



SANYO Semiconductors

DATA SHEET

VEC2801 — General-Purpose Switching Device Applications

MOSFET : P-Channel Silicon MOSFET
SBD : Schottky Barrier Diode

Features

- The best suited for DC / DC converter.
- Composite type with a P-Channel Silicon MOSFET and a Schottky Barrier Diode contained in one package facilitating high-density mounting.

[MOSFET]

- Low ON-resistance.
- 1.8V drive.

[SBD]

- Short reverse recovery time.
- Low forward voltage.

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
[MOSFET]				
Drain-to-Source Voltage	V _{DSS}		-12	V
Gate-to-Source Voltage	V _{GSS}		±8	V
Drain Current (DC)	I _D		-3	A
Drain Current (Pulse)	I _{DP}	PW≤10μs, duty cycle≤1%	-12	A
Allowable Power Dissipation	P _D	Mounted on a ceramic board (900mm ² ×0.8mm) 1unit	0.9	W
Channel Temperature	T _{ch}		150	°C
Storage Temperature	T _{stg}		-55 to +125	°C
[SBD]				
Repetitive Peak Reverse Voltage	V _{RRM}		15	V
Nonrepetitive Peak Reverse Surge Voltage	V _{RSM}		15	V
Average Output Current	I _O		1	A
Surge Forward Current	I _{FSM}	50Hz sine wave, 1 cycle	3	A
Junction Temperature	T _j		-55 to +125	°C
Storage Temperature	T _{stg}		-55 to +125	°C

Marking : BL

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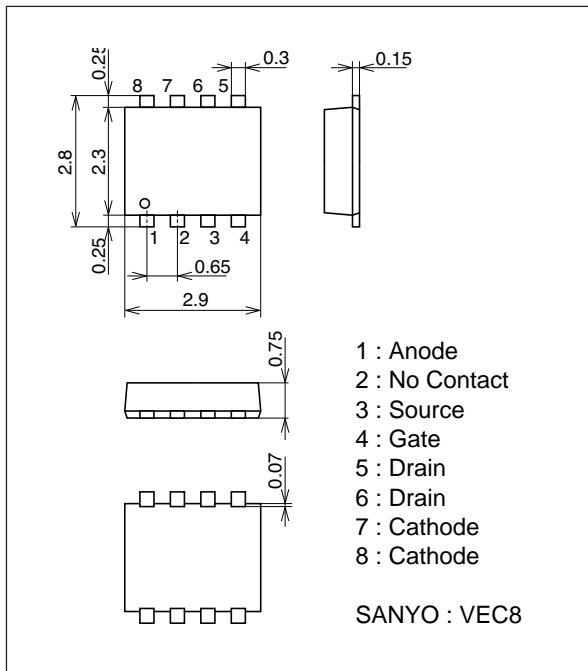
VEC2801

Electrical Characteristics at Ta=25°C

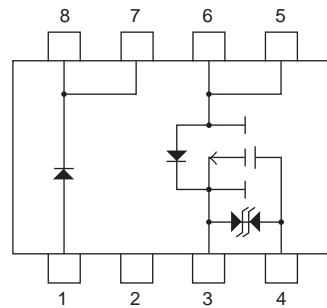
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[MOSFET]						
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = -1mA, V_{GS} = 0$	-12			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -12V, V_{GS} = 0$			-1	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS} = \pm 6.4V, V_{DS} = 0$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS} = -6V, I_D = -1mA$	-0.3		-1.3	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS} = -6V, I_D = -1.5A$	4.2	6		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D = -3A, V_{GS} = -4.5V$		47	62	$m\Omega$
	$R_{DS(on)2}$	$I_D = -1.5A, V_{GS} = -2.5V$		64	89	$m\Omega$
	$R_{DS(on)3}$	$I_D = -0.3A, V_{GS} = -1.8V$		85	122	$m\Omega$
Input Capacitance	C_{iss}	$V_{DS} = -6V, f = 1MHz$		940		pF
Output Capacitance	C_{oss}	$V_{DS} = -6V, f = 1MHz$		230		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS} = -6V, f = 1MHz$		180		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		14		ns
Rise Time	t_r	See specified Test Circuit.		84		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		104		ns
Fall Time	t_f	See specified Test Circuit.		106		ns
Total Gate Charge	Q_g	$V_{DS} = -6V, V_{GS} = -4.5V, I_D = -3A$		11		nC
Gate-to-Source Charge	Q_{gs}	$V_{DS} = -6V, V_{GS} = -4.5V, I_D = -3A$		1.6		nC
Gate-to-Drain "Miller" Charge	Q_{gd}	$V_{DS} = -6V, V_{GS} = -4.5V, I_D = -3A$		2.8		nC
Diode Forward Voltage	V_{SD}	$I_S = -3A, V_{GS} = 0$		-0.85	-1.2	V
[SBD]						
Reverse Voltage	V_R	$I_R = 1mA$	15			V
Forward Voltage	V_F	$I_F = 1A$		0.35	0.45	V
Reverse Current	I_R	$V_R = 6V$			500	μA
Interterminal Capacitance	C	$V_R = 10V, f = 1MHz$		45		pF
Reverse Recovery Time	t_{rr}	$I_F = I_R = 100mA$, See specified Test Circuit.			15	ns
Thermal Resistance	$R_{th(j-a)}$	Mounted on a ceramic board (900mm ² ×0.8mm)		70		°C / W

Package Dimensions

unit : mm (typ)
7012-004



Electrical Connection



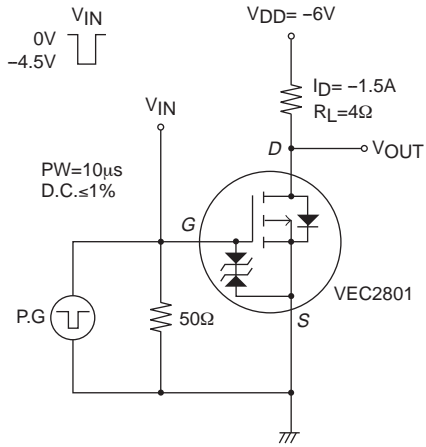
- 1 : Anode
- 2 : No Contact
- 3 : Source
- 4 : Gate
- 5 : Drain
- 6 : Drain
- 7 : Cathode
- 8 : Cathode

Top view

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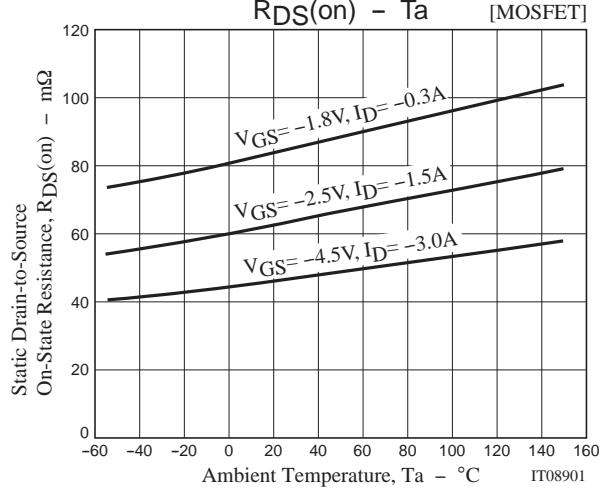
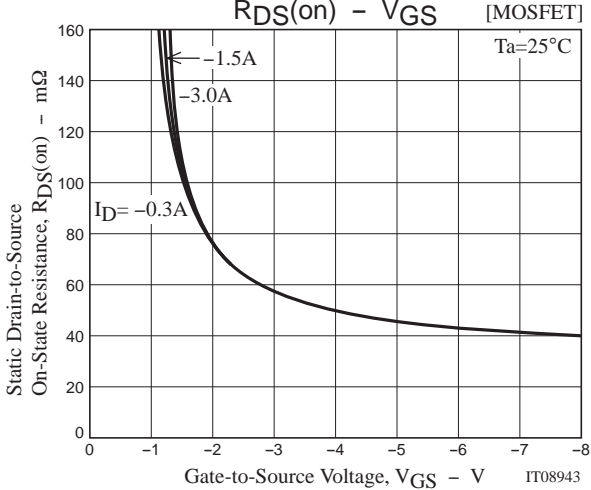
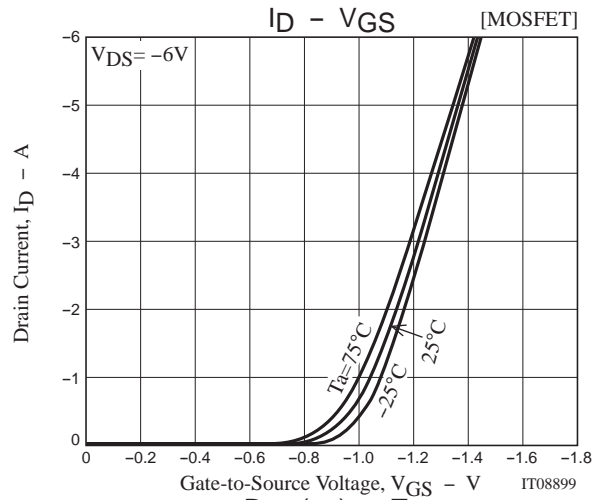
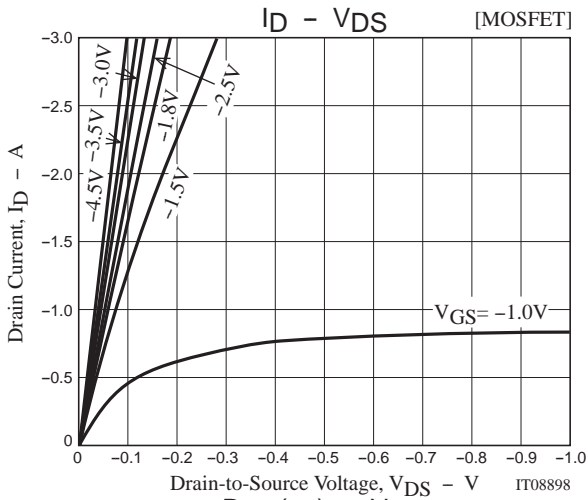
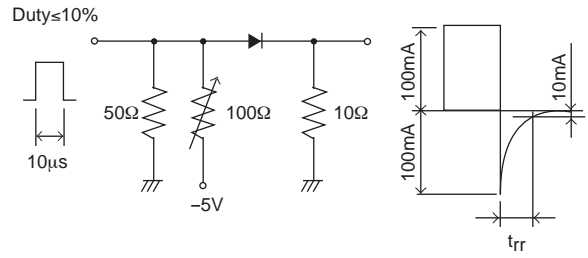
Switching Time Test Circuit

[MOSFET]

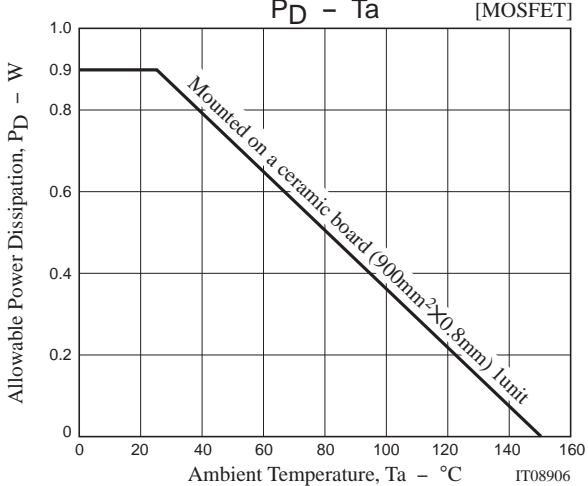
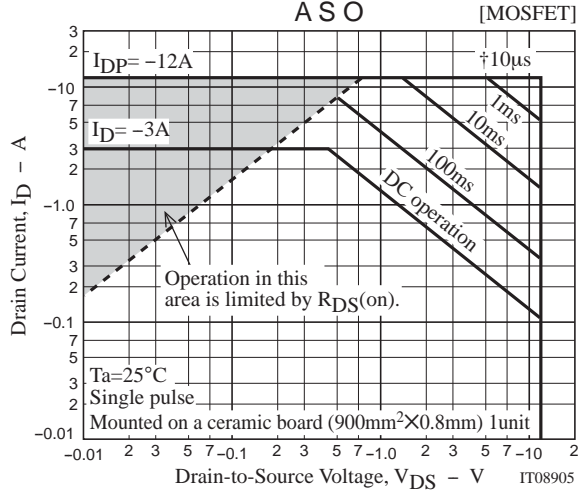
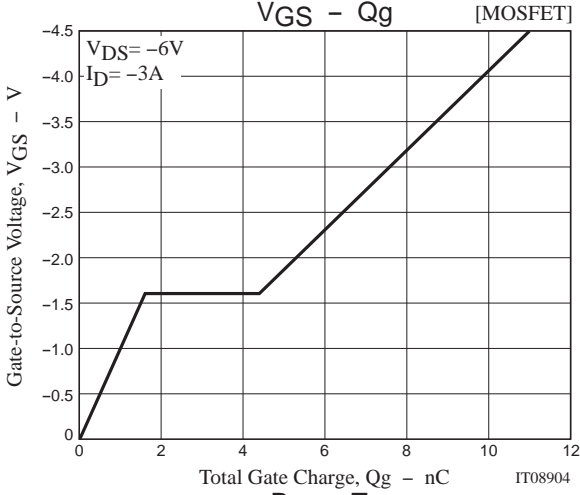
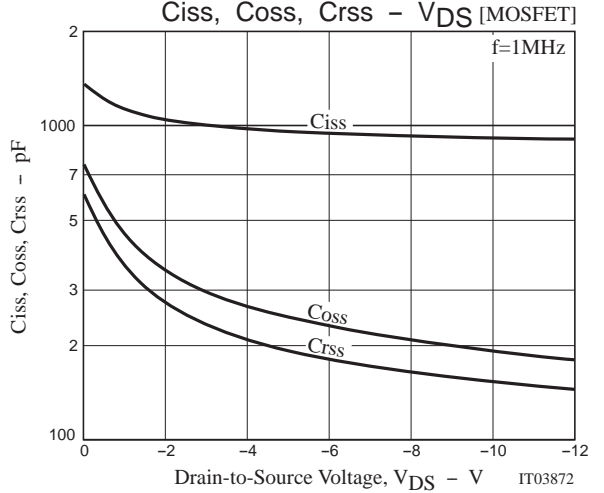
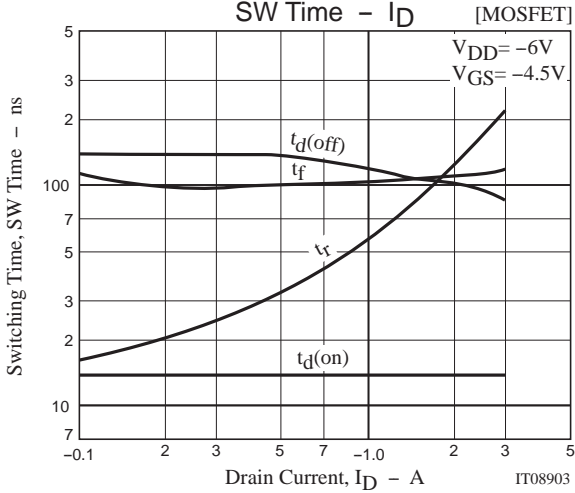
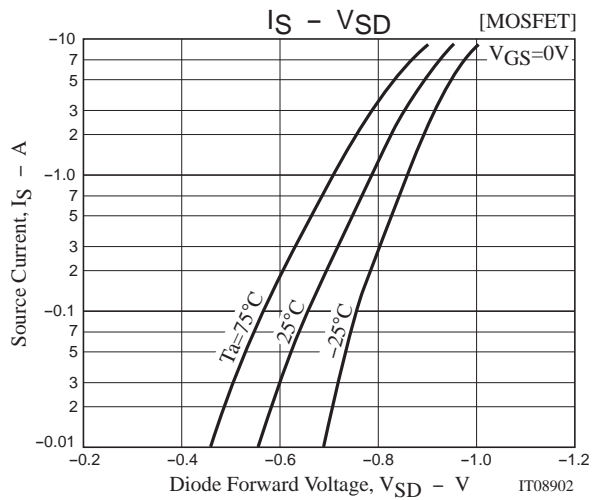
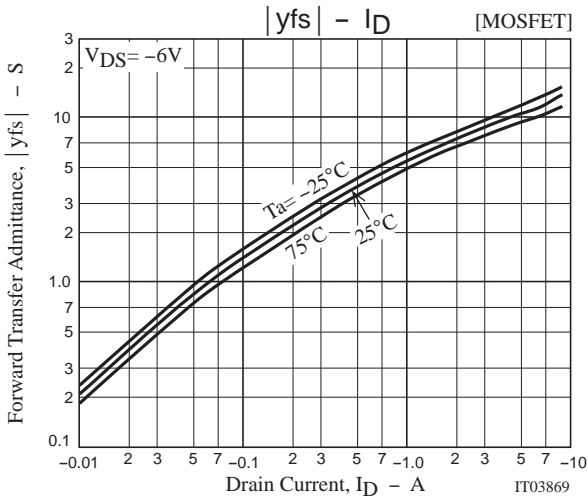


t_{rr} Test Circuit

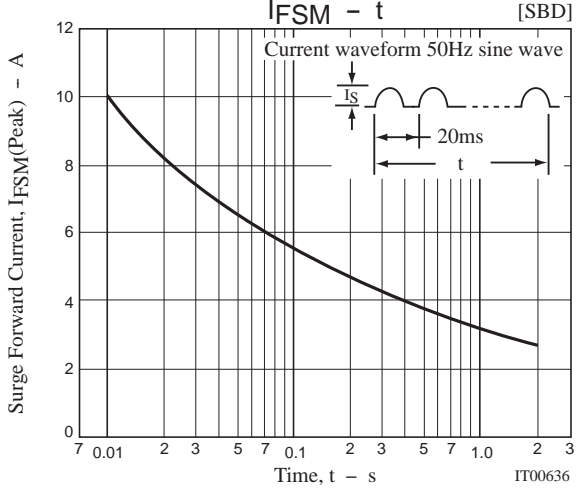
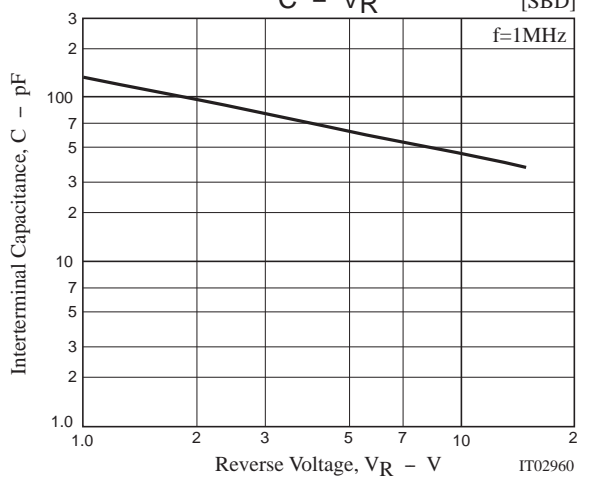
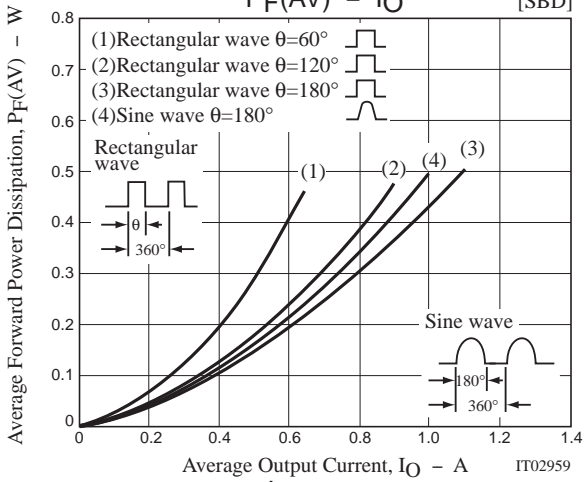
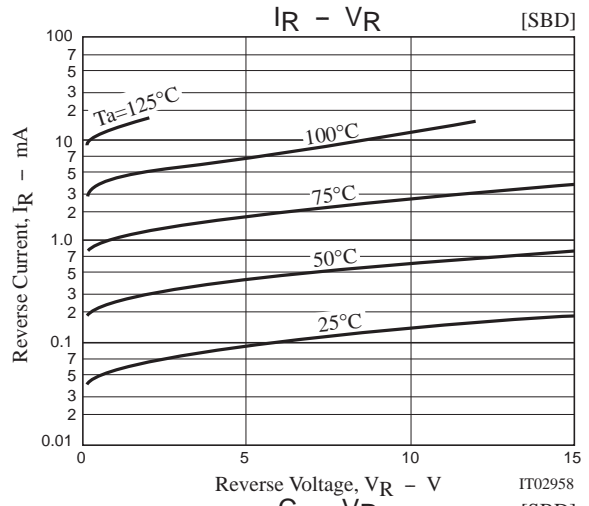
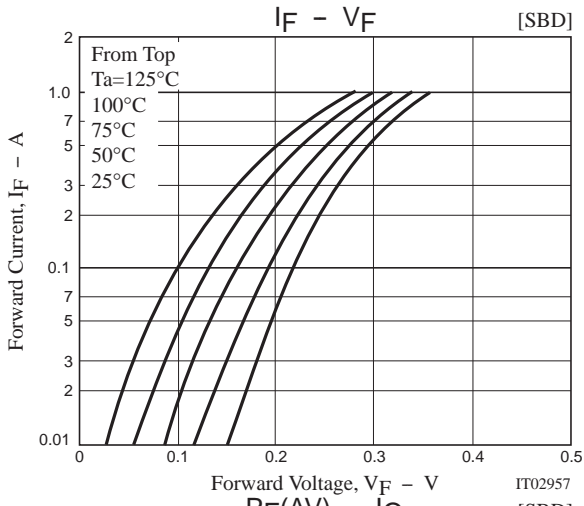
[SBD]



VEC2801



VEC2801



Note on usage : Since the VEC2801 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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