Ordering number : ENA1238

SANYO Semiconductors

DATA SHEET

P-Channel Silicon MOSFET

EC4306C — General-Purpose Switching Device Applications

Features

- 1.5V drive.
- Halogen Free compliance (UL94 HB).

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		−60	V
Gate-to-Source Voltage	V_{GSS}		±10	V
Drain Current (DC)	I_D		−100	mA
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	−400	mA
Allowable Power Dissipation	P_D	When mounted on glass epoxy substrate (145mmX80mmX1.6mm)	0.15	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	−60			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=−60V, V_{GS}=0V			−1	μA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±8V, V_{DS}=0V			±10	μA
Cutoff Voltage	V_{GS}(off)	V_{DS}=−10V, I_D=−100μA	−0.4		−1.4	V
Forward Transfer Admittance	|yfs|	V_{DS}=−10V, I_D=−50mA	130	220		mS
Static Drain-to-Source On-State Resistance	R_{DS}(on)1	I_D=−50mA, V_{GS}=−4V		6.5	8.5	Ω
	R_{DS}(on)2	I_D=−30mA, V_{GS}=−2.5V		7.4	11	Ω
	R_{DS}(on)3	I_D=−10mA, V_{GS}=−1.5V		10	20	Ω

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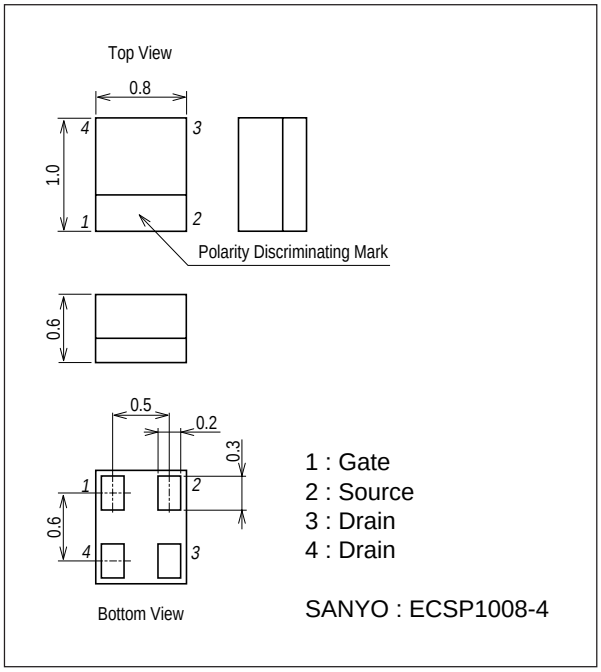
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	V_{DS}=–20V, f=1MHz		15		pF
Output Capacitance	Coss	V_{DS}=–20V, f=1MHz		3.5		pF
Reverse Transfer Capacitance	Crss	V_{DS}=–20V, f=1MHz		1.0		pF
Turn-ON Delay Time	t_{d}(on)	See specified Test Circuit.		75		ns
Rise Time	t_{r}	See specified Test Circuit.		116		ns
Turn-OFF Delay Time	t_{d}(off)	See specified Test Circuit.		665		ns
Fall Time	t_{f}	See specified Test Circuit.		270		ns
Total Gate Charge	Qg	V_{DS}=–30V, V_{GS}=–4V, I_{D}=–100mA		0.58		nC
Gate-to-Source Charge	Qgs	V_{DS}=–30V, V_{GS}=–4V, I_{D}=–100mA		0.14		nC
Gate-to-Drain “Miller” Charge	Qgd	V_{DS}=–30V, V_{GS}=–4V, I_{D}=–100mA		0.03		nC
Diode Forward Voltage	V_{SD}	I_{S}=–100mA, V_{GS}=0V		–0.91	–1.5	V

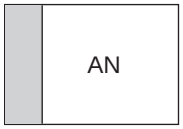
Package Dimensions

unit : mm (typ)

7036-001

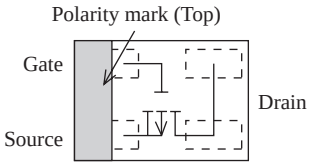


Type No. Indication



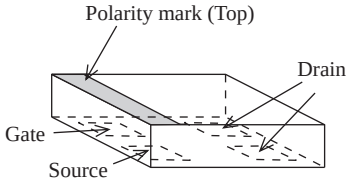
Top view

Electrical Connection

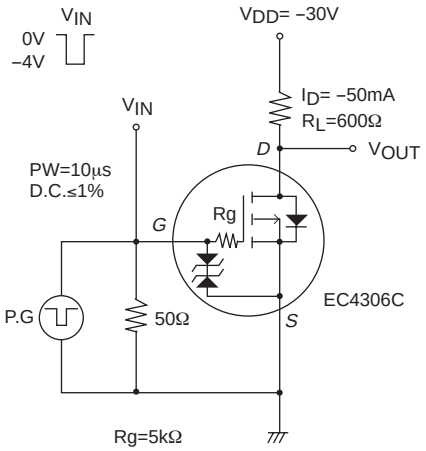


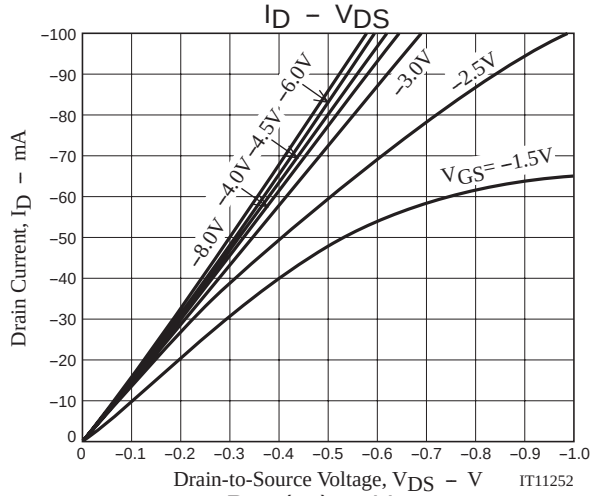
*Electrodes : on the bottom

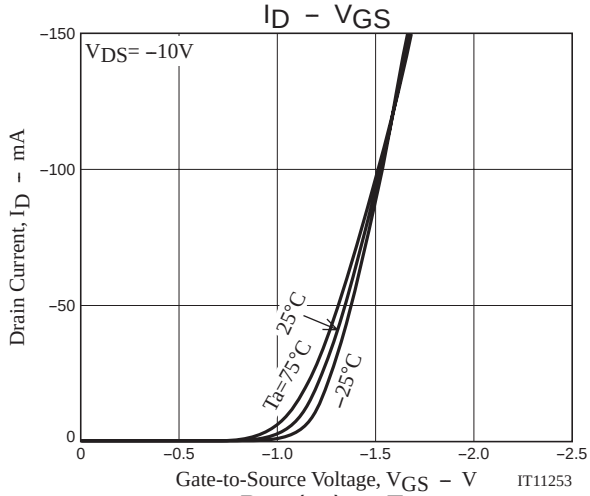
Top view

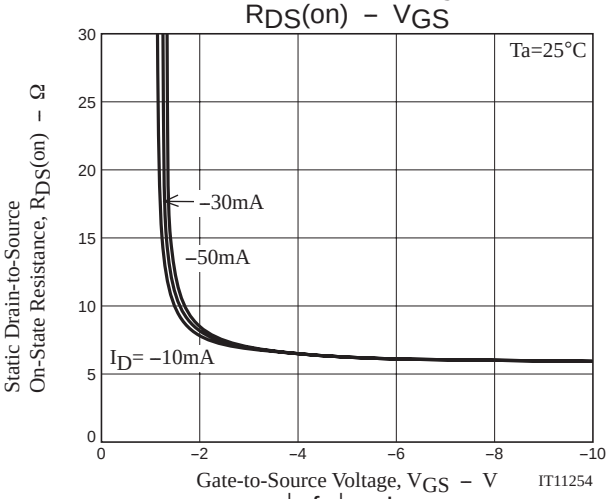


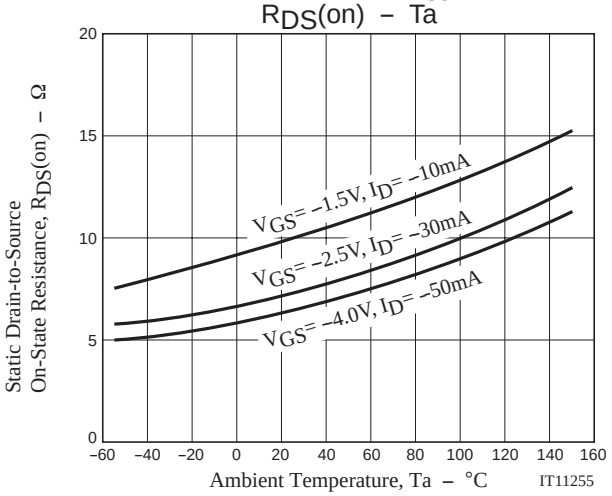
Switching Time Test Circuit

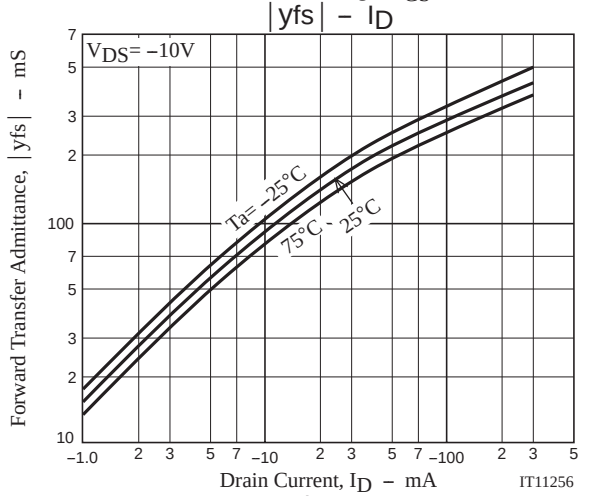


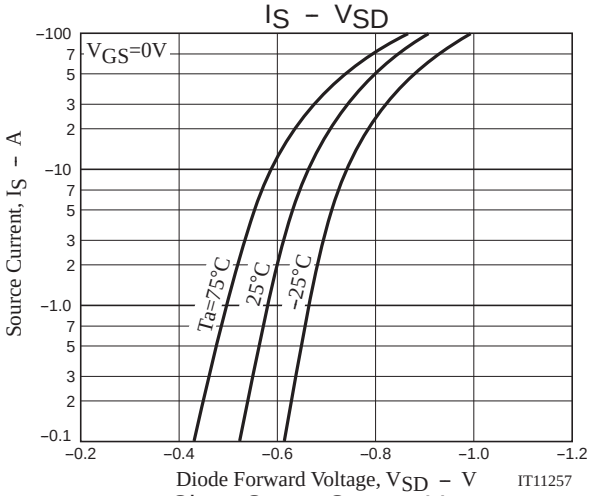

ID – VDS
Drain Current, ID – mA
Drain-to-Source Voltage, VDS – V
IT11252
–8.0V
–4.0V
–4.5V
–6.0V
–3.0V
–2.5V
VGS= –1.5V

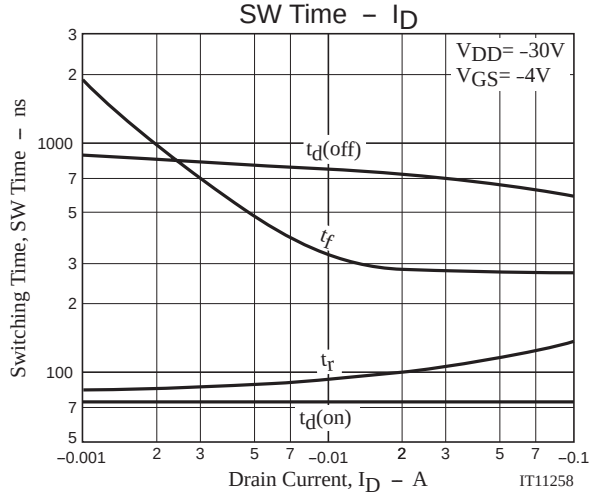

ID – VGS
VDS= –10V
Drain Current, ID – mA
Gate-to-Source Voltage, VGS – V
IT11253
25°C
Ta=75°C
–25°C

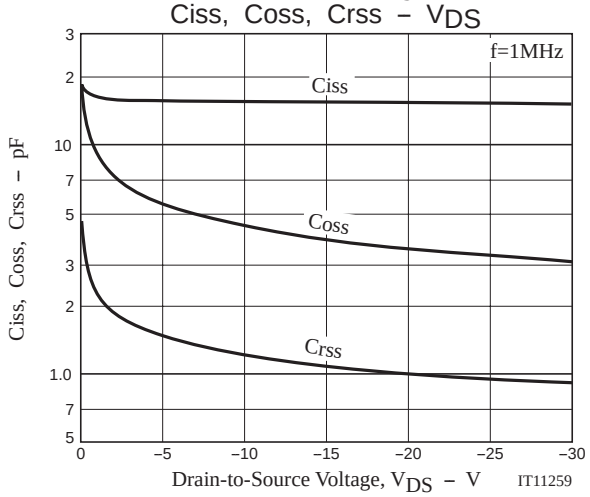

RDS(on) – VGS
Ta=25°C
Static Drain-to-Source
On-State Resistance, RDS(on) – Ω
Gate-to-Source Voltage, VGS – V
IT11254
–30mA
–50mA
ID= –10mA

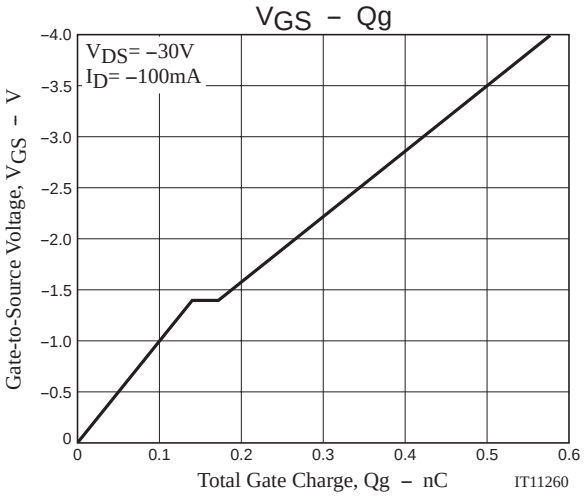

RDS(on) – Ta
Static Drain-to-Source
On-State Resistance, RDS(on) – Ω
Ambient Temperature, Ta – °C
IT11255
VGS= –1.5V, ID= –10mA
VGS= –2.5V, ID= –30mA
VGS= –4.0V, ID= –50mA

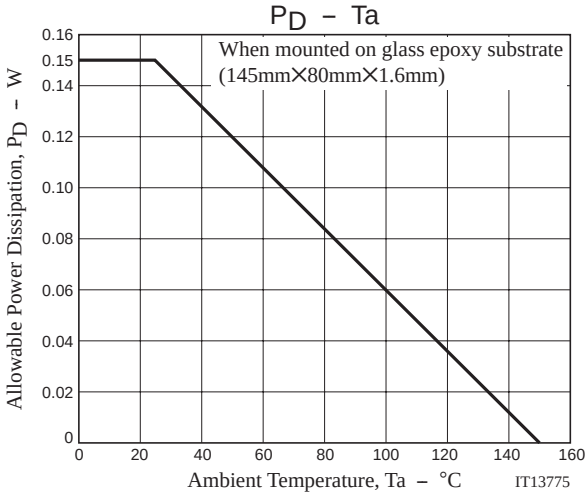

|yfs| – ID
VDS= –10V
Forward Transfer Admittance, |yfs| – mS
Drain Current, ID – mA
IT11256
Ta= –25°C
75°C
25°C


IS – VSD
VGS=0V
Source Current, IS – A
Diode Forward Voltage, VSD – V
IT11257
Ta=75°C
25°C
–25°C


SW Time – ID
VDD= –30V
VGS= –4V
Switching Time, SW Time – ns
Drain Current, ID – A
IT11258
td(off)
tf
tr
td(on)


Ciss, Coss, Crss – VDS
f=1MHz
Ciss, Coss, Crss – pF
Drain-to-Source Voltage, VDS – V
IT11259
Ciss
Coss
Crss





Note on usage : Since the EC4306C is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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