



SANYO Semiconductors

# DATA SHEET

## VEC2818

MOSFET : P-Channel Silicon MOSFET

SBD : Schottky Barrier Diode

## General-Purpose Switching Device Applications

### Features

- 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
- Ultrahigh-speed switching.
- 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 <sub>DSS</sub>		-20	V
Gate-to-Source Voltage	V <sub>GSS</sub>		±10	V
Drain Current (DC)	I <sub>D</sub>		-3.5	A
Drain Current (Pulse)	I <sub>DP</sub>	PW≤10μs, duty cycle≤1%	-14	A
Allowable Power Dissipation	P <sub>D</sub>	Mounted on a ceramic board (1200mm <sup>2</sup> ×0.8mm) 1unit	1.0	W
Channel Temperature	T <sub>ch</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +125	°C
[SBD]				
Repetitive Peak Reverse Voltage	V <sub>R</sub> RM		30	V
Nonrepetitive Peak Reverse Surge Voltage	V <sub>R</sub> SM		30	V
Average Output Current	I <sub>O</sub>		2	A
Surge Forward Current	I <sub>FSM</sub>	50Hz sine wave, 1 cycle	5	A
Junction Temperature	T <sub>J</sub>		-55 to +125	°C
Storage Temperature	T <sub>stg</sub>		-55 to +125	°C

Marking : CQ

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**SANYO Semiconductor Co., Ltd.**

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# VEC2818

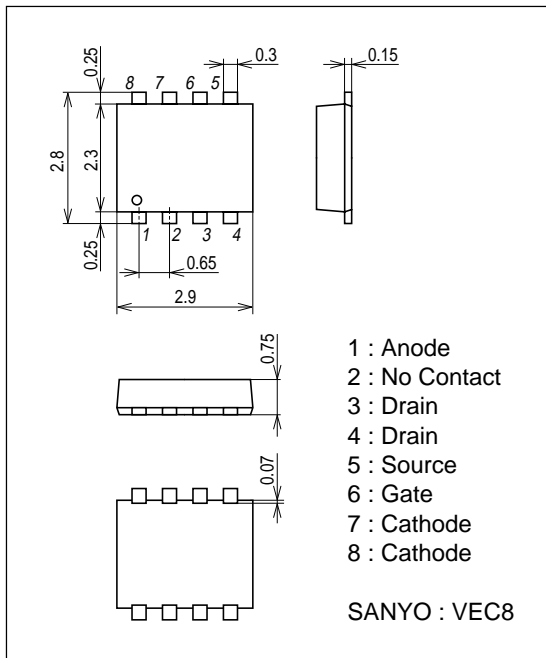
## Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[MOSFET]						
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=-1mA, V_{GS}=0V$	-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		-1.4	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=-10V, I_D=-2A$	3.5	5.8		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=-2A, V_{GS}=-4.5V$		55	72	$m\Omega$
	$R_{DS(on)2}$	$I_D=-1A, V_{GS}=-2.5V$		77	108	$m\Omega$
	$R_{DS(on)3}$	$I_D=-0.3A, V_{GS}=-1.8V$		112	168	$m\Omega$
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.		12		ns
Rise Time	$t_r$	See specified Test Circuit.		57		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		68		ns
Fall Time	$t_f$	See specified Test Circuit.		58		ns
Total Gate Charge	$Q_g$	$V_{DS}=-10V, V_{GS}=-4.5V, I_D=-3.5A$		8.7		nC
Gate-to-Source Charge	$Q_{gs}$	$V_{DS}=-10V, V_{GS}=-4.5V, I_D=-3.5A$		1.5		nC
Gate-to-Drain "Miller" Charge	$Q_{gd}$	$V_{DS}=-10V, V_{GS}=-4.5V, I_D=-3.5A$		1.8		nC
Diode Forward Voltage	$V_{SD}$	$I_S=-3.5A, V_{GS}=0V$		-0.83	-1.2	V
[SBD]						
Reverse Voltage	$V_R$	$I_R=2mA$	30			V
Forward Voltage	$V_F$	$I_F=2A$		0.4	0.45	V
Reverse Current	$I_R$	$V_R=15V$			1.25	mA
Interterminal Capacitance	$C$	$V_R=10V, f=1MHz$		75		pF
Reverse Recovery Time	$t_{rr}$	$I_F=I_R=100mA$ , See specified Test Circuit.			20	ns

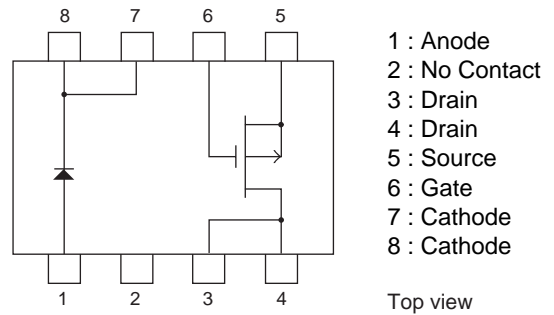
## Package Dimensions

unit : mm (typ)

7012-005



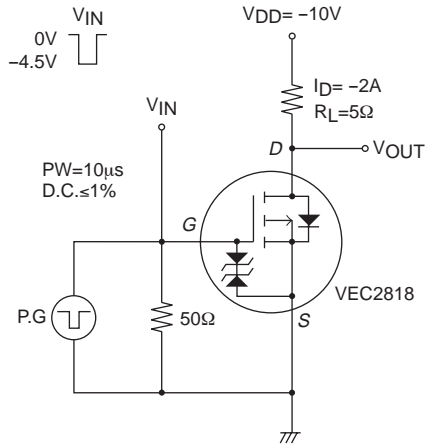
## Electrical Connection



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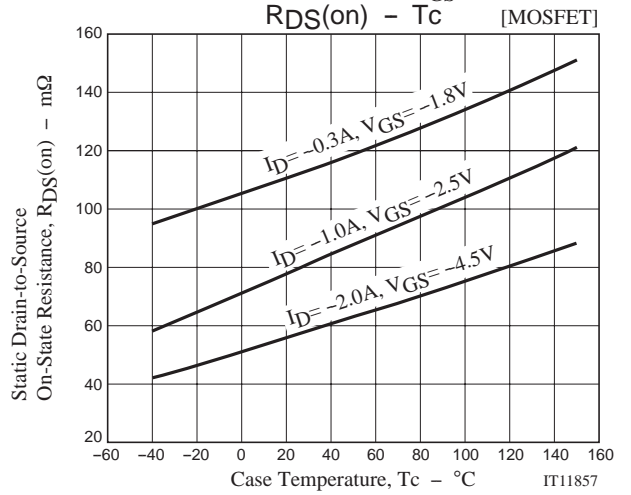
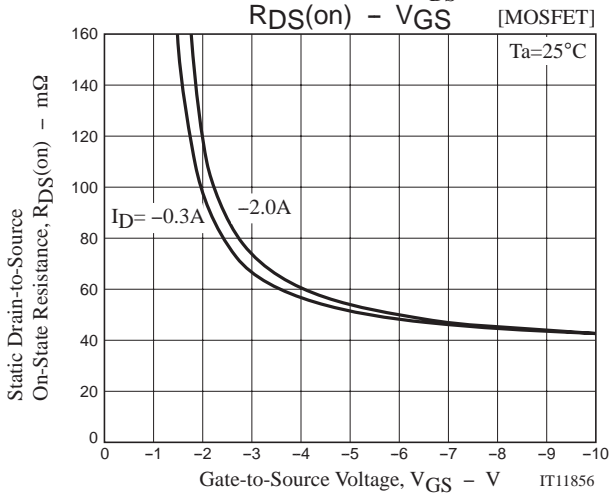
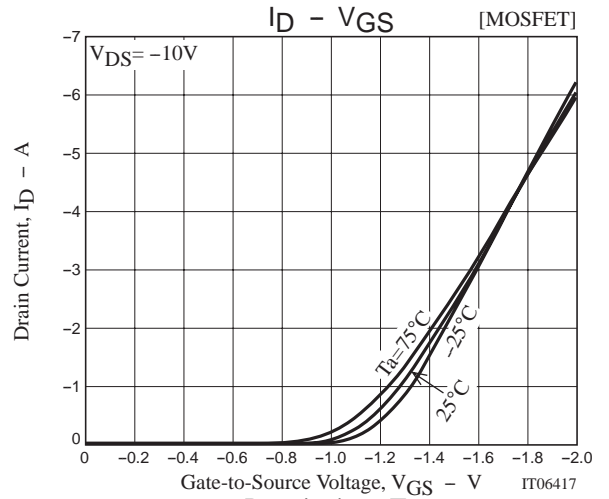
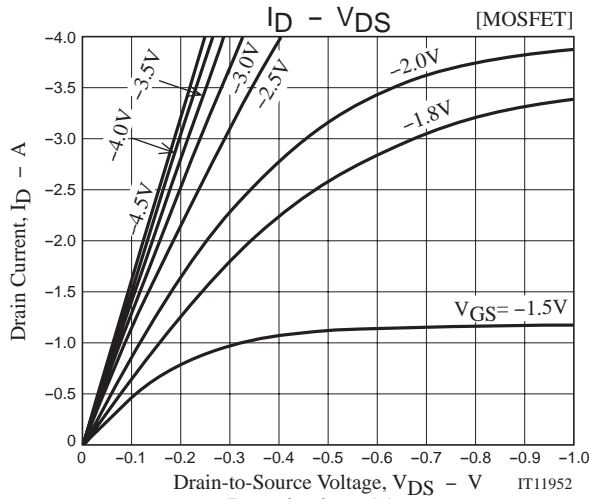
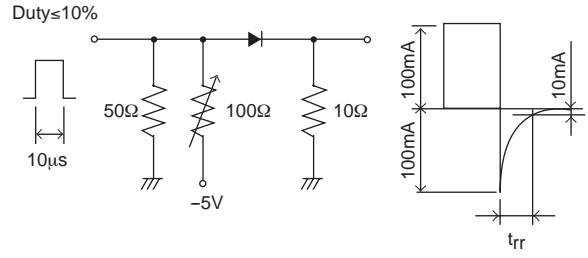
## Switching Time Test Circuit

[MOSFET]

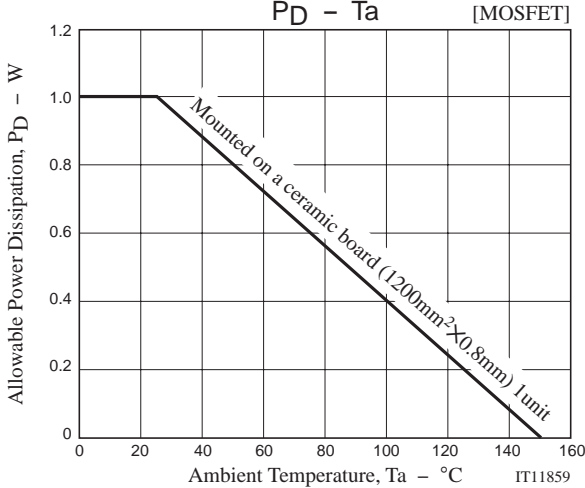
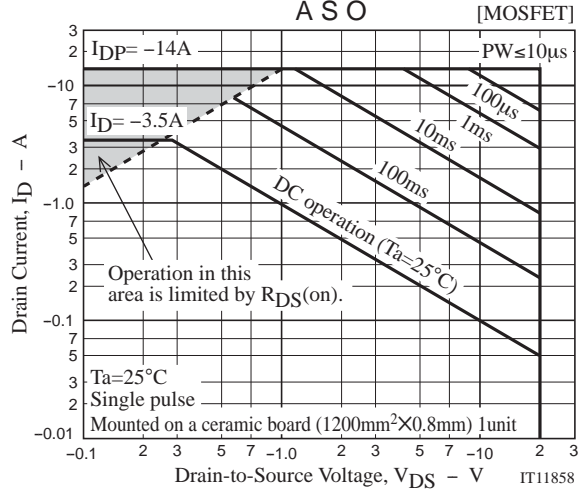
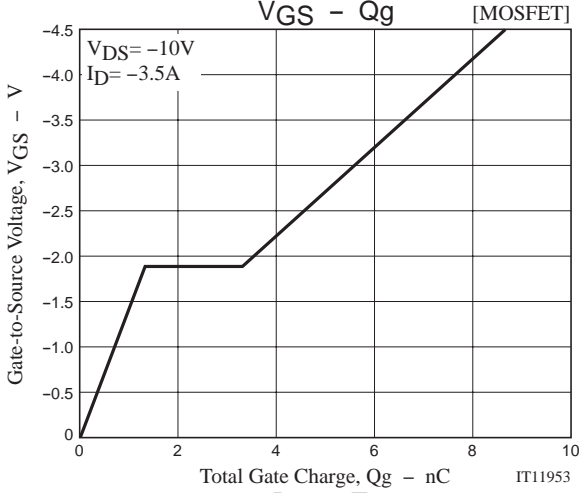
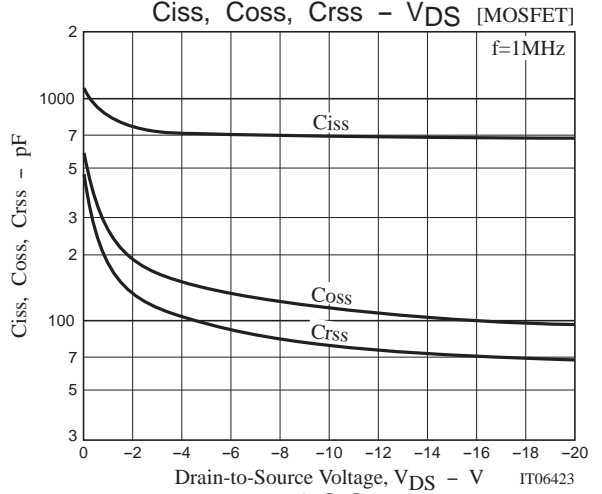
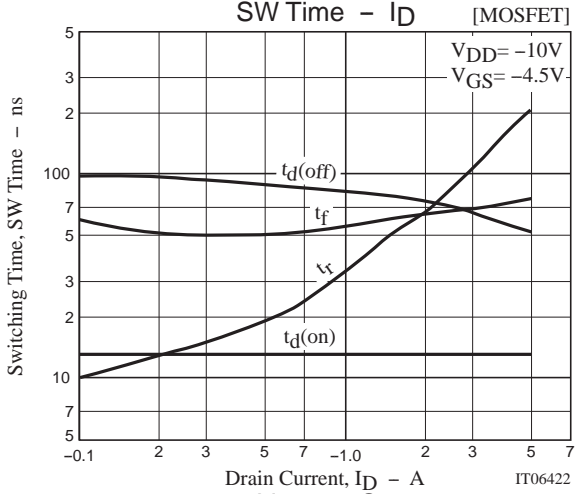
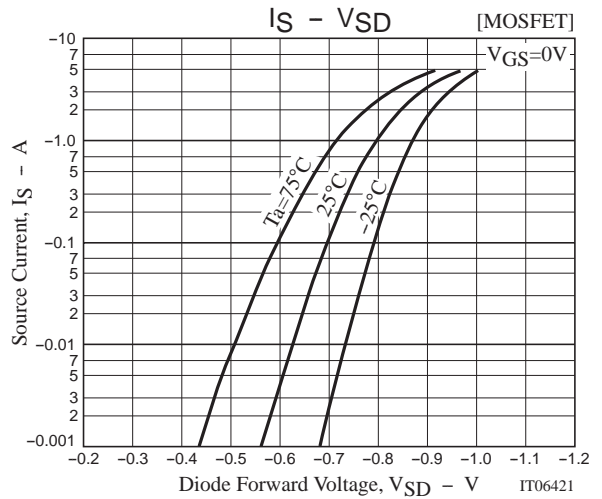
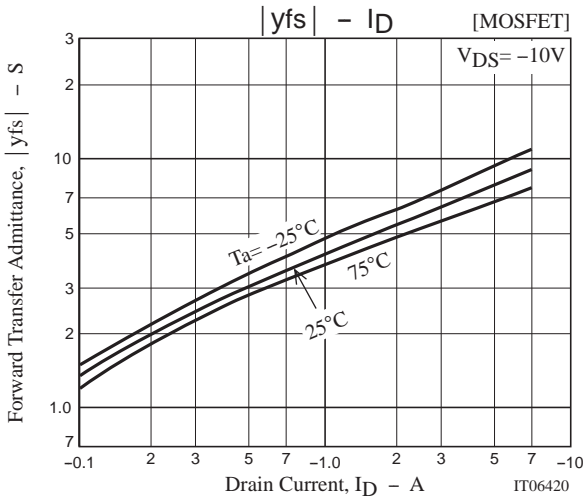


## $t_{rr}$ Test Circuit

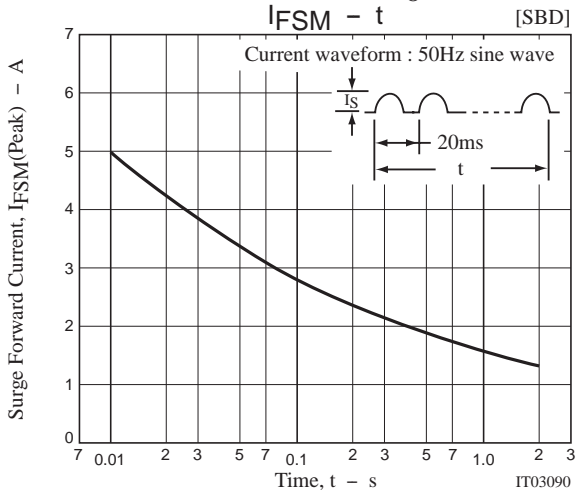
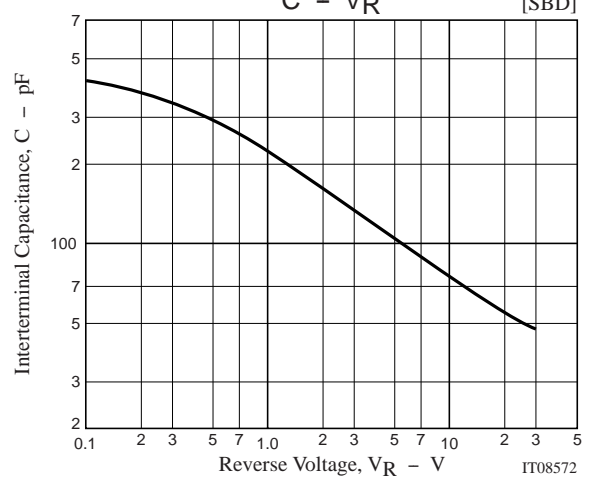
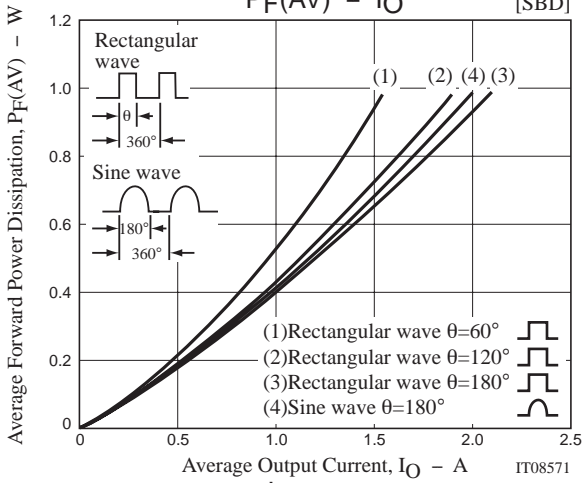
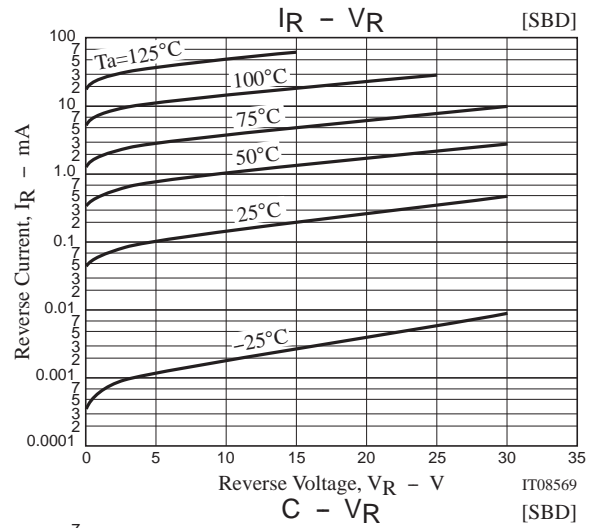
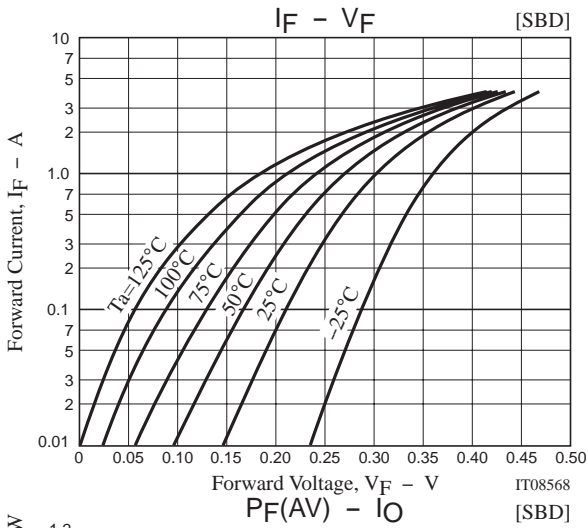
[SBD]



# VEC2818



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Note on usage : Since the VEC2818 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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