Ordering number : ENA1637

SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

N-Channel Silicon MOSFET

SCH1435 — General-Purpose Switching Device Applications

Features

- 1.8V 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}		±12	V
Drain Current (DC)	I_D		3	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	12	A
Allowable Power Dissipation	P_D	When mounted on ceramic substrate (900mm^2×0.8mm)	0.8	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}=±8V, V_{DS}=0V			±10	μA
Cutoff Voltage	V_{GS}(off)	V_{DS}=10V, I_D=1mA	0.4		1.3	V
Forward Transfer Admittance	| yfs |	V_{DS}=10V, I_D=1.5A		2.7		S
Static Drain-to-Source On-State Resistance	R_{DS}(on)1	I_D=1.5A, V_{GS}=4.5V		68	89	mΩ
	R_{DS}(on)2	I_D=0.75A, V_{GS}=2.5V		90	126	mΩ
	R_{DS}(on)3	I_D=0.3A, V_{GS}=1.8V		130	195	mΩ

Marking : ZL

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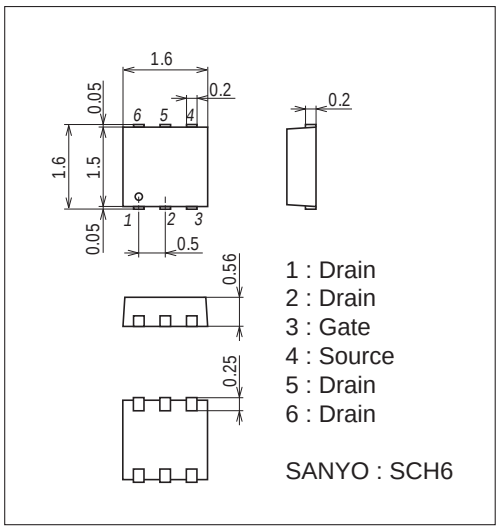
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	V_{DS}=10V, f=1MHz		265		pF
Output Capacitance	Coss	V_{DS}=10V, f=1MHz		35		pF
Reverse Transfer Capacitance	Crss	V_{DS}=10V, f=1MHz		28		pF
Turn-ON Delay Time	t_{d}(on)	See specified Test Circuit.		5.1		ns
Rise Time	t_{r}	See specified Test Circuit.		10		ns
Turn-OFF Delay Time	t_{d}(off)	See specified Test Circuit.		137		ns
Fall Time	t_{f}	See specified Test Circuit.		36		ns
Total Gate Charge	Qg	V_{DS}=15V, V_{GS}=4.5V, I_{D}=3A		3.5		nC
Gate-to-Source Charge	Qgs	V_{DS}=15V, V_{GS}=4.5V, I_{D}=3A		0.57		nC
Gate-to-Drain “Miller” Charge	Qgd	V_{DS}=15V, V_{GS}=4.5V, I_{D}=3A		0.93		nC
Diode Forward Voltage	V_{SD}	I_{S}=3A, V_{GS}=0V		0.87	1.2	V

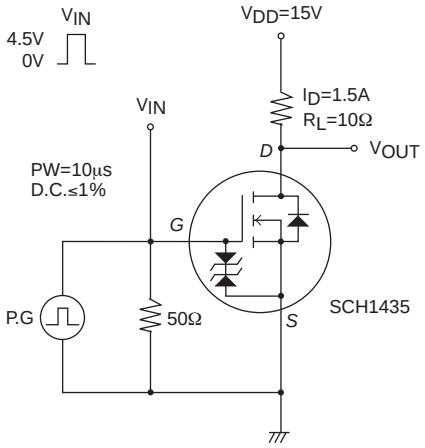
Package Dimensions

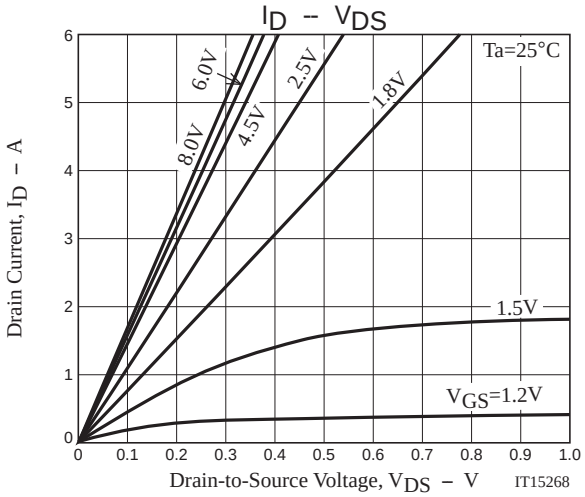
unit : mm (typ)

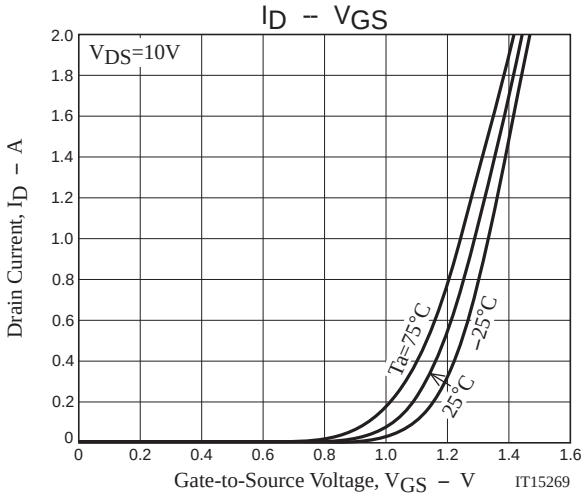
7028-002

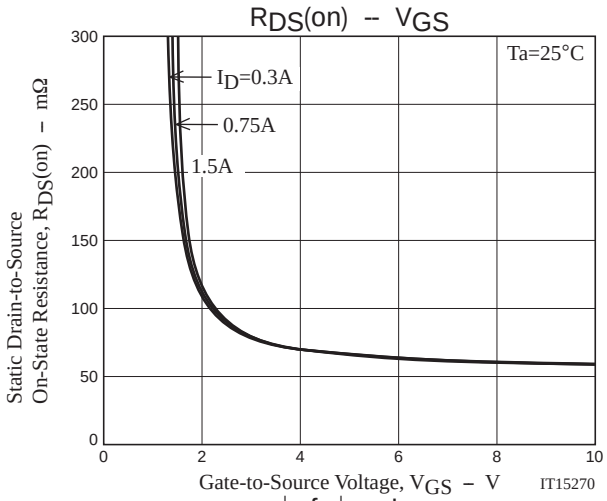


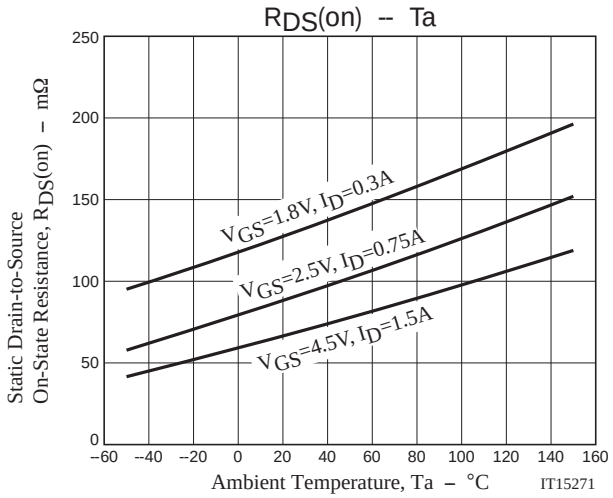
Switching Time Test Circuit

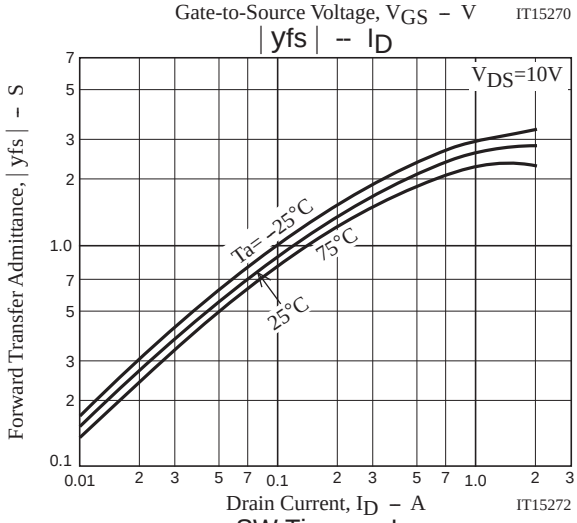


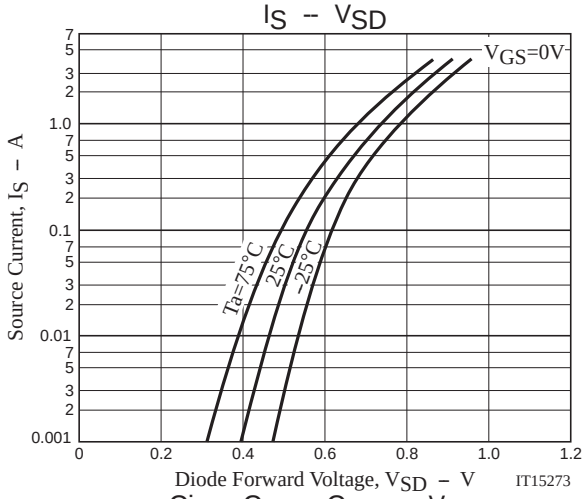


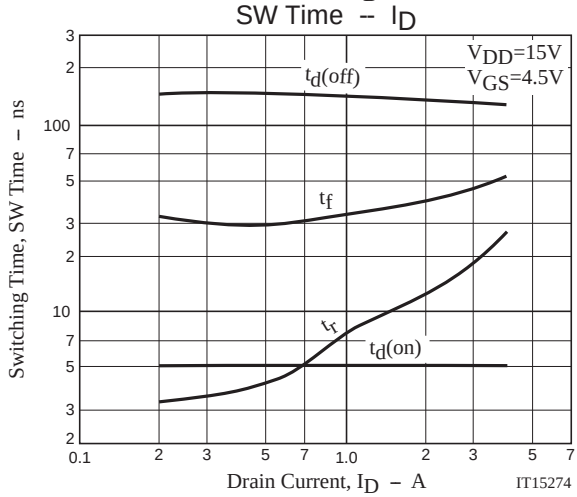


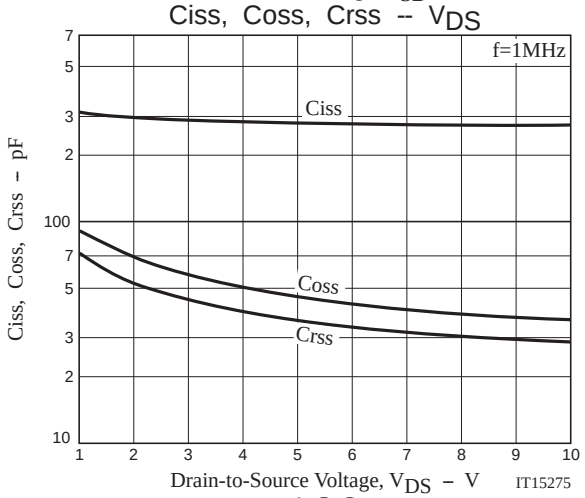

RDS(on) -- VGS
Ta=25°C
ID=0.3A
0.75A
1.5A
Static Drain-to-Source On-State Resistance, RDS(on) – mΩ
Gate-to-Source Voltage, VGS – V
IT15270

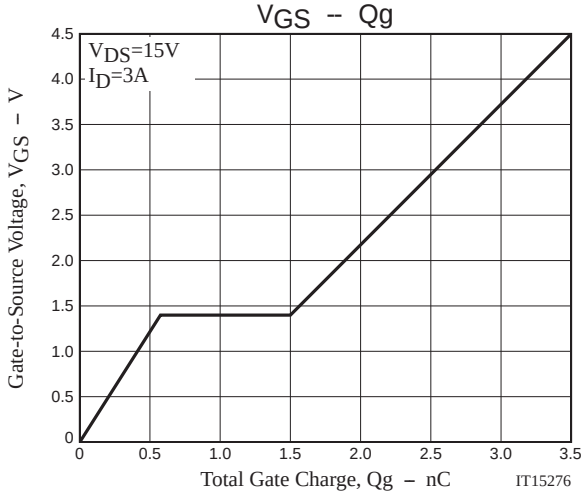

RDS(on) -- Ta
VGS=1.8V, ID=0.3A
VGS=2.5V, ID=0.75A
VGS=4.5V, ID=1.5A
Static Drain-to-Source On-State Resistance, RDS(on) – mΩ
Ambient Temperature, Ta – °C
IT15271

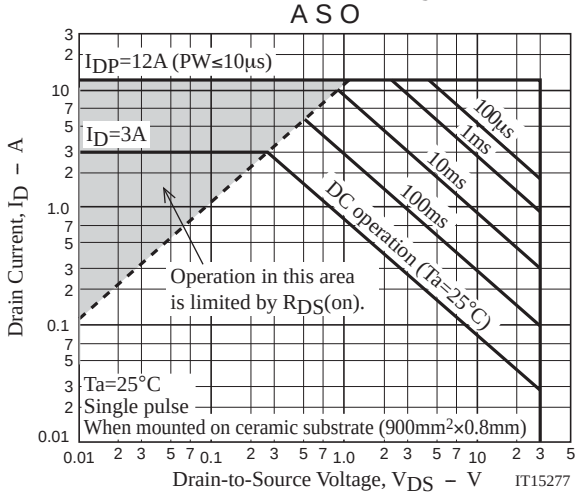

| yfs | -- ID
VDS=10V
Ta=–25°C
75°C
25°C
Forward Transfer Admittance, | yfs | – S
Drain Current, ID – A
IT15272

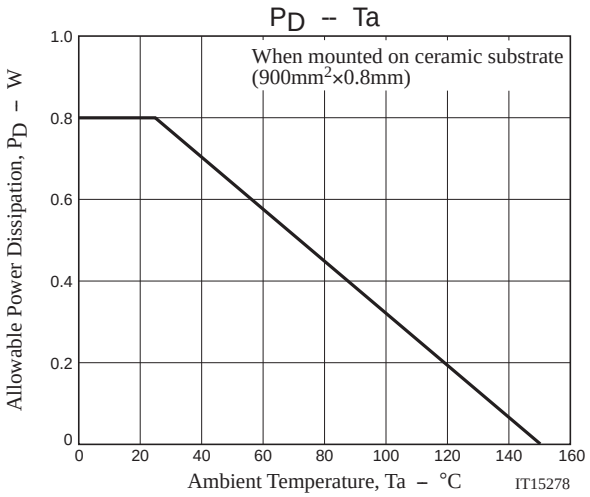

IS -- VSD
VGS=0V
Ta=75°C
25°C
–25°C
Source Current, IS – A
Diode Forward Voltage, VSD – V
IT15273


SW Time -- ID
VDD=15V
VGS=4.5V
td(off)
tf
tr
td(on)
Switching Time, SW Time – ns
Drain Current, ID – A
IT15274


Ciss, Coss, Crss -- VDS
f=1MHz
Ciss
Coss
Crss
Ciss, Coss, Crss – pF
Drain-to-Source Voltage, VDS – V
IT15275


VGS -- Qg
VDS=15V
ID=3A
Gate-to-Source Voltage, VGS – V
Total Gate Charge, Qg – nC
IT15276


ASO
IDP=12A (PW≤10μs)
ID=3A
100μs
1ms
10ms
100ms
DC operation (Ta=25°C)
Operation in this area is limited by RDS(on).
Ta=25°C
Single pulse
When mounted on ceramic substrate (900mm²×0.8mm)
Drain Current, ID – A
Drain-to-Source Voltage, VDS – V
IT15277



Note on usage : Since the SCH1435 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.