



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 _{DSS}		-20	V
Gate-to-Source Voltage	V _{GSS}		±10	V
Drain Current (DC)	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 (1200mm ² ×0.8mm) 1unit	1.0	W
Channel Temperature	T _{ch}		150	°C
Storage Temperature	T _{stg}		-55 to +125	°C
[SBD]				
Repetitive Peak Reverse Voltage	V _{RRM}		30	V
Nonrepetitive Peak Reverse Surge Voltage	V _{RSM}		30	V
Average Output Current	I _O		2	A
Surge Forward Current	I _{FSM}	50Hz sine wave, 1 cycle	5	A
Junction Temperature	T _J		-55 to +125	°C
Storage Temperature	T _{stg}		-55 to +125	°C

Marking : CQ

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VEC2818

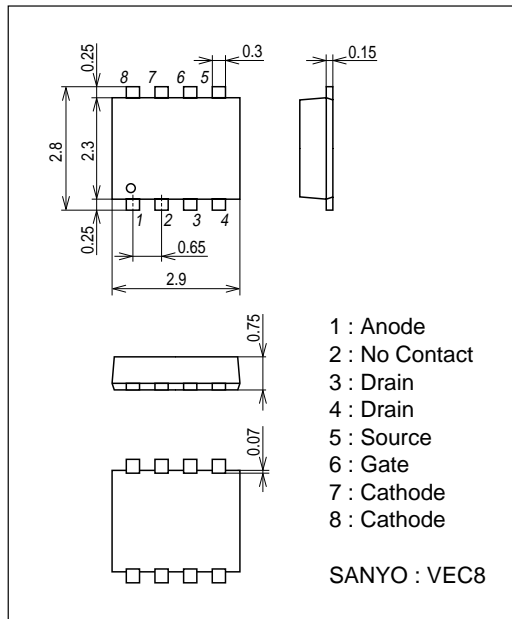
Electrical Characteristics at Ta=25°C

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	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 8V, V_{DS}=0V$			± 10	μA
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

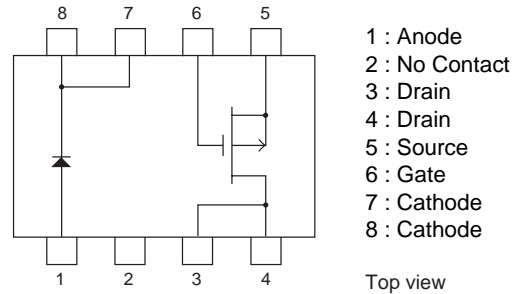
Package Dimensions

unit : mm (typ)

7012-005



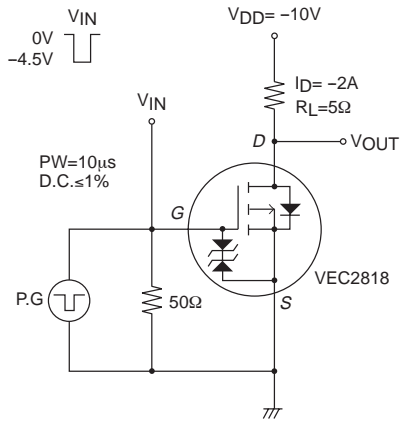
Electrical Connection



VEC2818

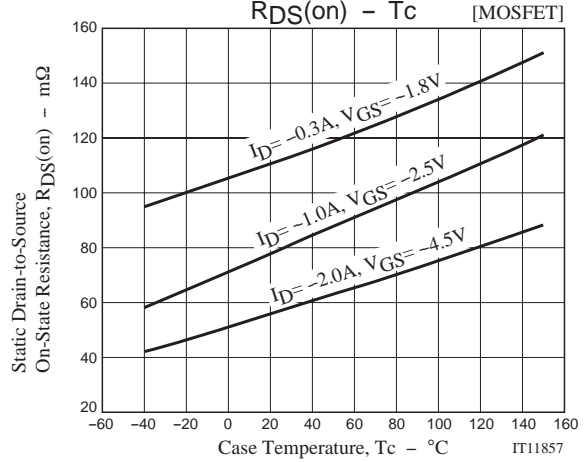
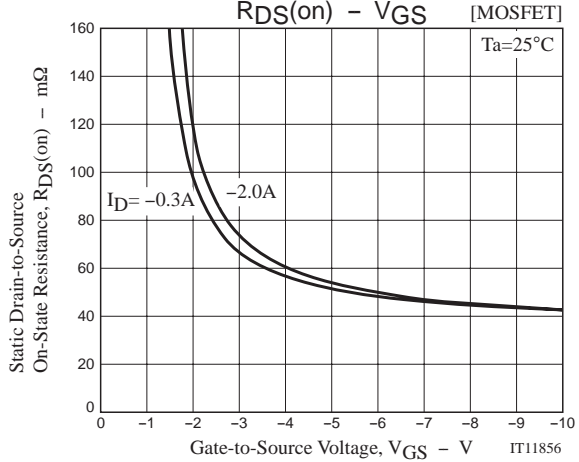
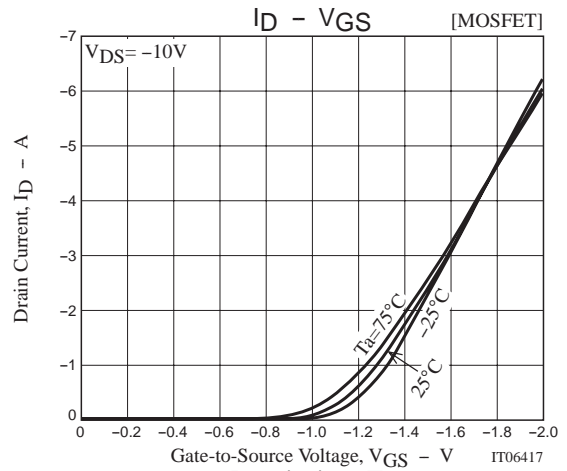
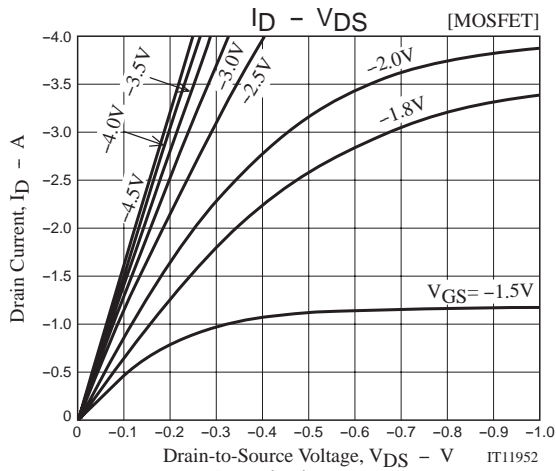
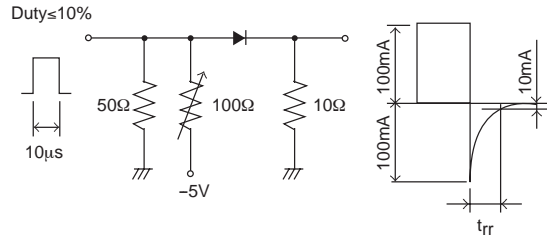
Switching Time Test Circuit

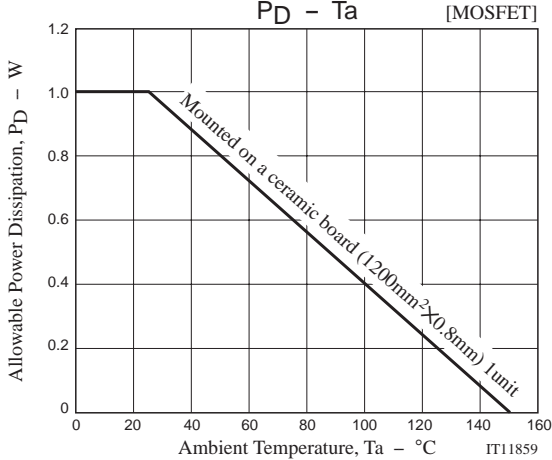
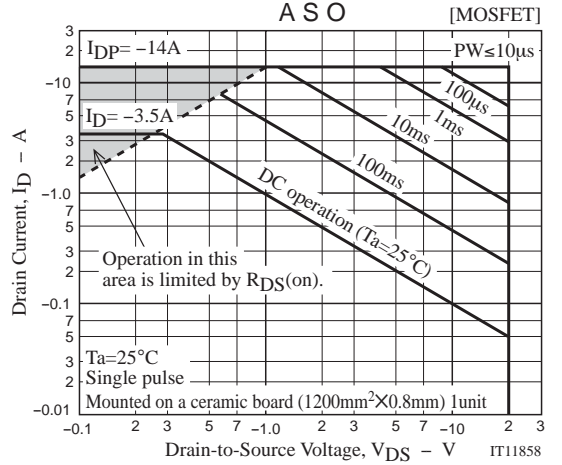
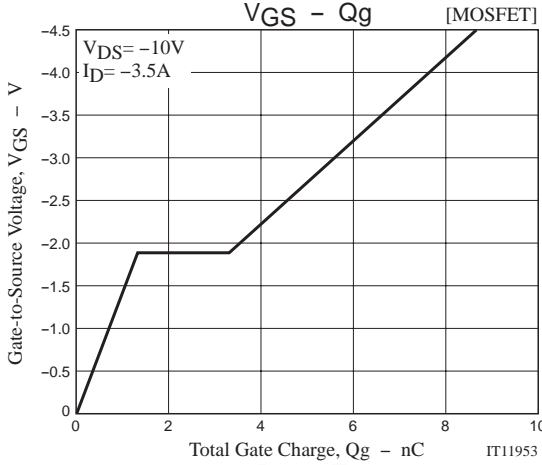
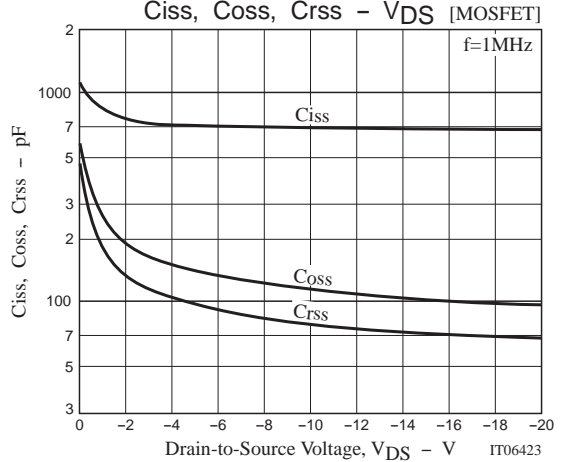
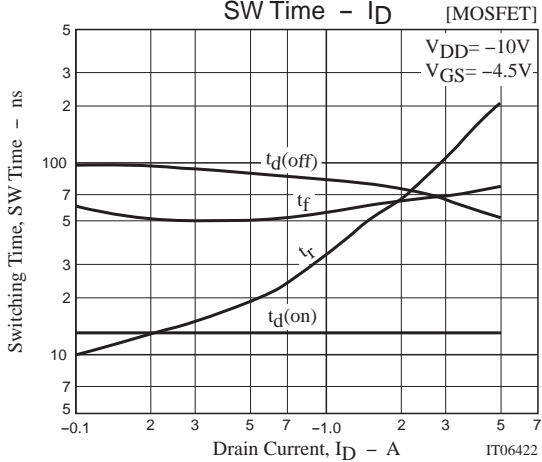
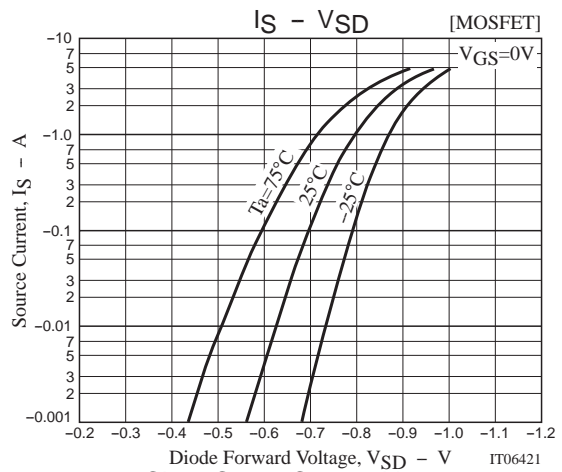
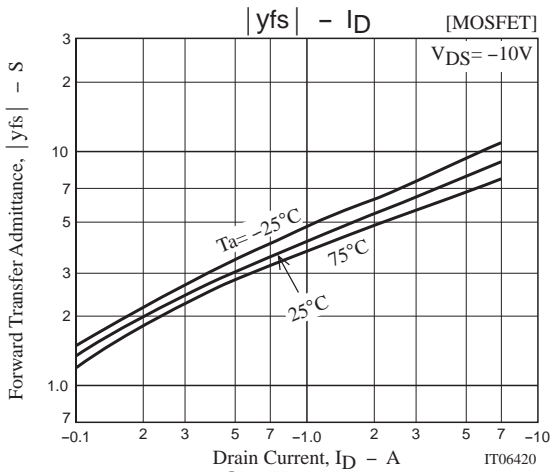
[MOSFET]

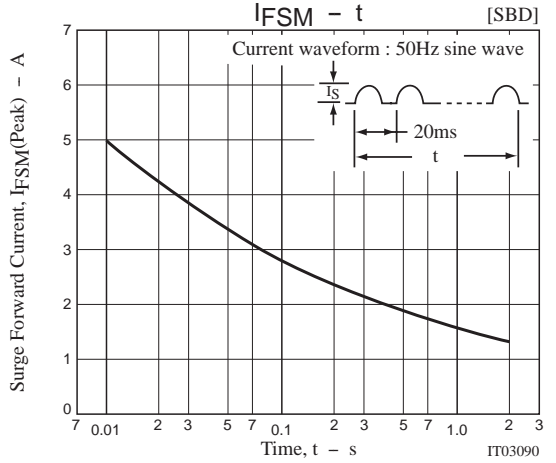
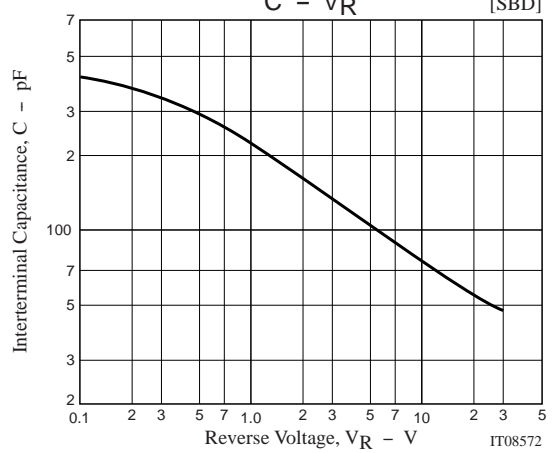
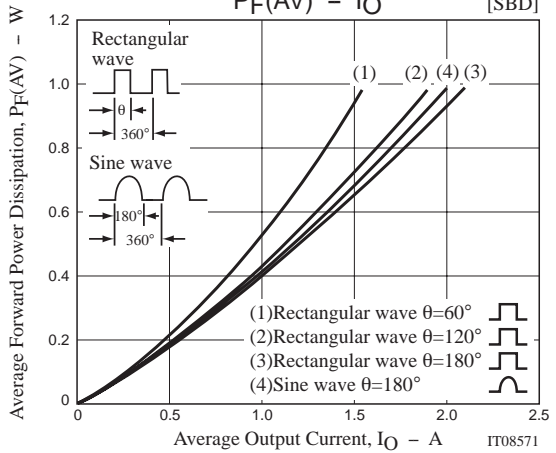
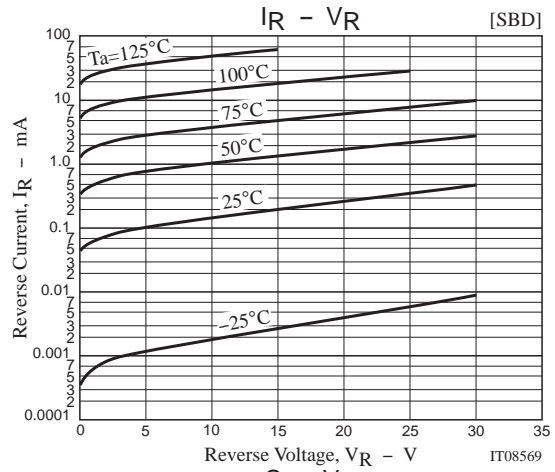
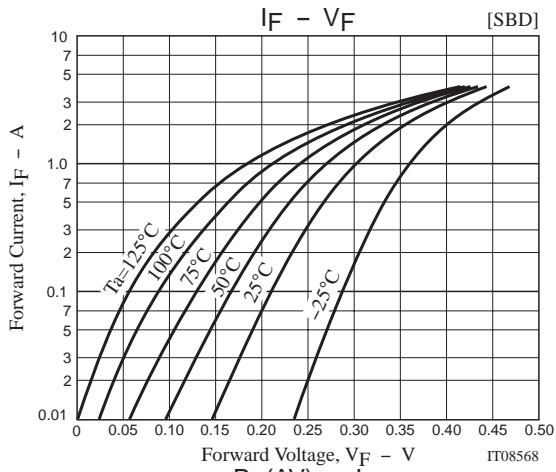


t_{rr} Test Circuit

[SBD]







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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