



SANYO Semiconductors

DATA SHEET

P-Channel Silicon MOSFET

VEC2303 — General-Purpose Switching Device Applications

Features

- Best suited for load switches.
- 1.8V drive.
- Composite type, facilitating high-density mounting.
- Mounting height 0.75mm.

Specifications

Absolute Maximum Ratings at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings		Unit
Drain-to-Source Voltage	V_{DSS}			-12	V
Gate-to-Source Voltage	V_{GSS}			± 8	V
Drain Current (DC)	I_D			-4	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu\text{s}$, duty cycle $\leq 1\%$		-16	A
Allowable Power Dissipation	P_D	Mounted on a ceramic board (900mm 2 × 0.8mm) 1unit		0.9	W
Total Dissipation	P_T	Mounted on a ceramic board (900mm 2 × 0.8mm)		1.0	W
Channel Temperature	T_{ch}			150	$^\circ\text{C}$
Storage Temperature	T_{stg}			-55 to +150	$^\circ\text{C}$

Electrical Characteristics at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = -1\text{mA}$, $V_{GS} = 0$	-12			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -12\text{V}$, $V_{GS} = 0$			-10	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS} = \pm 6.4\text{V}$, $V_{DS} = 0$			± 10	μA
Cutoff Voltage	$V_{GS(\text{off})}$	$V_{DS} = -6\text{V}$, $I_D = -1\text{mA}$	-0.3		-1.0	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS} = -6\text{V}$, $I_D = -2\text{A}$	4.5	7.6		S
Static Drain-to-Source On-State Resistance	$R_{DS(\text{on})1}$	$I_D = -2\text{A}$, $V_{GS} = -4.5\text{V}$		37	49	$\text{m}\Omega$
	$R_{DS(\text{on})2}$	$I_D = -1\text{A}$, $V_{GS} = -2.5\text{V}$		54	75	$\text{m}\Omega$
	$R_{DS(\text{on})3}$	$I_D = -0.3\text{A}$, $V_{GS} = -1.8\text{V}$		76	107	$\text{m}\Omega$
Input Capacitance	C_{iss}	$V_{DS} = -6\text{V}$, $f = 1\text{MHz}$		940		pF
Output Capacitance	C_{oss}	$V_{DS} = -6\text{V}$, $f = 1\text{MHz}$		230		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS} = -6\text{V}$, $f = 1\text{MHz}$		180		pF

Marking : BC

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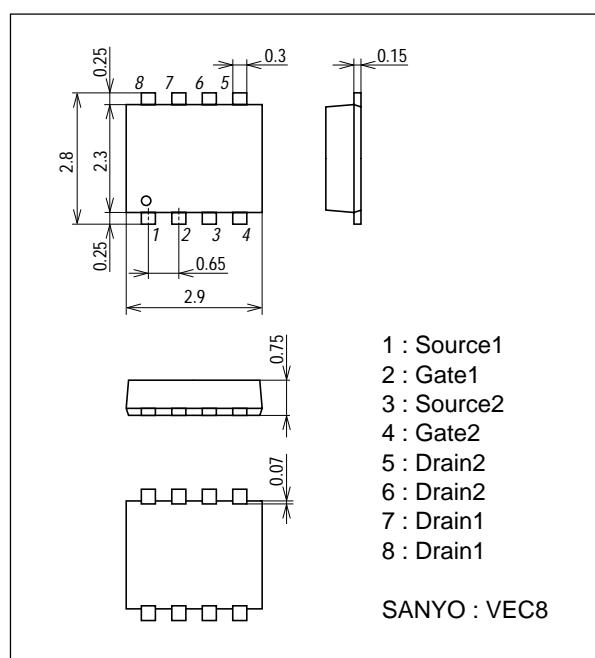
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		14		ns
Rise Time	t_r	See specified Test Circuit.		120		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		97		ns
Fall Time	t_f	See specified Test Circuit.		110		ns
Total Gate Charge	Q_g	$V_{DS}=-6V, V_{GS}=-4.5V, I_D=-4A$		11		nC
Gate-to-Source Charge	Q_{gs}	$V_{DS}=-6V, V_{GS}=-4.5V, I_D=-4A$		1.6		nC
Gate-to-Drain "Miller" Charge	Q_{gd}	$V_{DS}=-6V, V_{GS}=-4.5V, I_D=-4A$		2.8		nC
Diode Forward Voltage	V_{SD}	$I_S=-4A, V_{GS}=0$		-0.85	-1.5	V

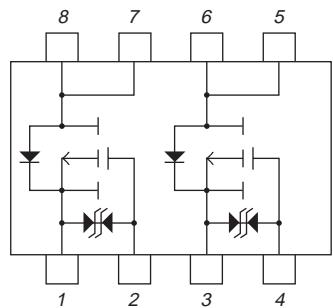
Package Dimensions

unit : mm

2227A



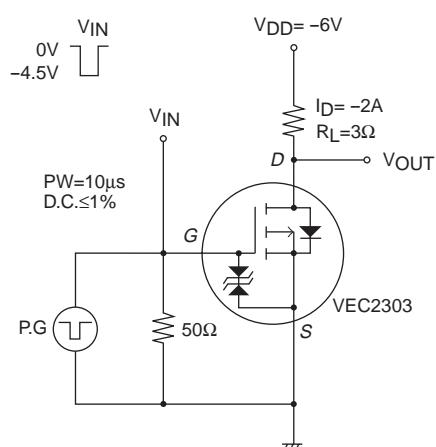
Electrical Connection

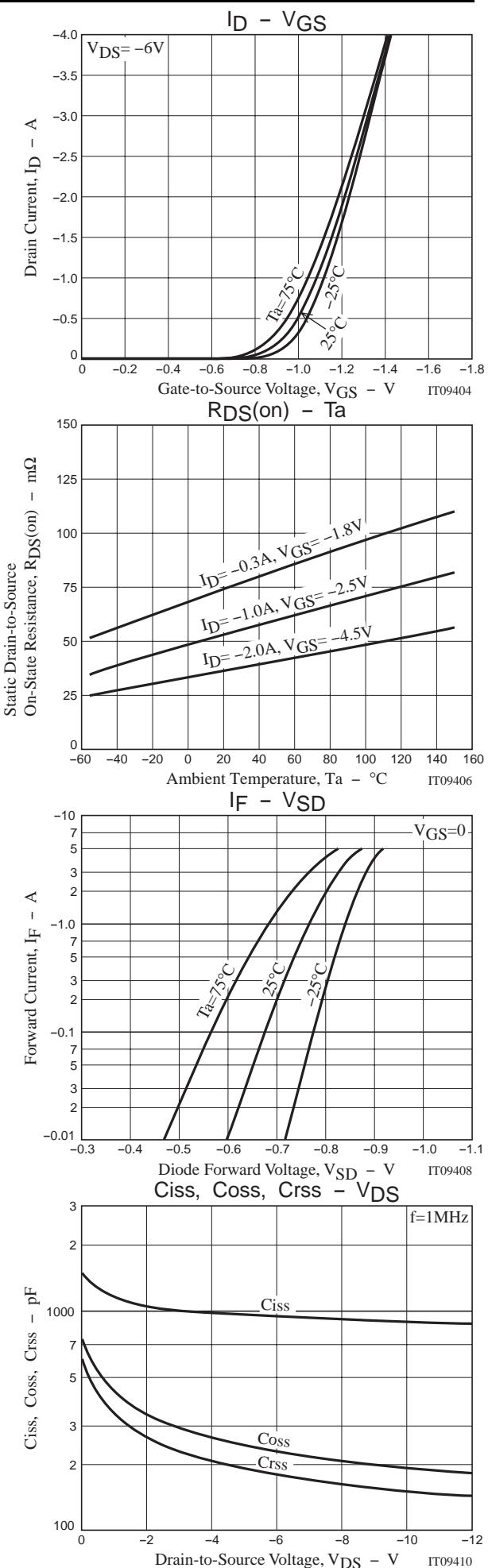
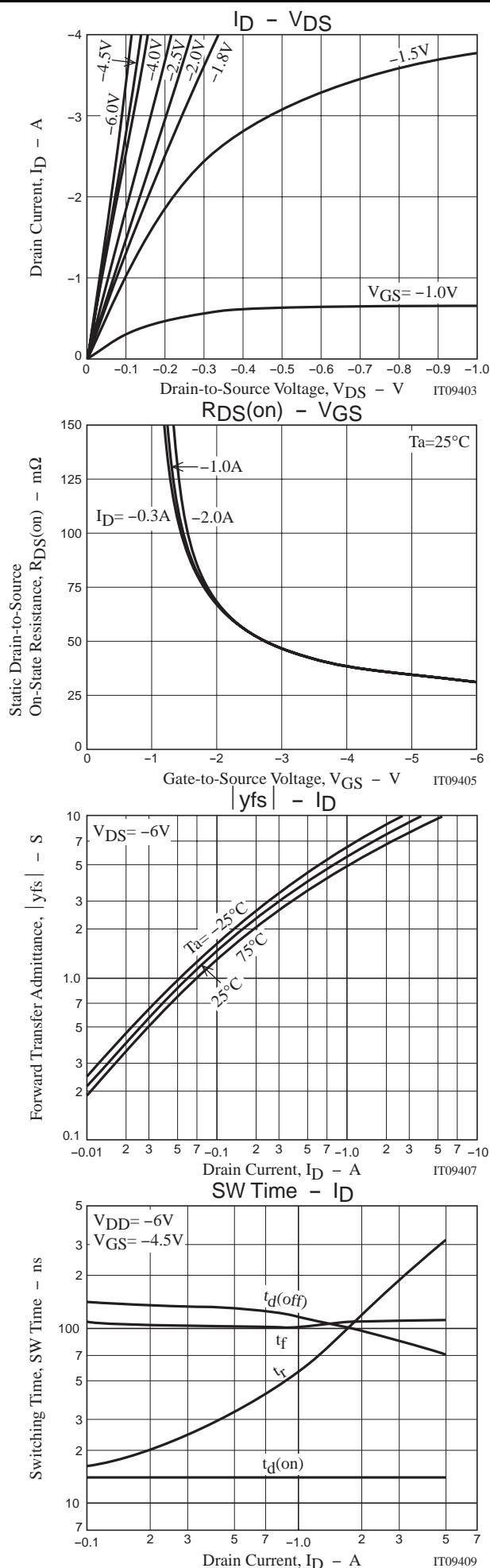


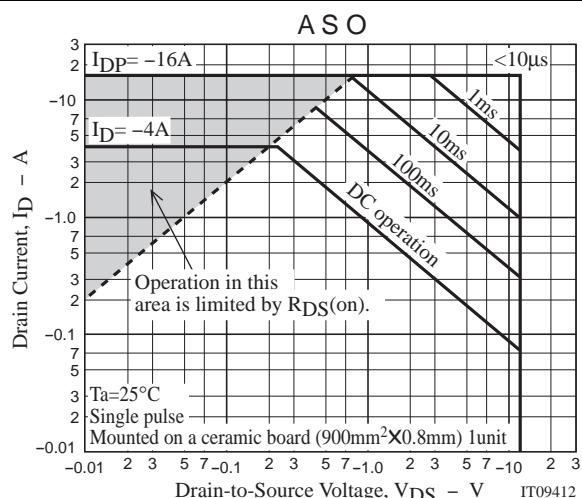
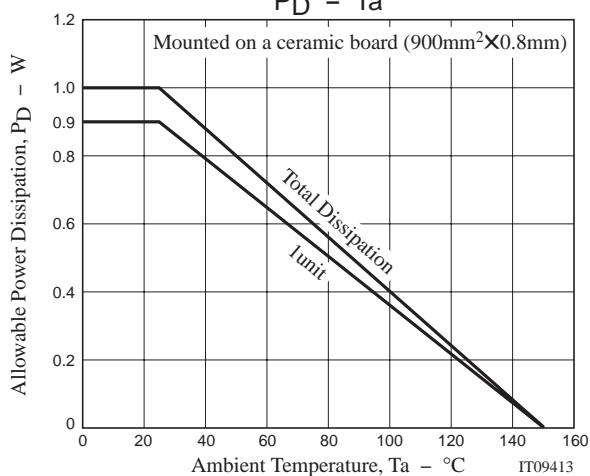
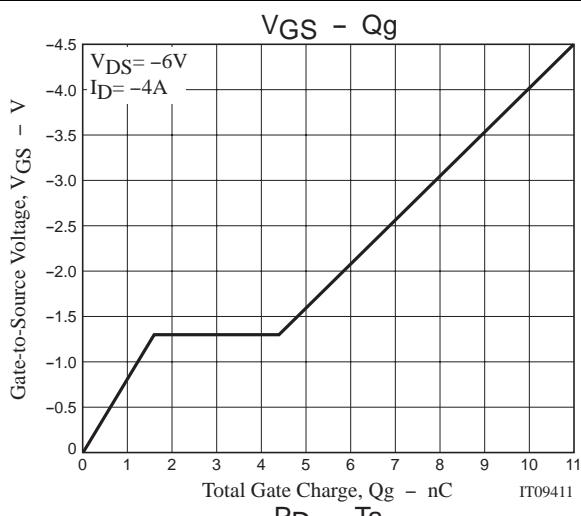
1 : Source1
 2 : Gate1
 3 : Source2
 4 : Gate2
 5 : Drain2
 6 : Drain2
 7 : Drain1
 8 : Drain1

Top view

Switching Time Test Circuit







Note on usage : Since the VEC2303 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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