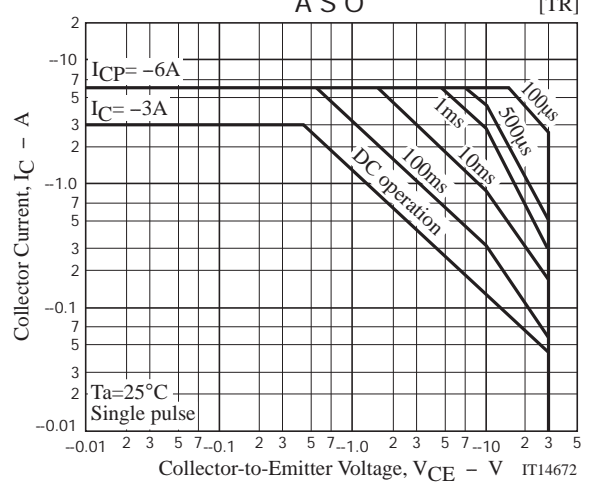
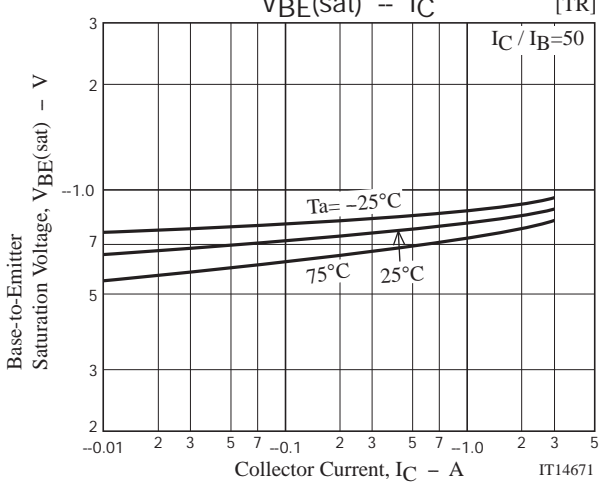
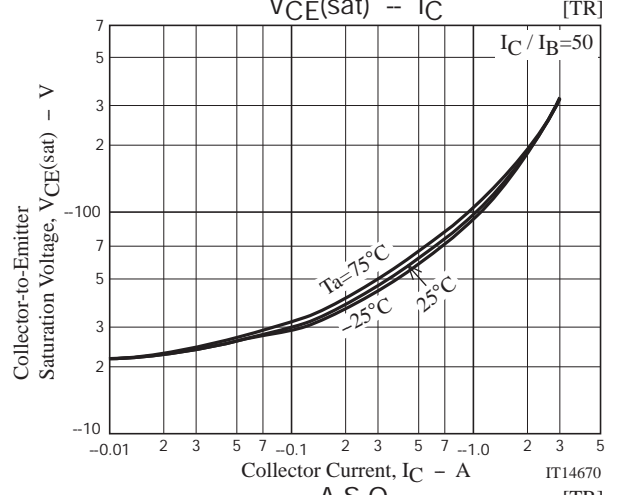
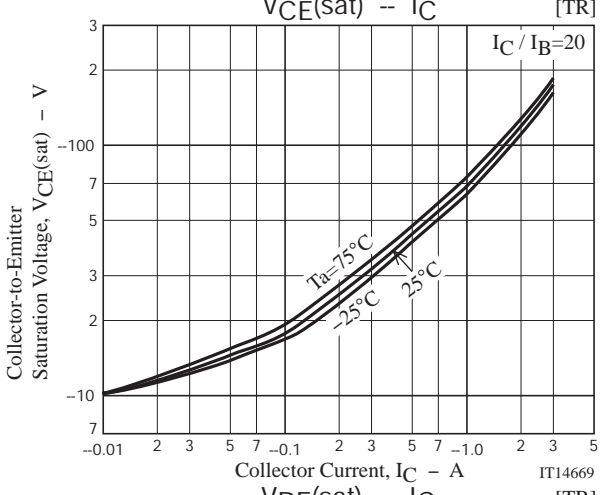
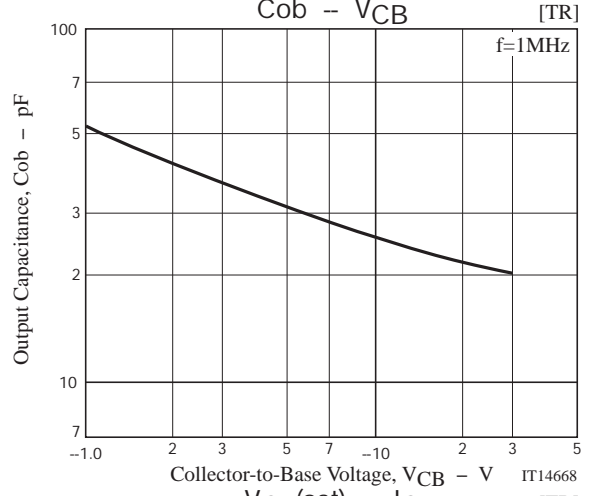
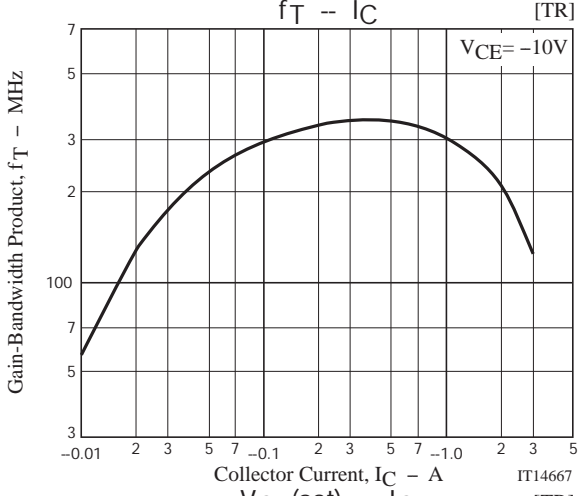
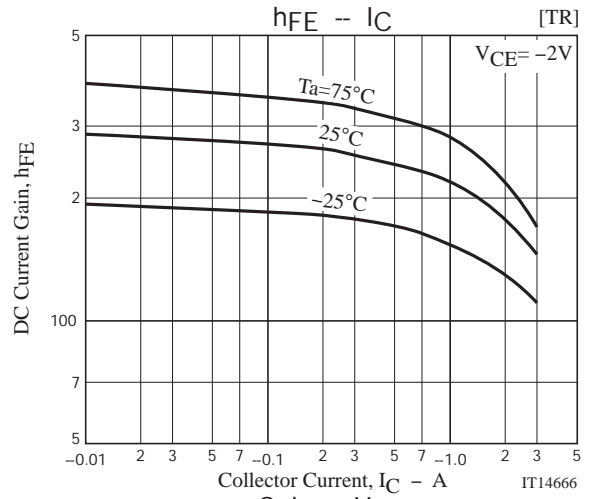
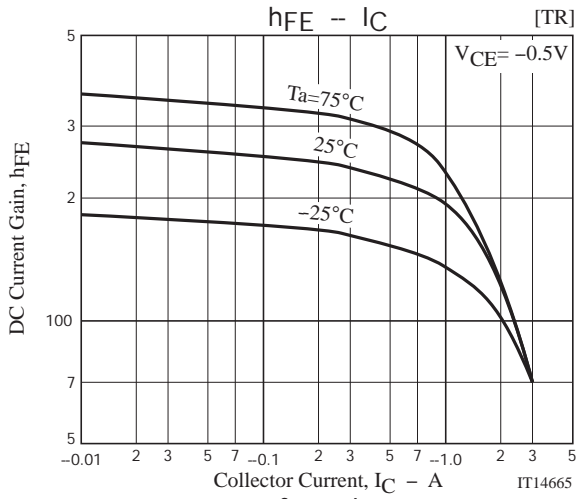
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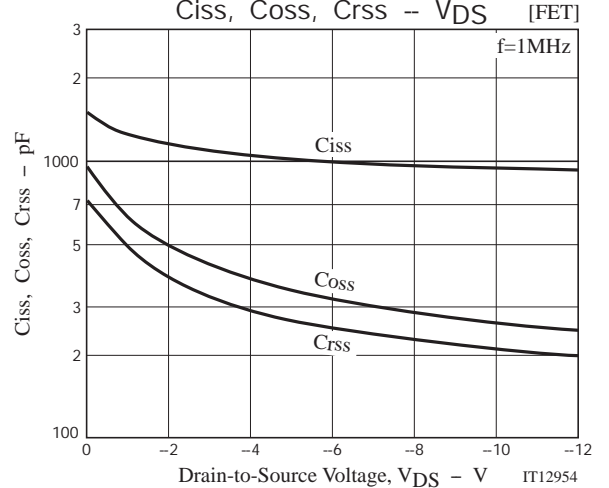
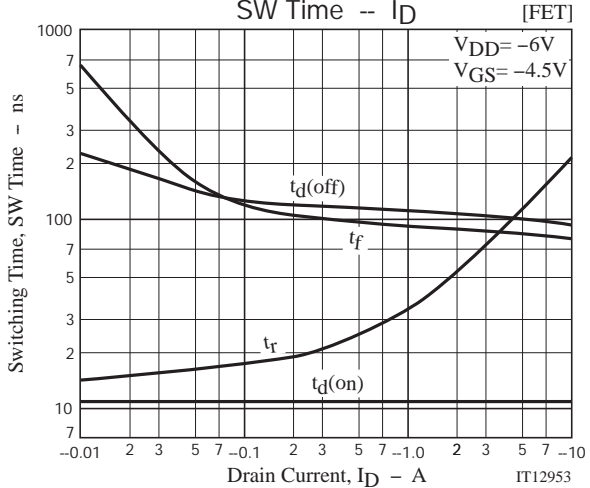
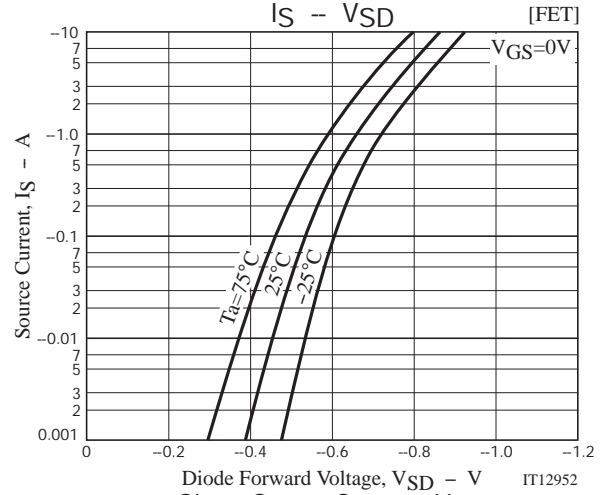
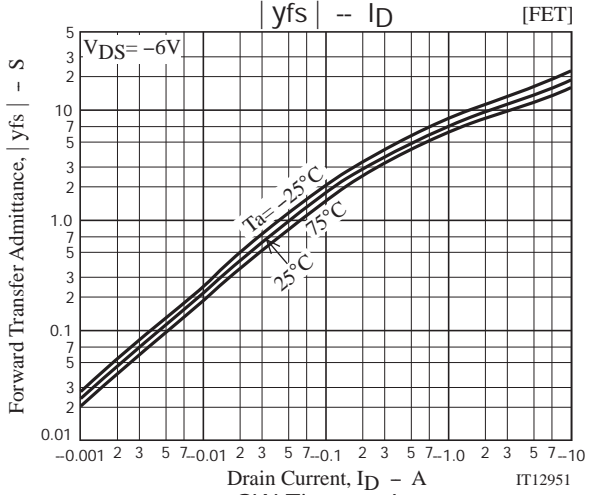
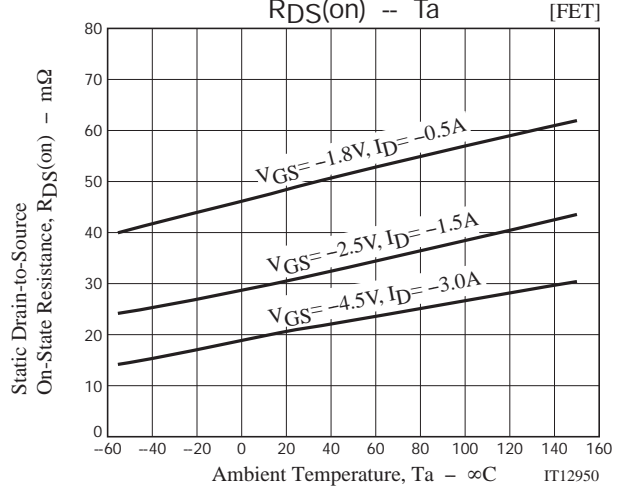
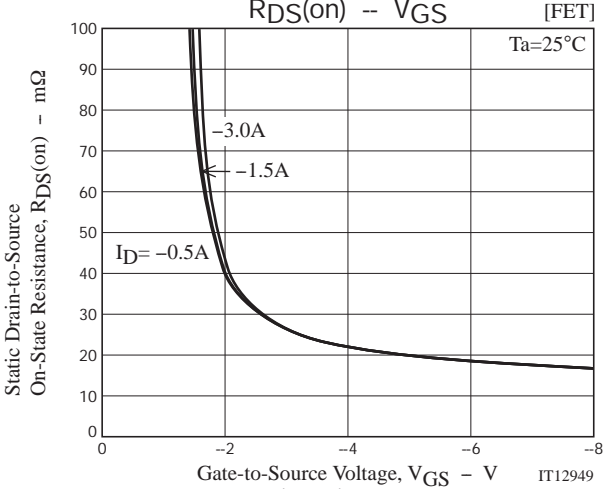
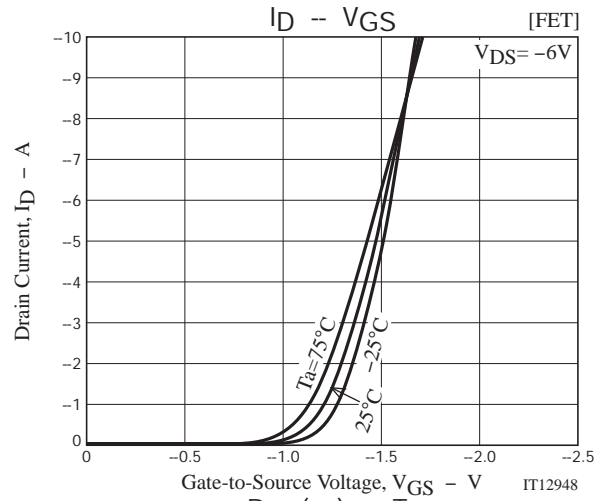
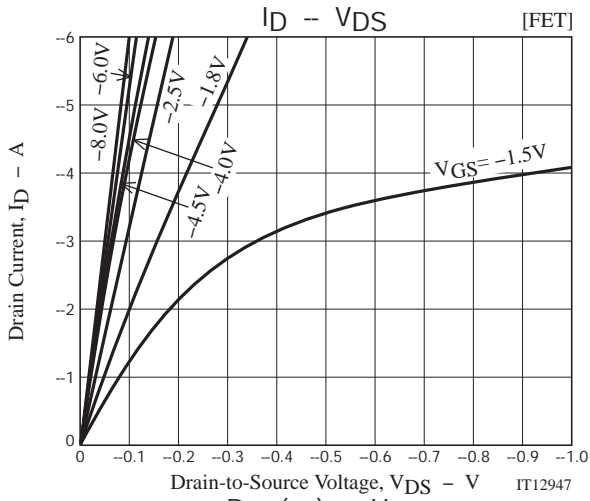


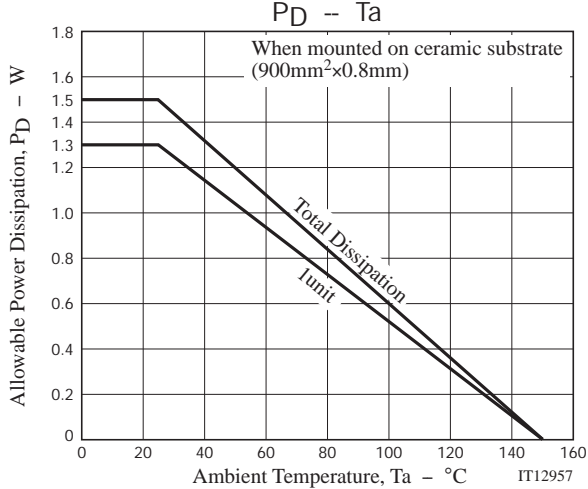
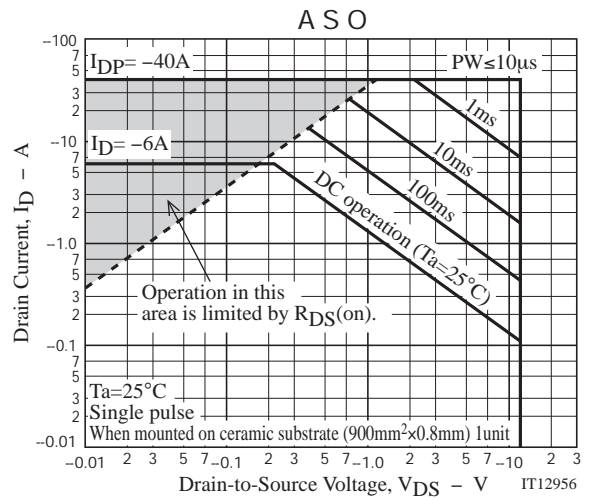
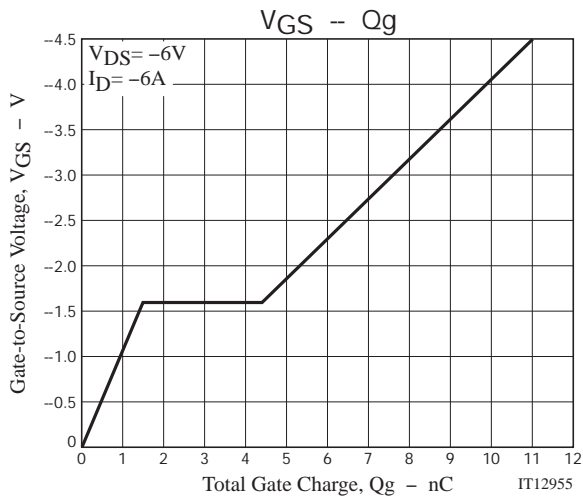
$I_C=20I_{B1}=-20I_{B2}=500mA$

[FET]









Note on usage : Since the ECH8901 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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