



SANYO Semiconductors

## DATA SHEET

VEC2905

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

## Features

- Composite type, facilitating high-density mounting.
- Mounting height 0.75mm.

## Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
[TR]				
Collector-to-Base Voltage	V <sub>CB0</sub>		-30	V
Collector-to-Emitter Voltage	V <sub>CEO</sub>		-30	V
Emitter-to-Collector Voltage	V <sub>ECO</sub>		-6.5	V
Emitter-to-Base Voltage	V <sub>EBO</sub>		-5	V
Collector Current	I <sub>C</sub>		-3	A
Collector Current (Pulse)	I <sub>CP</sub>		-5	A
Base Current	I <sub>B</sub>		-600	mA
Collector Dissipation	P <sub>C</sub>	When mounted on ceramic substrate (900mm <sup>2</sup> ×0.8mm) 1unit	1.1	W
Junction Temperature	T <sub>J</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +150	°C
[FET]				
Drain-to-Source Voltage	V <sub>DSS</sub>		-20	V
Gate-to-Source Voltage	V <sub>GSS</sub>		±10	V
Drain Current (DC)	I <sub>D</sub>		-3	A
Drain Current (Pulse)	I <sub>DP</sub>	PW≤10μs, duty cycle≤1%	-12	A
Allowable Power Dissipation	P <sub>D</sub>	When mounted on ceramic substrate (900mm <sup>2</sup> ×0.8mm) 1unit	1.1	W
Channel Temperature	T <sub>ch</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +150	°C

Marking : AJ

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SANYO Semiconductor Co., Ltd.

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# VEC2905

## Electrical Characteristics at Ta=25°C

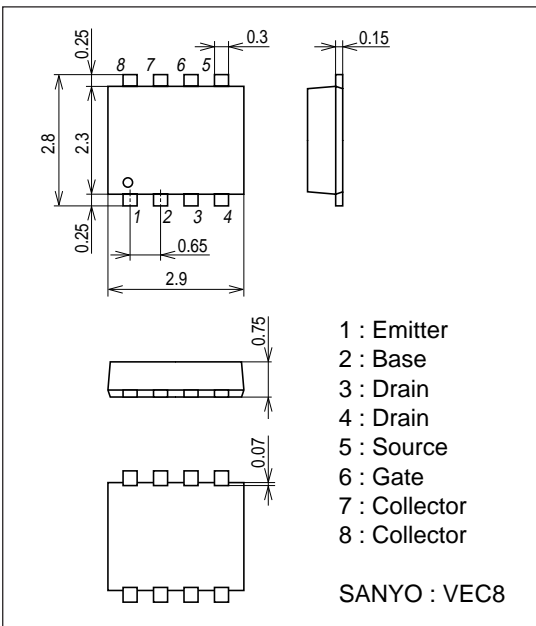
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[TR]						
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=-30V, I_E=0A$			-0.1	$\mu A$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=-4V, I_C=0A$			-0.1	$\mu A$
DC Current Gain	$h_{FE}$	$V_{CE}=-2V, I_C=-500mA$	200		560	
Gain-Bandwidth Product	$f_T$	$V_{CE}=-10V, I_C=-500mA$		380		MHz
Output Capacitance	$C_{ob}$	$V_{CB}=-10V, f=1MHz$		25		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)1}$	$I_C=-1.5A, I_B=-30mA$		-160	-235	mV
	$V_{CE(sat)2}$	$I_C=-1.5A, I_B=-75mA$		-110	-160	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	$V_{(BR)CBO}$	$I_C=-10\mu A, I_E=0A$	-30			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=-1mA, R_{BE}=\infty$	-30			V
Emitter-to-Collector Breakdown Voltage	$V_{(BR)ECO}$	$I_C=-10\mu A, R_{CB}=\infty$	-6.5			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=-10\mu A, I_C=0A$	-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	$V_{(BR)DSS}$	$I_D=-1mA, V_{GS}=0V$	-20			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=-20V, V_{GS}=0V$			-1	$\mu A$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 8V, V_{DS}=0V$			$\pm 10$	$\mu A$
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=-10V, I_D=-1mA$	-0.4		-1.3	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=-10V, I_D=-1.5A$	2.9	4.9		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=-2A, V_{GS}=-4.5V$		62	81	m $\Omega$
	$R_{DS(on)2}$	$I_D=-1A, V_{GS}=-2.5V$		87	120	m $\Omega$
	$R_{DS(on)3}$	$I_D=-0.3A, V_{GS}=-1.8V$		130	210	m $\Omega$
Input Capacitance	$C_{iss}$	$V_{DS}=-10V, f=1MHz$		680		pF
Output Capacitance	$C_{oss}$	$V_{DS}=-10V, f=1MHz$		115		pF
Reverse Transfer Capacitance	$C_{rss}$	$V_{DS}=-10V, f=1MHz$		80		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit.		13		ns
Rise Time	$t_r$	See specified Test Circuit.		53		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit.		77		ns
Fall Time	$t_f$	See specified Test Circuit.		62		ns
Total Gate Charge	$Q_g$	$V_{DS}=-10V, V_{GS}=-4.5V, I_D=-3A$		8.2		nC
Gate-to-Source Charge	$Q_{gs}$	$V_{DS}=-10V, V_{GS}=-4.5V, I_D=-3A$		1.7		nC
Gate-to-Drain "Miller" Charge	$Q_{gd}$	$V_{DS}=-10V, V_{GS}=-4.5V, I_D=-3A$		2.1		nC
Diode Forward Voltage	$V_{SD}$	$I_S=-3A, V_{GS}=0V$		-0.88	-1.2	V

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

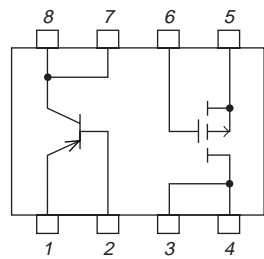
## Package Dimensions

unit : mm (typ)

7012-010



## Electrical Connection



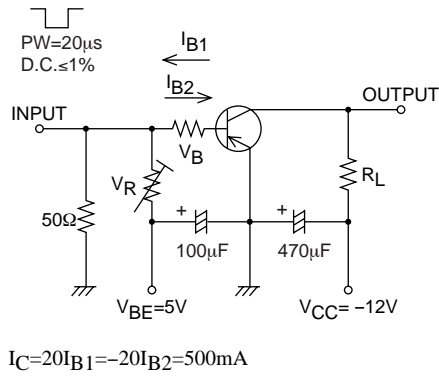
- 1 : Emitter
- 2 : Base
- 3 : Drain
- 4 : Drain
- 5 : Source
- 6 : Gate
- 7 : Collector
- 8 : Collector

Top view

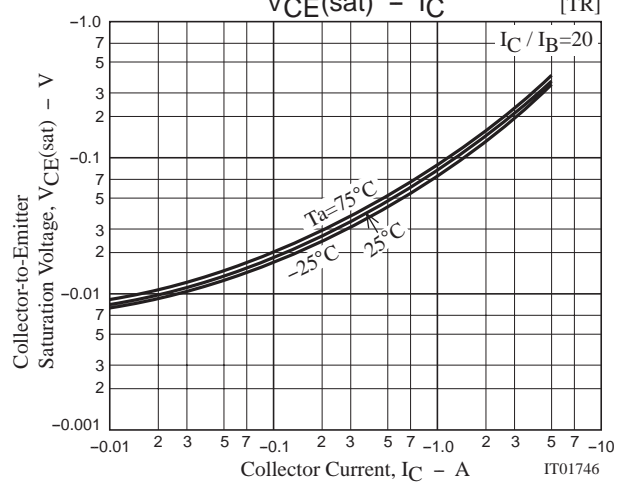
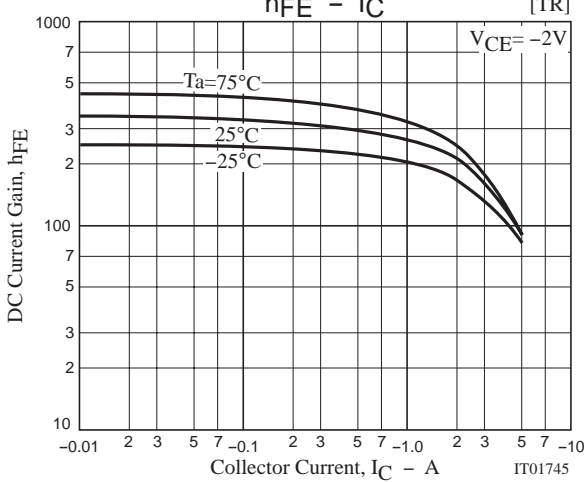
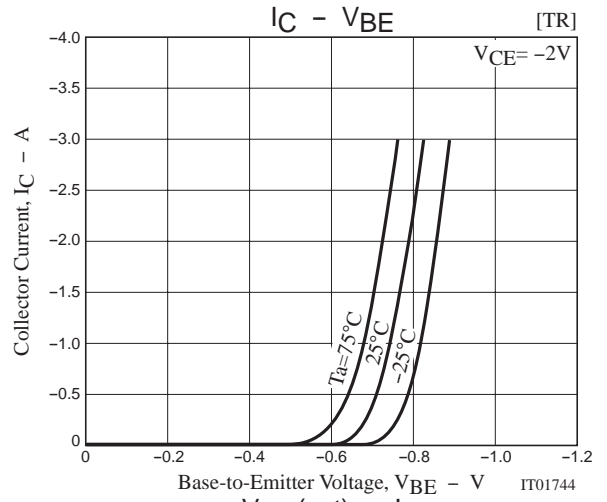
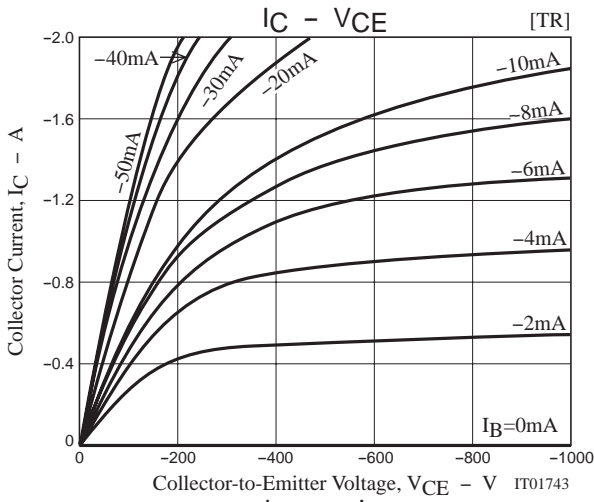
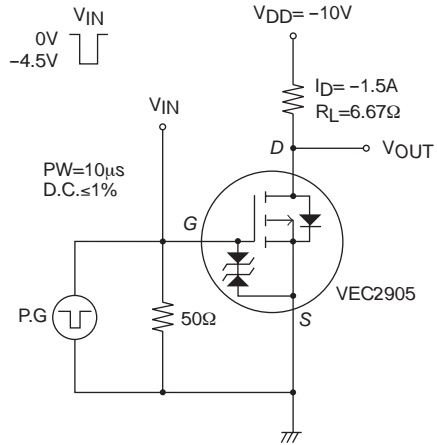
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## Switching Time Test Circuit

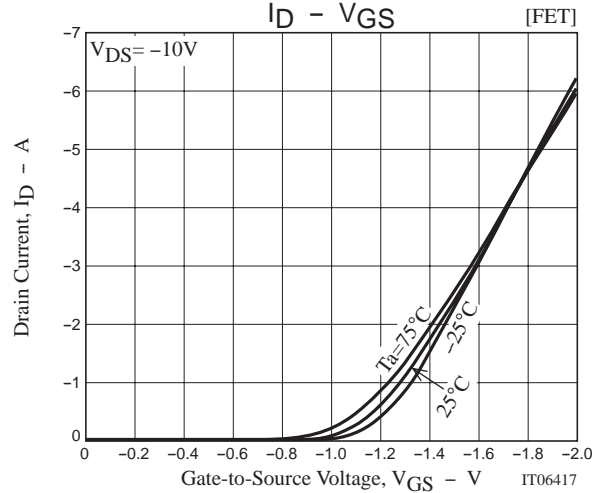
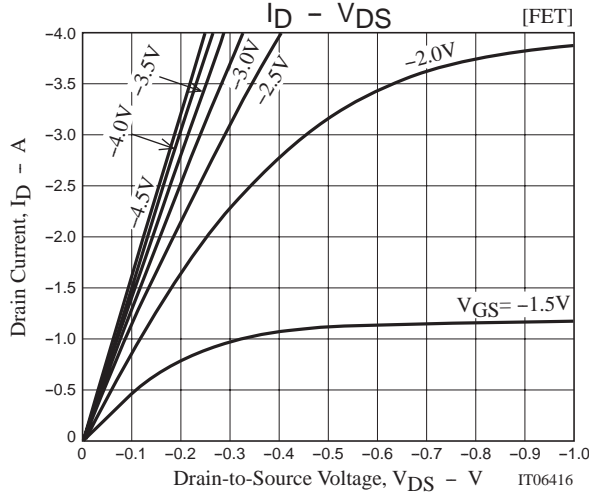
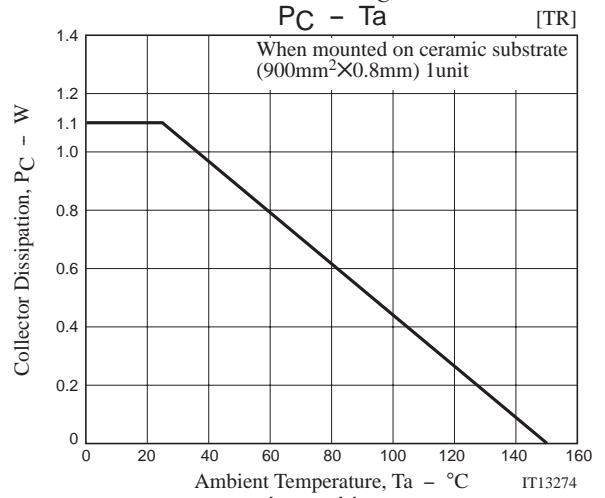
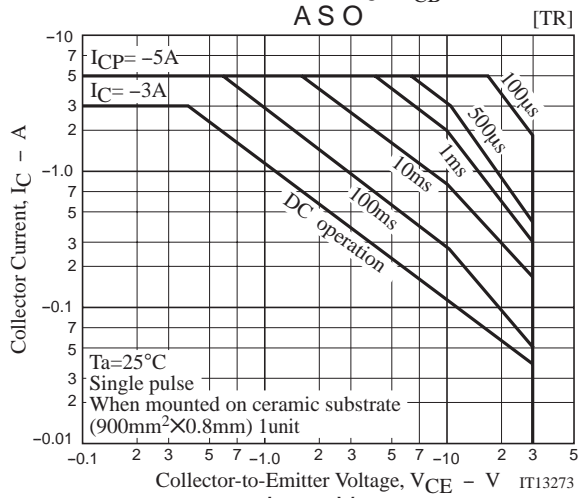
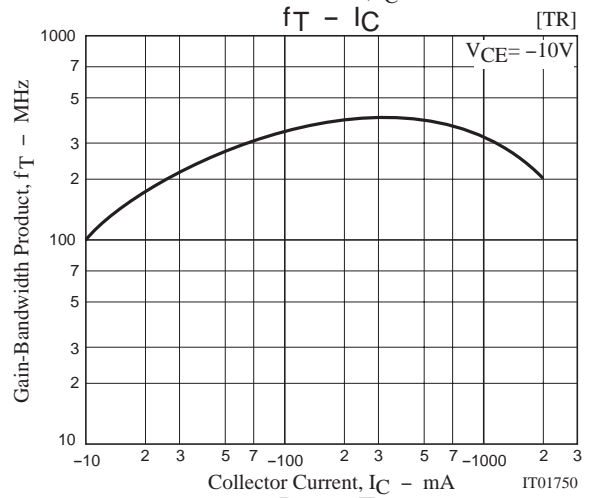
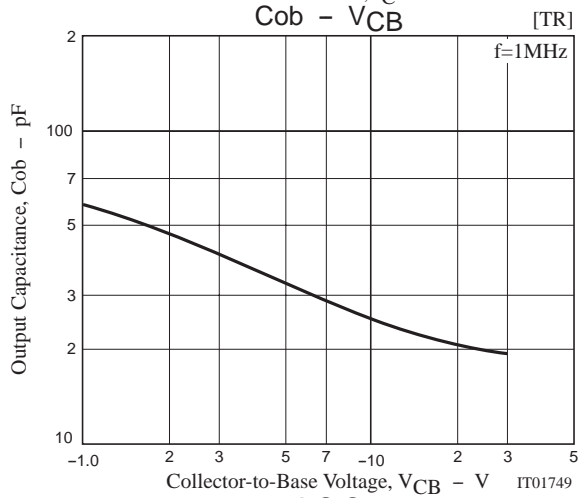
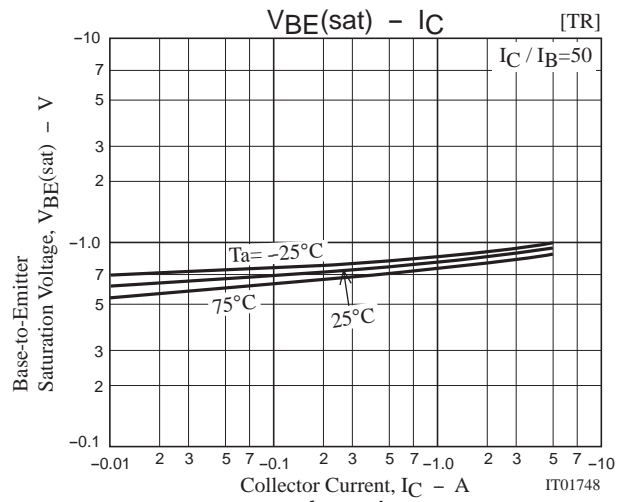
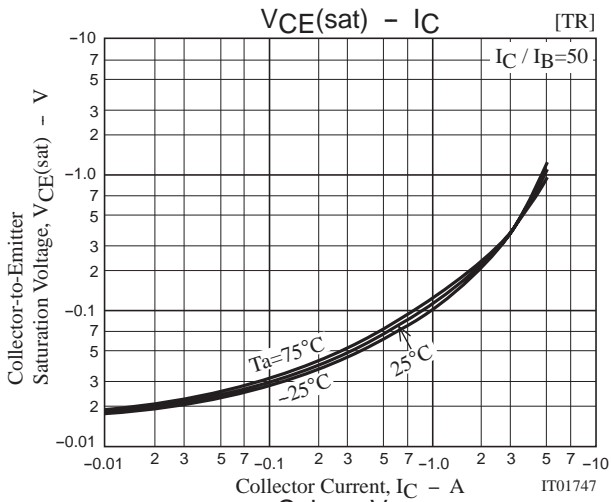
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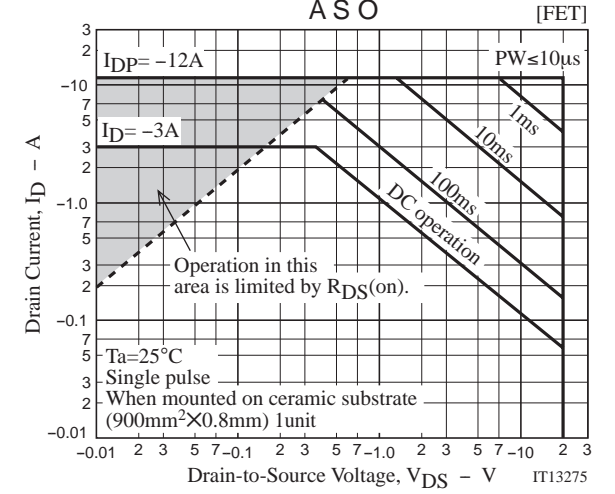
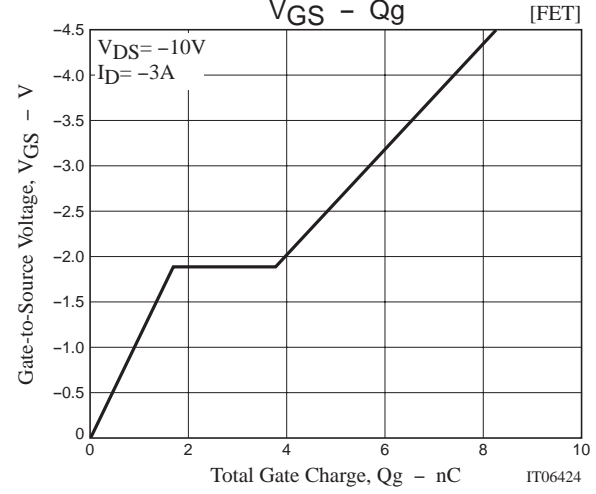
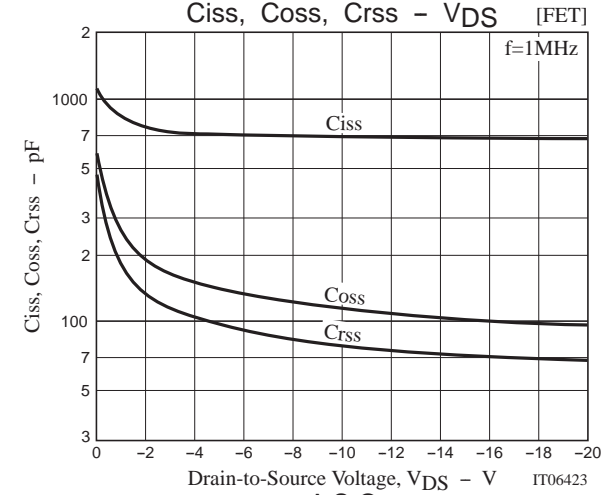
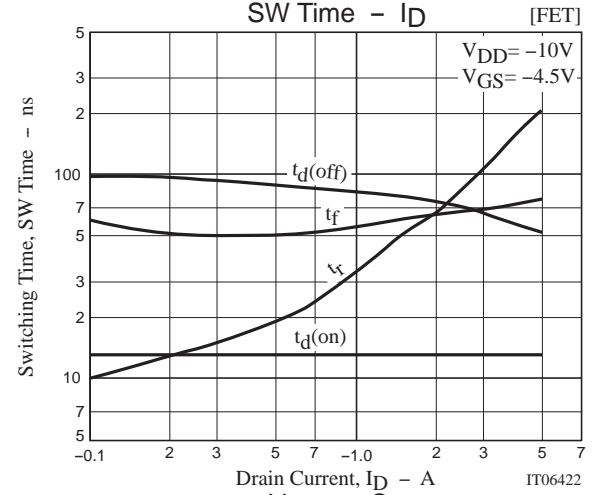
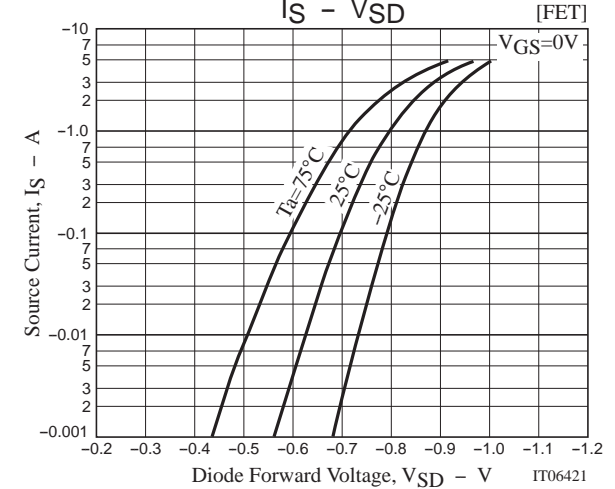
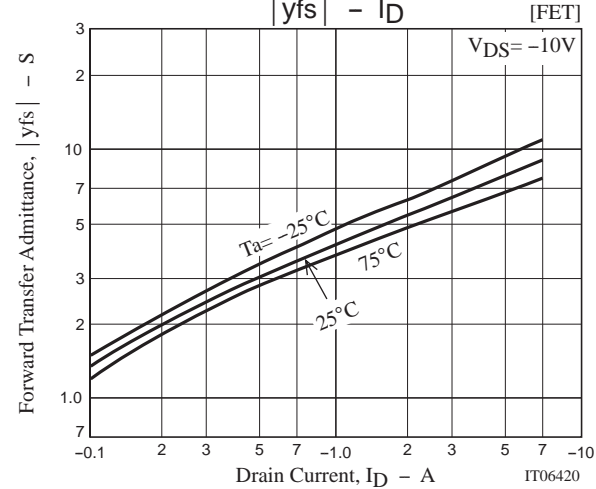
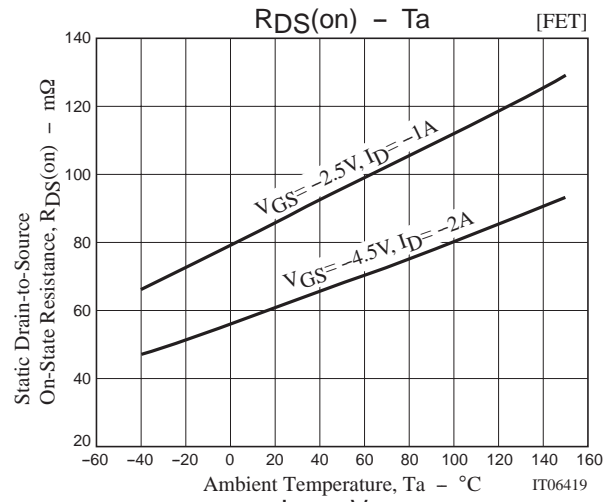
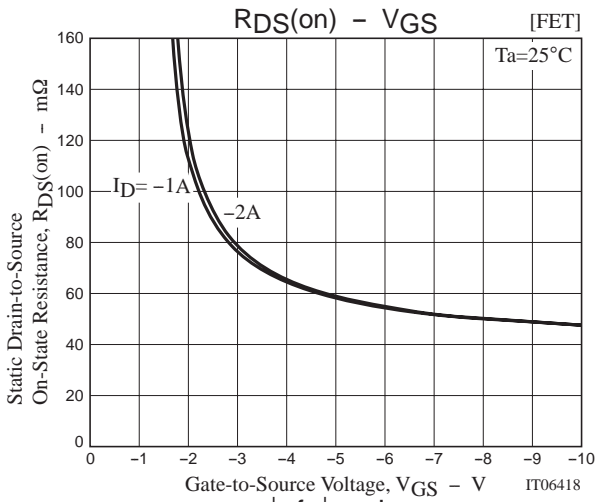
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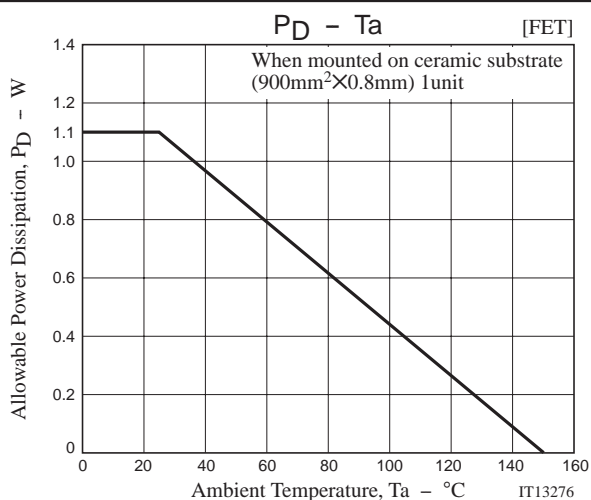
# VEC2905



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## VEC2905



Note on usage : Since the VEC2905 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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