Ordering number : ENA1387

SANYO Semiconductors

DATA SHEET

P-Channel Silicon MOSFET

ECH8315 — General-Purpose Switching Device Applications

Features

- Low ON-resistance.
- 4V drive.
- Halogen free compliance.

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		−7.5	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	−40	A
Allowable Power Dissipation	P_D	When mounted on ceramic substrate (900mm^2×0.8mm)	1.5	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=−3.5A	5	8.4		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	I_D=−3.5A, V_{GS}=−10V		19	25	mΩ
	$R_{DS(on)2}$	I_D=−2A, V_{GS}=−4.5V		31	44	mΩ
	$R_{DS(on)3}$	I_D=−2A, V_{GS}=−4V		35	49	mΩ

Marking : JS

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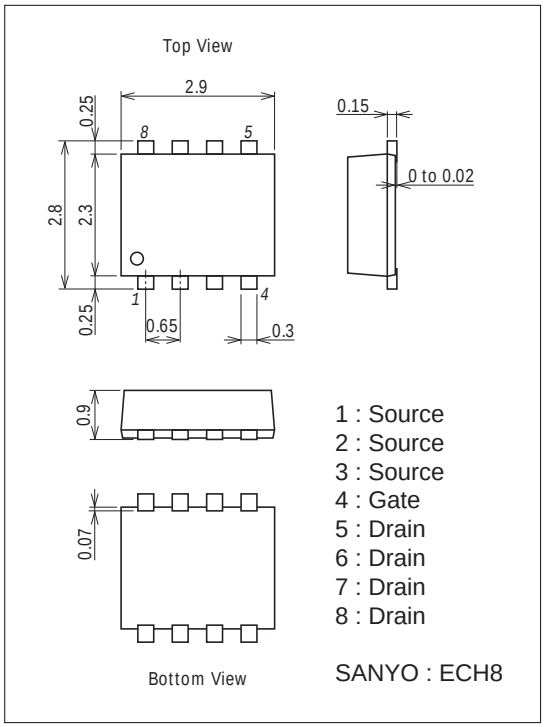
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	V_{DS}=−10V, f=1MHz		875		pF
Output Capacitance	Coss	V_{DS}=−10V, f=1MHz		200		pF
Reverse Transfer Capacitance	Crss	V_{DS}=−10V, f=1MHz		150		pF
Turn-ON Delay Time	t_{d}(on)	See specified Test Circuit.		8.1		ns
Rise Time	t_{r}	See specified Test Circuit.		33		ns
Turn-OFF Delay Time	t_{d}(off)	See specified Test Circuit.		92		ns
Fall Time	t_{f}	See specified Test Circuit.		60		ns
Total Gate Charge	Qg	V_{DS}=−15V, V_{GS}=−10V, I_{D}=−7.5A		18		nC
Gate-to-Source Charge	Qgs	V_{DS}=−15V, V_{GS}=−10V, I_{D}=−7.5A		2.1		nC
Gate-to-Drain “Miller” Charge	Qgd	V_{DS}=−15V, V_{GS}=−10V, I_{D}=−7.5A		4.7		nC
Diode Forward Voltage	V_{SD}	I_{S}=−7.5A, V_{GS}=0V		−0.82	−1.2	V

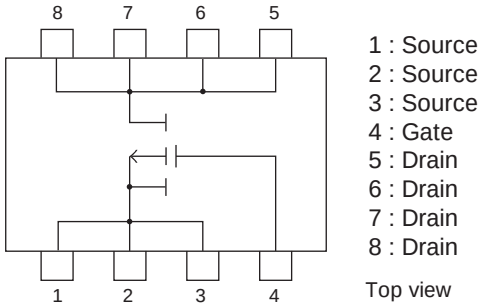
Package Dimensions

unit : mm (typ)

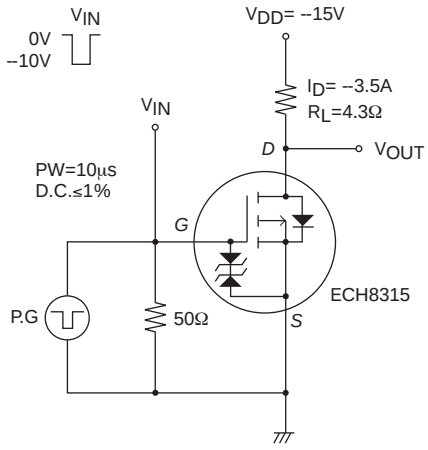
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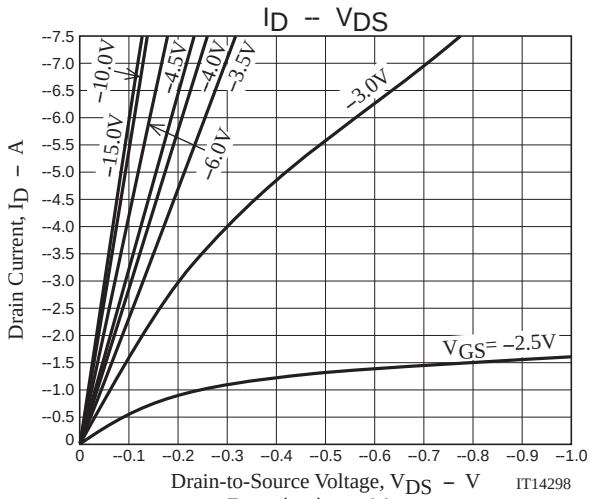


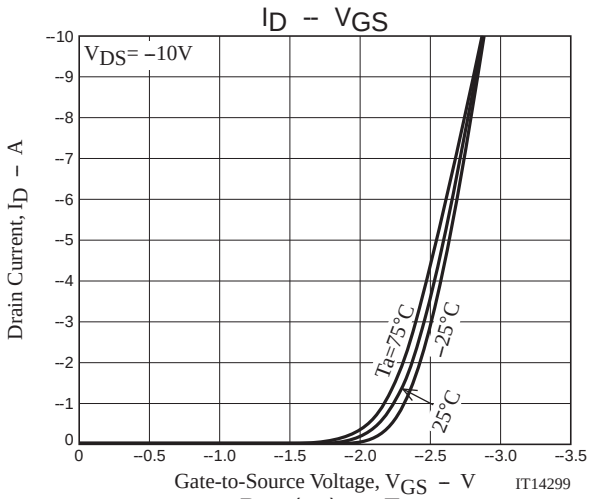
Electrical Connection

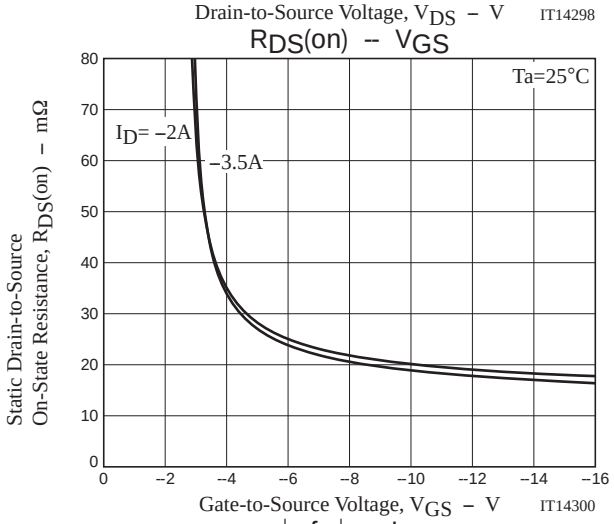


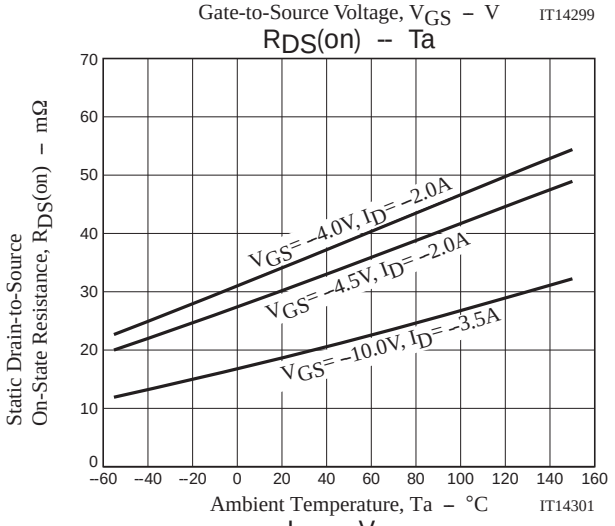
Switching Time Test Circuit

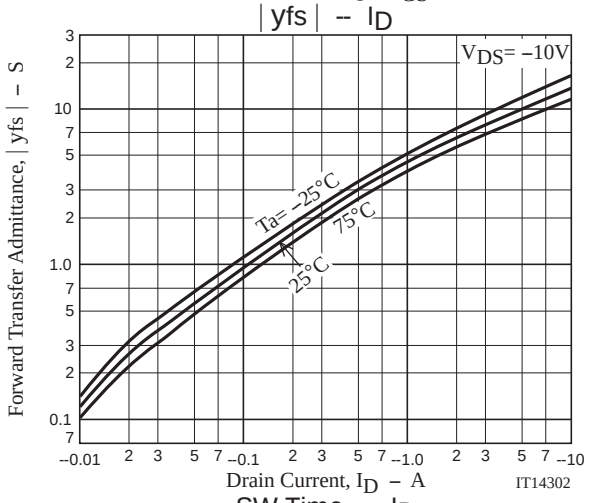


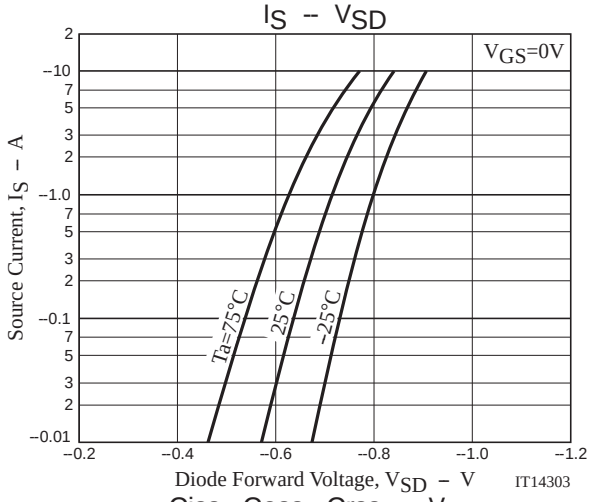

ID -- VDS
Drain Current, ID – A
Drain-to-Source Voltage, VDS – V
IT14298
–10.0V
–15.0V
–4.5V
–4.0V
–3.5V
–3.0V
–6.0V
VGS= –2.5V

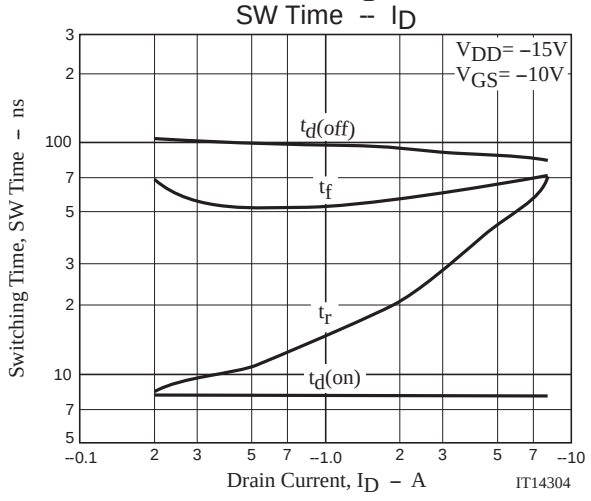

ID -- VGS
Drain Current, ID – A
Gate-to-Source Voltage, VGS – V
IT14299
VDS= –10V
Ta=75°C
–25°C
25°C

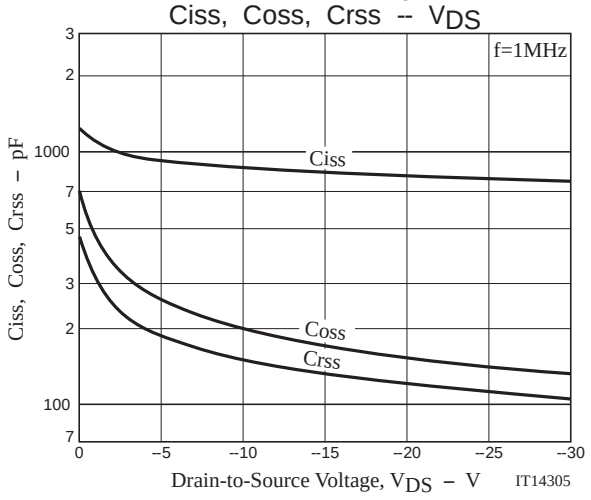

RDS(on) -- VGS
Static Drain-to-Source On-State Resistance, RDS(on) – mΩ
Gate-to-Source Voltage, VGS – V
IT14300
Ta=25°C
ID= –2A
–3.5A

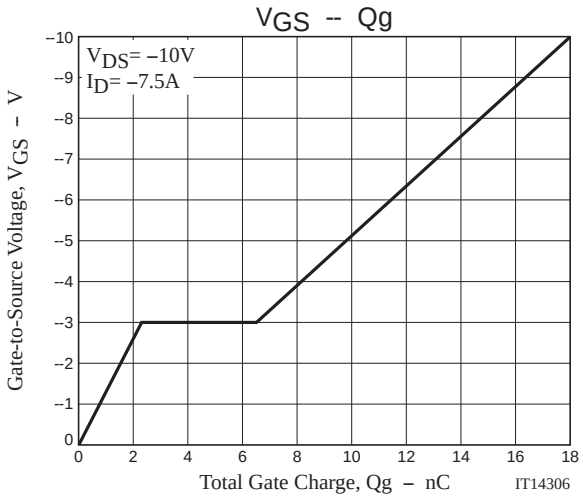

RDS(on) -- Ta
Static Drain-to-Source On-State Resistance, RDS(on) – mΩ
Ambient Temperature, Ta – °C
IT14301
VGS= –4.0V, ID= –2.0A
VGS= –4.5V, ID= –2.0A
VGS= –10.0V, ID= –3.5A

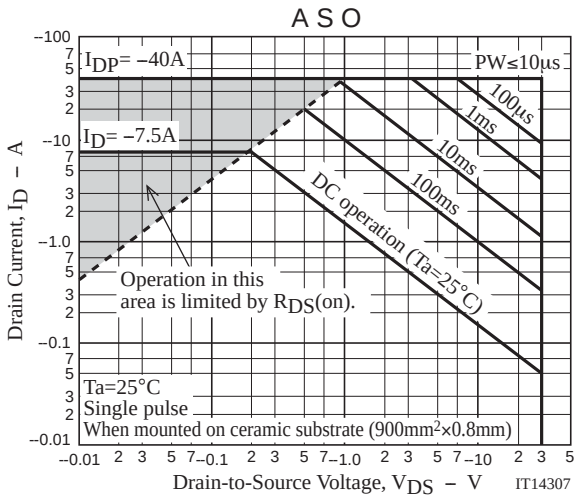

| yfs | -- ID
Forward Transfer Admittance, | yfs | – S
Drain Current, ID – A
IT14302
VDS= –10V
Ta= –25°C
75°C
25°C

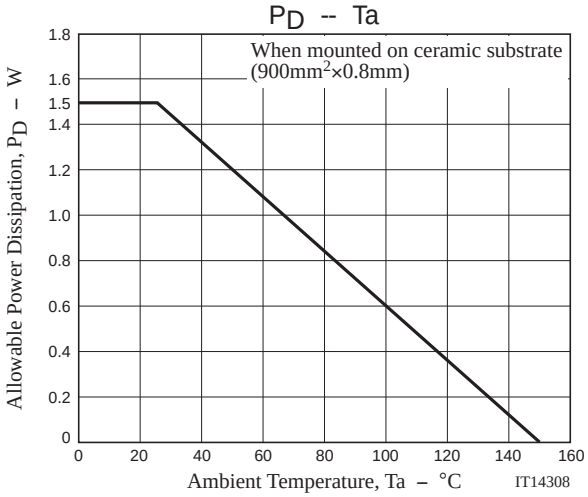

IS -- VSD
Source Current, IS – A
Diode Forward Voltage, VSD – V
IT14303
VGS=0V
Ta=75°C
25°C
–25°C


SW Time -- ID
Switching Time, SW Time – ns
Drain Current, ID – A
IT14304
VDD= –15V
VGS= –10V
td(off)
tf
tr
td(on)


Ciss, Coss, Crss -- VDS
Ciss, Coss, Crss – pF
Drain-to-Source Voltage, VDS – V
IT14305
f=1MHz
Ciss
Coss
Crss







Note on usage : Since the ECH8315 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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