Ordering number : ENA0113

SANYO Semiconductors
DATA SHEET

P-Channel Silicon MOSFET

VEC2307 — General-Purpose Switching Device Applications

Features

- The best suited for load switches.
- 4V drive.
- Composite type, facilitaing high-density mounting.
- Mount height 0.75mm.

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		-30	V
Gate-to-Source Voltage	V_{GSS}		±20	V
Drain Current (DC)	I_D		-2	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	-8	A
Allowable Power Dissipation	P_D	Mounted on a ceramic board (900mm²×0.8mm)1unit	0.9	W
Total Dissipation	P_T	Mounted on a ceramic board (900mm²×0.8mm)	1.0	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		-55 to +150	°C

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=-1mA, V_{GS}=0V	-30			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=-30V, V_{GS}=0V			-1	μA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±16V, V_{DS}=0V			±10	μA
Cutoff Voltage	V_{GS}(off)	V_{DS}=-10V, I_D=-1mA	-1.2		-2.6	V
Forward Transfer Admittance	$\|yfs\|$	V_{DS}=-10V, I_D=-1A	1.2	2.0		S
Static Drain-to-Source On-State Resistance	R_{DS}(on)1	I_D=-1A, V_{GS}=-10V		130	170	mΩ
	R_{DS}(on)2	I_D=-0.5A, V_{GS}=-4V		225	320	mΩ
Input Capacitance	Ciss	V_{DS}=-10V, f=1MHz		200		pF
Output Capacitance	Coss	V_{DS}=-10V, f=1MHz		47		pF
Reverse Transfer Capacitance	Crss	V_{DS}=-10V, f=1MHz		32		pF

Marking : CH

Continued on next page.

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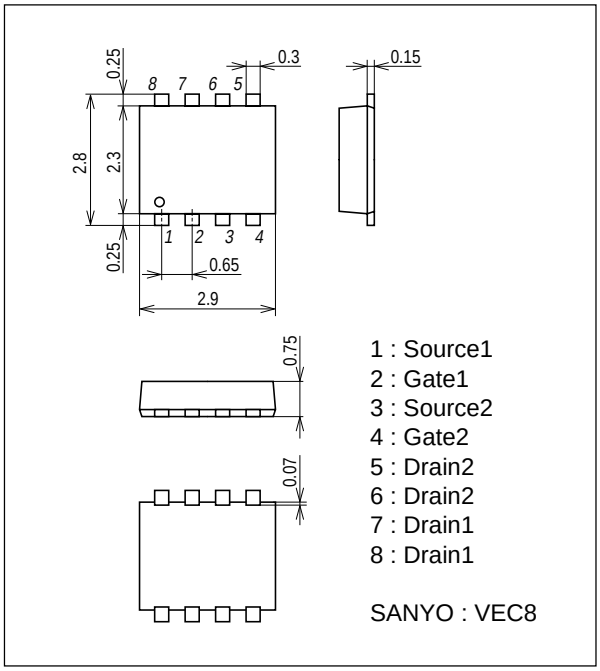
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		7.2		ns
Rise Time	t_r	See specified Test Circuit.		2.9		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		21		ns
Fall Time	t_f	See specified Test Circuit.		8.7		ns
Total Gate Charge	Qg	V_{DS}=–10V, V_{GS}=–10V, I_D=–2A		5.5		nC
Gate-to-Source Charge	Qgs	V_{DS}=–10V, V_{GS}=–10V, I_D=–2A		0.98		nC
Gate-to-Drain “Miller” Charge	Qgd	V_{DS}=–10V, V_{GS}=–10V, I_D=–2A		0.82		nC
Diode Forward Voltage	V_{SD}	I_S=–2A, V_{GS}=0V		–0.85	–1.5	V

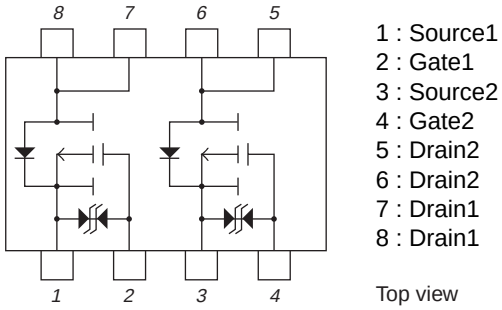
Package Dimensions

unit : mm

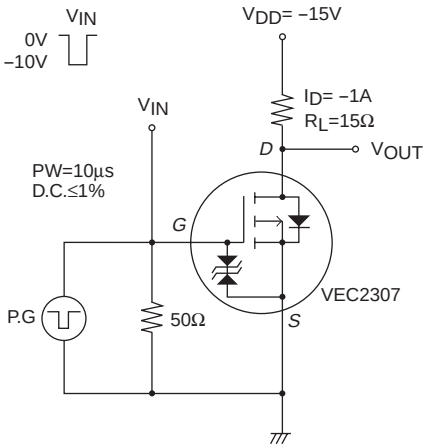
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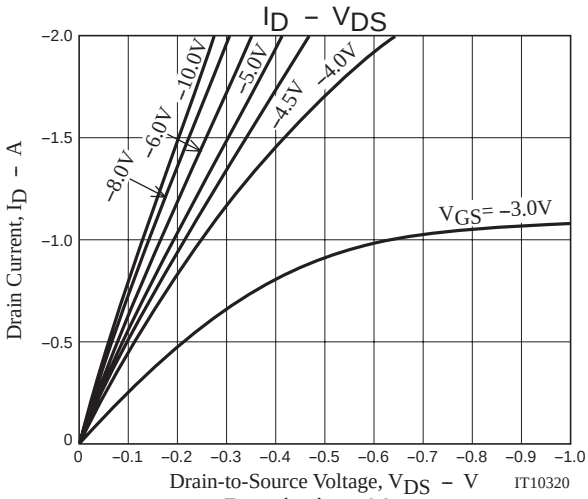


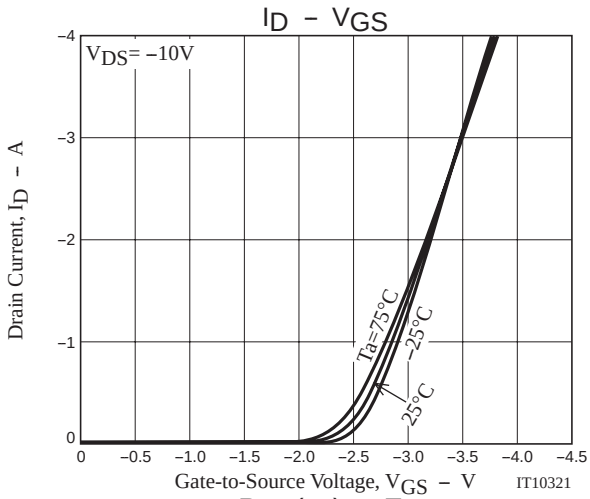
Electrical Connection

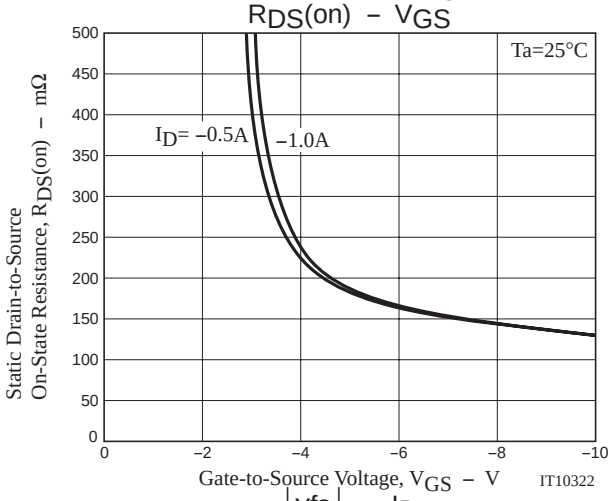


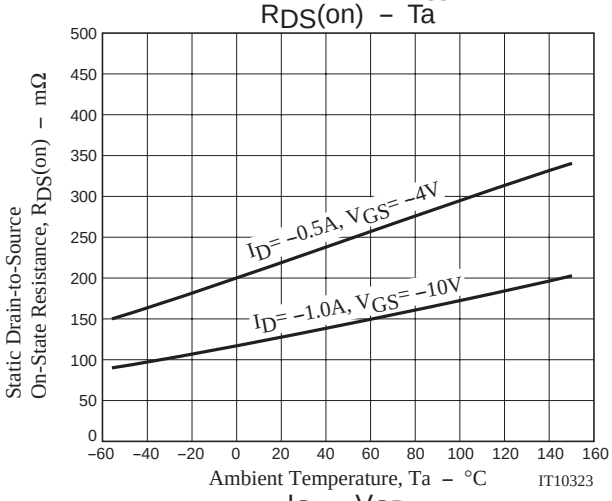
Switching Time Test Circuit

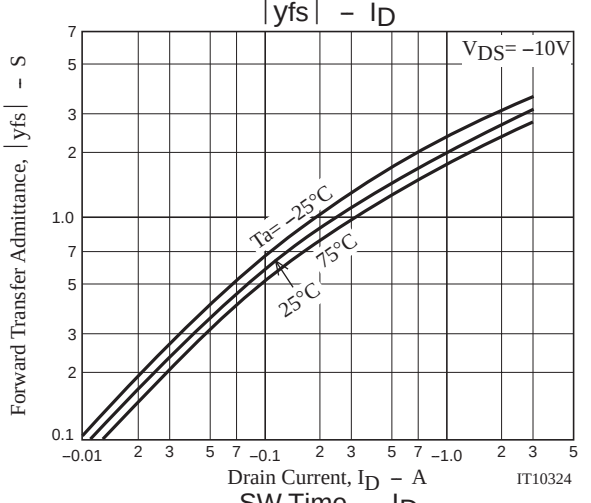


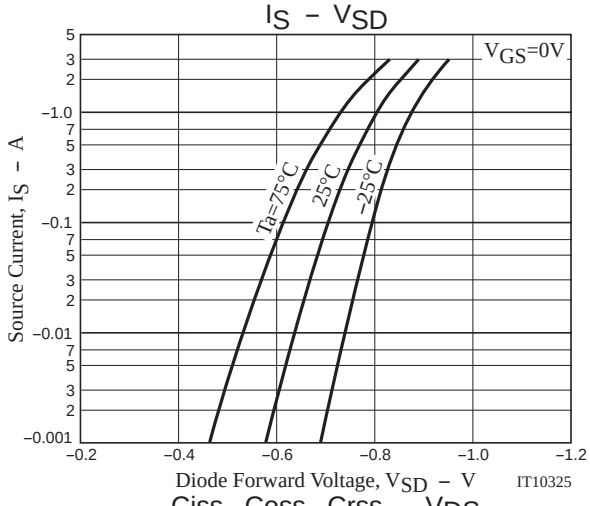

I_D – V_{DS}
Drain Current, I_D – A
Drain-to-Source Voltage, V_{DS} – V
IT10320
–8.0V
–6.0V
–10.0V
–5.0V
–4.5V
–4.0V
V_{GS}= –3.0V

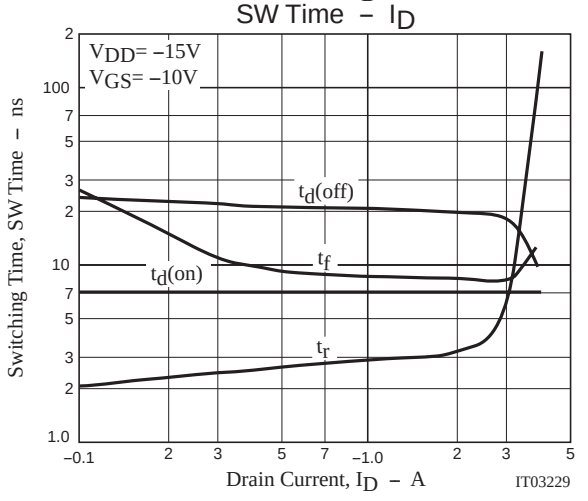

I_D – V_{GS}
V_{DS}= –10V
Drain Current, I_D – A
Gate-to-Source Voltage, V_{GS} – V
IT10321
Ta=75°C
–25°C
25°C

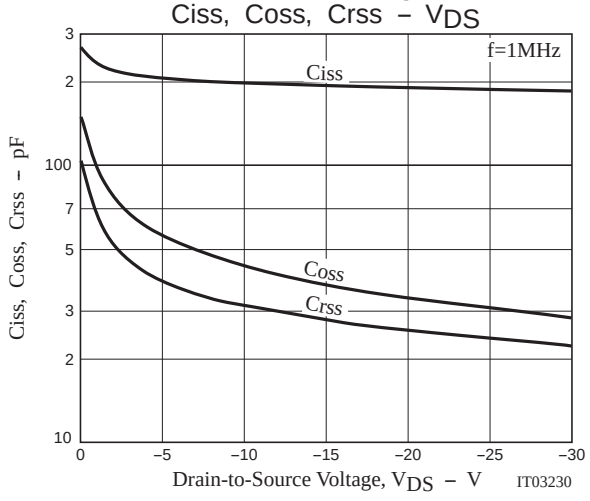

R_{DS}(on) – V_{GS}
Ta=25°C
I_D= –0.5A
–1.0A
Static Drain-to-Source On-State Resistance, R_{DS}(on) – mΩ
Gate-to-Source Voltage, V_{GS} – V
IT10322

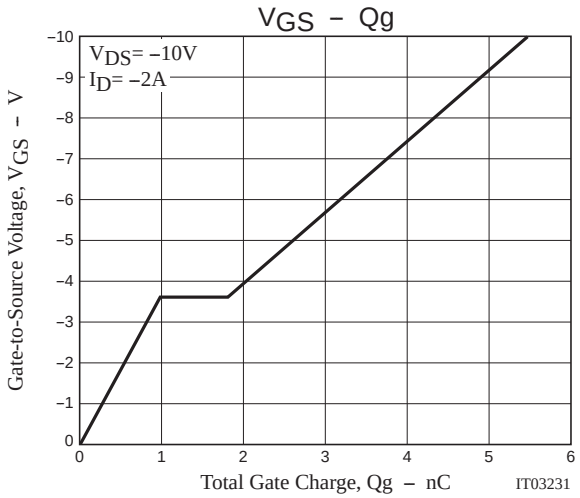

R_{DS}(on) – Ta
I_D= –0.5A, V_{GS}= –4V
I_D= –1.0A, V_{GS}= –10V
Static Drain-to-Source On-State Resistance, R_{DS}(on) – mΩ
Ambient Temperature, Ta – °C
IT10323

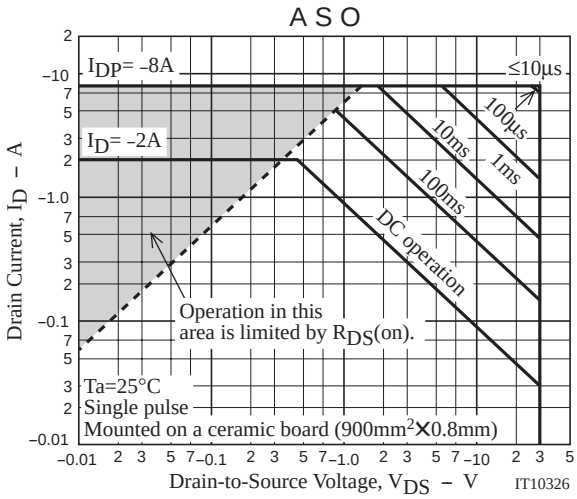

|yfs| – I_D
V_{DS}= –10V
Ta= –25°C
75°C
25°C
Forward Transfer Admittance, |yfs| – S
Drain Current, I_D – A
IT10324

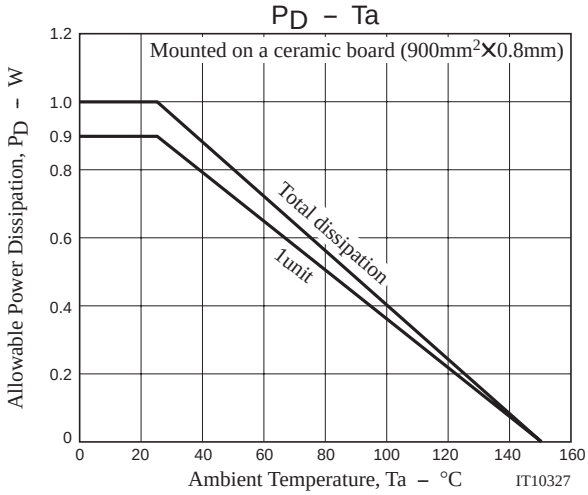

I_S – V_{SD}
V_{GS}=0V
Ta=75°C
25°C
–25°C
Source Current, I_S – A
Diode Forward Voltage, V_{SD} – V
IT10325


SW Time – I_D
V_{DD}= –15V
V_{GS}= –10V
t_d(off)
t_f
t_d(on)
t_r
Switching Time, SW Time – ns
Drain Current, I_D – A
IT03229


Ciss, Coss, Crss – V_{DS}
f=1MHz
Ciss
Coss
Crss
Ciss, Coss, Crss – pF
Drain-to-Source Voltage, V_{DS} – V
IT03230







Note on usage : Since the VEC2307 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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