Ordering number : ENA2220A

SCH1345

P-Channel Power MOSFET –20V, –4.5A, 49mΩ, Single SCH6

ON Semiconductor®

http://onsemi.com

Features

- On-resistance $R_{DS}(on)1$=42mΩ (typ)
- –1.5V drive
- Halogen free compliance
- Protection diode in

Specifications

Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Value	Unit
Drain to Source Voltage	V_{DSS}		–20	V
Gate to Source Voltage	V_{GSS}		±10	V
Drain Current (DC)	I_D		–4.5	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	–18	A
Power Dissipation	P_D	When mounted on ceramic substrate(900mm^2×0.8mm)	1	W
Junction Temperature	T_j		150	°C
Storage Temperature	Tstg		–55 to +150	°C

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

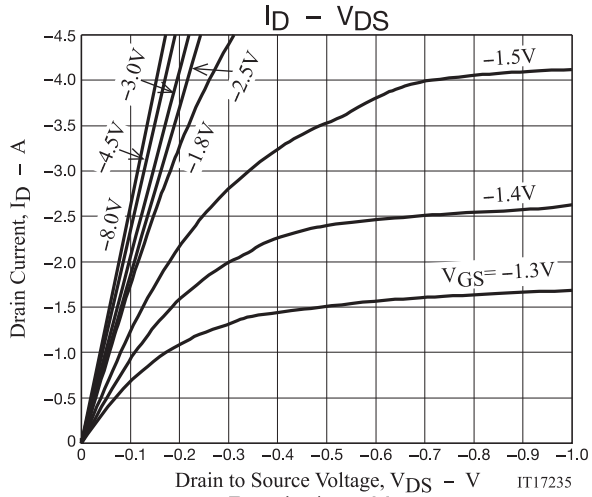
Electrical Characteristics at Ta = 25°C

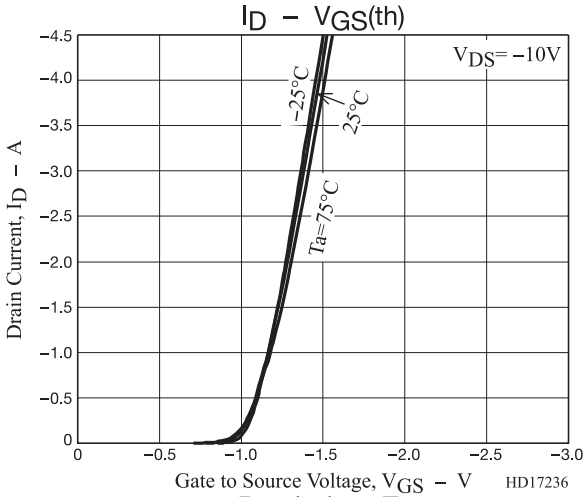
Parameter	Symbol	Conditions	Value			Unit
			min	typ	max	
Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=–1mA, V_{GS}=0V	–20			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=–20V, V_{GS}=0V			–1	μA
Gate to Source Leakage Current	I_{GSS}	V_{GS}=±8V, V_{DS}=0V			±10	μA
Gate Threshold Voltage	$V_{GS}(th)$	V_{DS}=–10V, I_D=–1mA	–0.4		–1.3	V
Forward Transconductance	g_{FS}	V_{DS}=–10V, I_D=–2A		6		S
Static Drain to Source On-State Resistance	$R_{DS}(on)1$	I_D=–2A, V_{GS}=–4.5V		42	49	mΩ
	$R_{DS}(on)2$	I_D=–1A, V_{GS}=–2.5V		53	64	mΩ
	$R_{DS}(on)3$	I_D=–0.5A, V_{GS}=–1.8V		65	85	mΩ
	$R_{DS}(on)4$	I_D=–0.5A, V_{GS}=–1.5V		74	120	mΩ
Input Capacitance	Ciss	V_{DS}=–10V, f=1MHz		1220		pF
Output Capacitance	Coss			82		pF
Reverse Transfer Capacitance	Crss			72		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit.		8.8		ns
Rise Time	t_r			35		ns
Turn-OFF Delay Time	$t_d(off)$			123		ns
Fall Time	t_f			61		ns
Total Gate Charge	Qg	V_{DS}=–10V, V_{GS}=–4.5V, I_D=–4.5A		11		nC
Gate to Source Charge	Qgs			1.9		nC
Gate to Drain “Miller” Charge	Qgd			1.9		nC
Forward Diode Voltage	V_{SD}	I_S=–4.5A, V_{GS}=0V		–0.82	–1.2	V

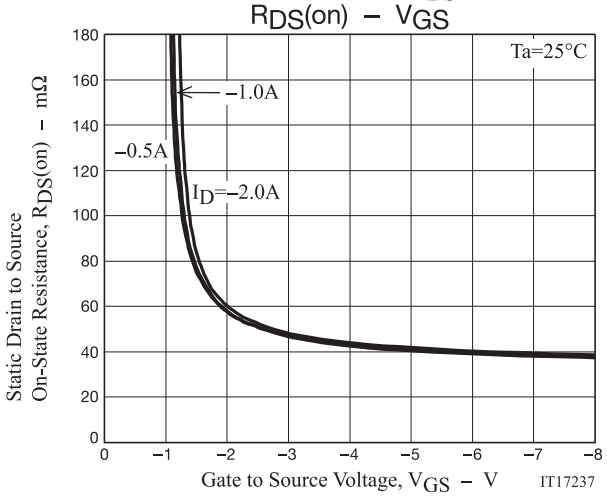
Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

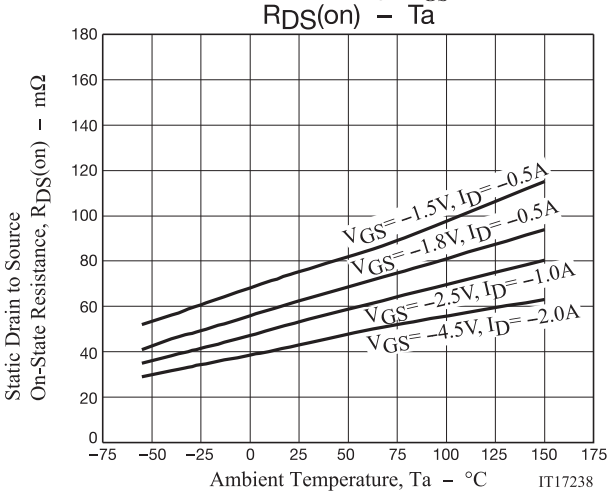
ORDERING INFORMATION

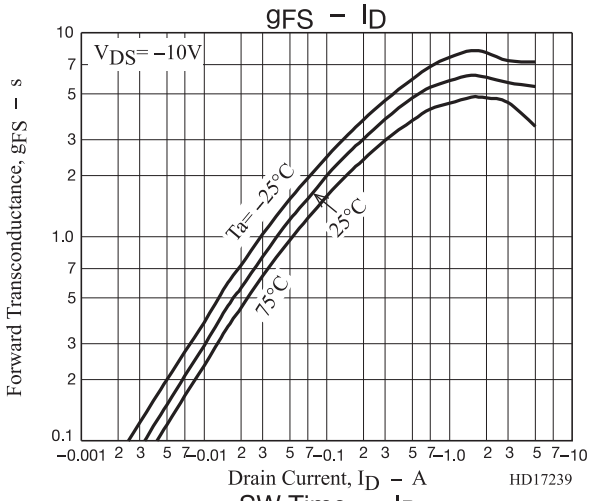
See detailed ordering and shipping information on page 4 of this data sheet.

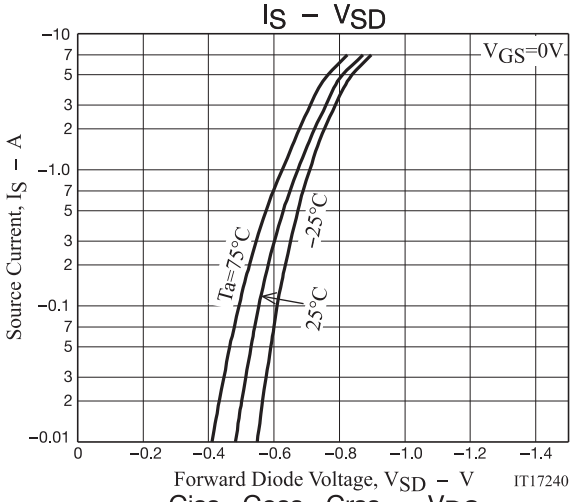

ID – VDS
Drain Current, ID – A
Drain to Source Voltage, VDS – V
IT17235
–1.5V
–3.0V
–2.5V
–4.5V
–1.8V
–8.0V
–1.4V
VGS= –1.3V

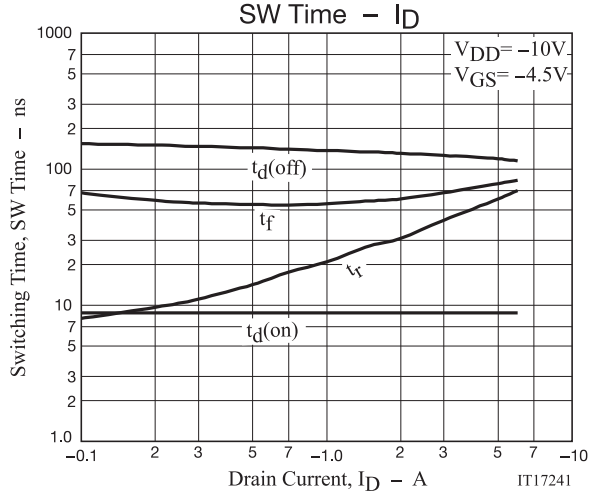

ID – VGS(th)
Drain Current, ID – A
Gate to Source Voltage, VGS – V
HD17236
VDS= –10V
–25°C
25°C
Ta=75°C

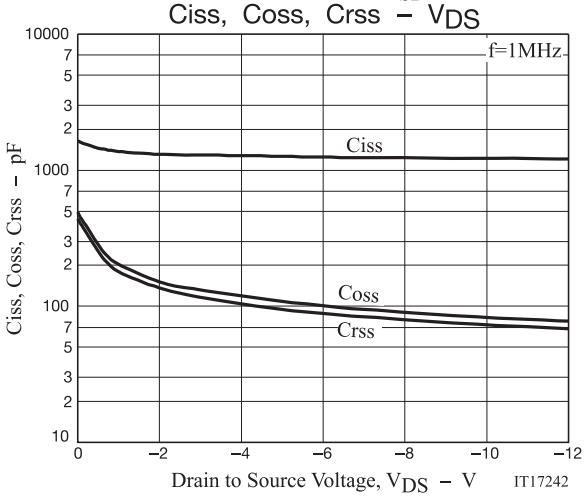

RDS(on) – VGS
Static Drain to Source On-State Resistance, RDS(on) – mΩ
Gate to Source Voltage, VGS – V
IT17237
Ta=25°C
–1.0A
–0.5A
ID=–2.0A

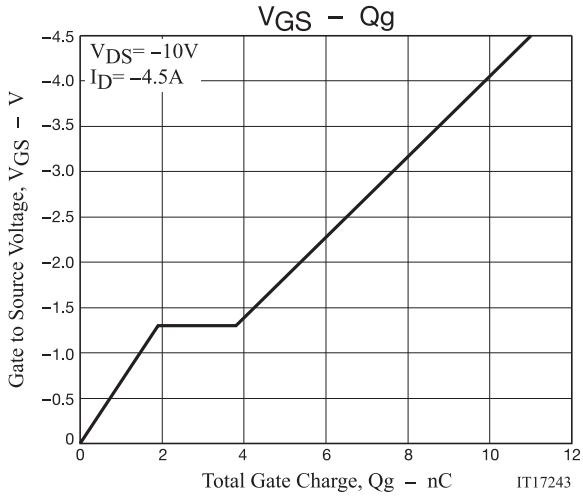

RDS(on) – Ta
Static Drain to Source On-State Resistance, RDS(on) – mΩ
Ambient Temperature, Ta – °C
IT17238
VGS= –1.5V, ID= –0.5A
VGS= –1.8V, ID= –0.5A
VGS= –2.5V, ID= –1.0A
VGS= –4.5V, ID= –2.0A

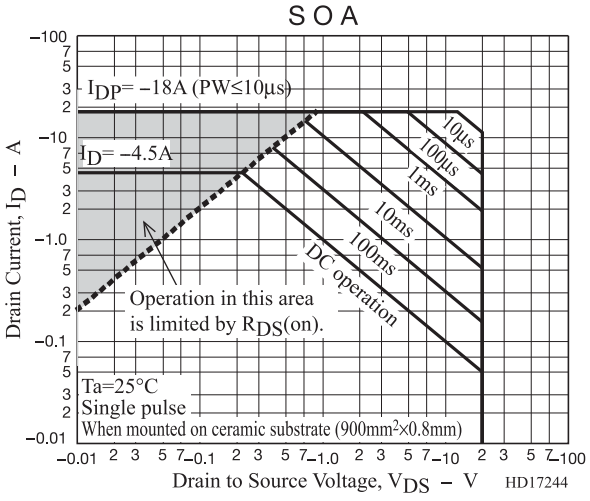

gFS – ID
Forward Transconductance, gFS – s
Drain Current, ID – A
HD17239
VDS= –10V
Ta= –25°C
25°C
75°C

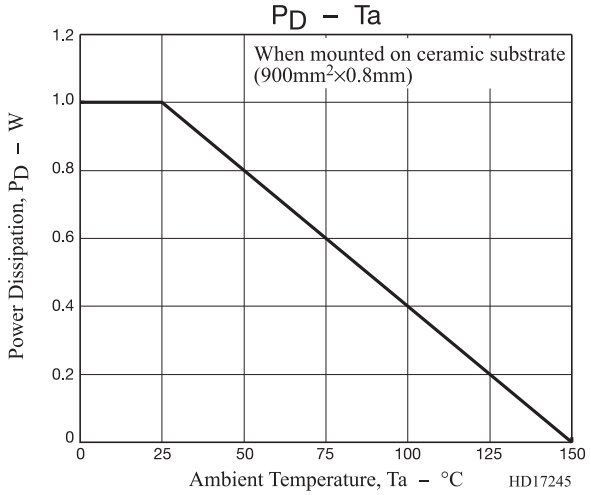

IS – VSD
Source Current, IS – A
Forward Diode Voltage, VSD – V
IT17240
VGS=0V
Ta=75°C
–25°C
25°C


SW Time – ID
Switching Time, SW Time – ns
Drain Current, ID – A
IT17241
VDD= –10V
VGS= –4.5V
td(off)
tf
tr
td(on)


Ciss, Coss, Crss – VDS
Ciss, Coss, Crss – pF
Drain to Source Voltage, VDS – V
IT17242
f=1MHz
Ciss
Coss
Crss


VGS – Qg
VDS= –10V
ID= –4.5A
Gate to Source Voltage, VGS – V
Total Gate Charge, Qg – nC
IT17243


S O A
IDP= –18A (PW≤10μs)
ID= –4.5A
10μs
100μs
1ms
10ms
100ms
DC operation
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
HD17244


PD – Ta
When mounted on ceramic substrate
(900mm2×0.8mm)
Power Dissipation, PD – W
Ambient Temperature, Ta – °C
HD17245

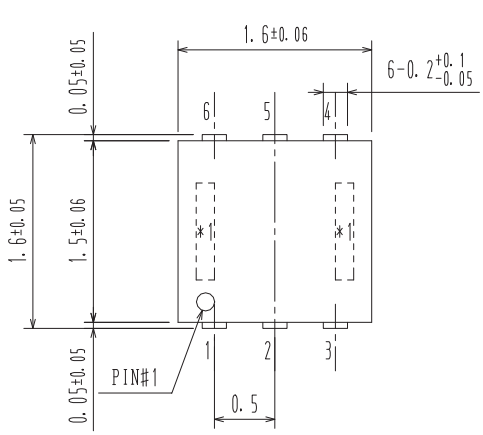
Package Dimensions

SCH1345-TL-H

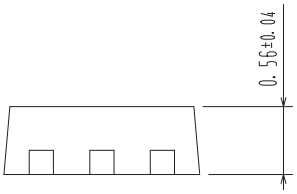
unit : mm

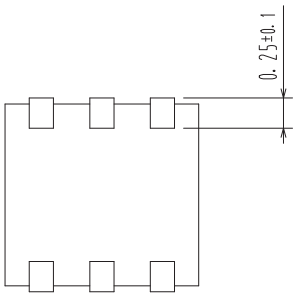
SOT-563 / SCH6

CASE 463AB
ISSUE O

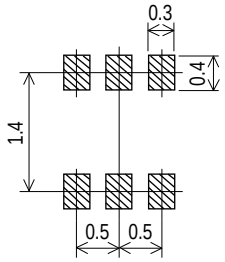


1 : Drain
2 : Drain
3 : Gate
4 : Source
5 : Drain
6 : Drain





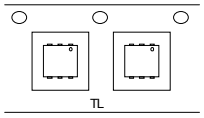
Recommended Soldering Footprint



Ordering & Package Information

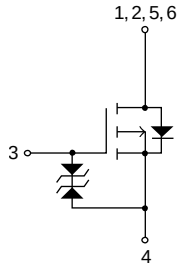
Device	Package	Shipping	note
SCH1345-TL-H	SCH6 SOT-563	5,000 pcs. / reel	Pb-Free And Halogen Free

Packing Type : TL

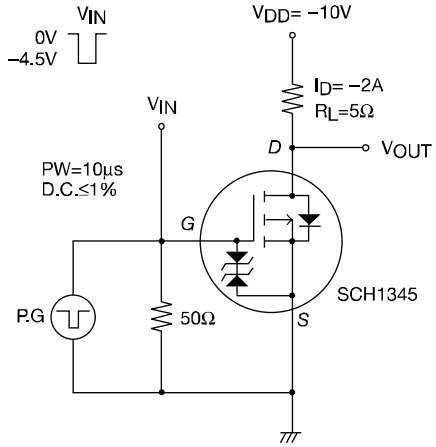


Marking

Electrical Connection



Switching Time Test Circuit



Note on usage : Since the SCH1345 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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Authorized Distributor

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SCH1345-TL-H