Ordering number : ENA1594

SANYO Semiconductors
DATA SHEET

An ON Semiconductor Company

N-Channel Silicon MOSFET

SCH1433 — 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}		20	V
Gate-to-Source Voltage	V_{GSS}		±10	V
Drain Current (DC)	I_D		3.5	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	14	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	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
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	1.68	2.8		S
Static Drain-to-Source On-State Resistance	R_{DS}(on)1	I_D=1.5A, V_{GS}=4.5V		49	64	mΩ
	R_{DS}(on)2	I_D=1A, V_{GS}=2.5V		68	95	mΩ
	R_{DS}(on)3	I_D=0.5A, V_{GS}=1.8V		99	149	mΩ

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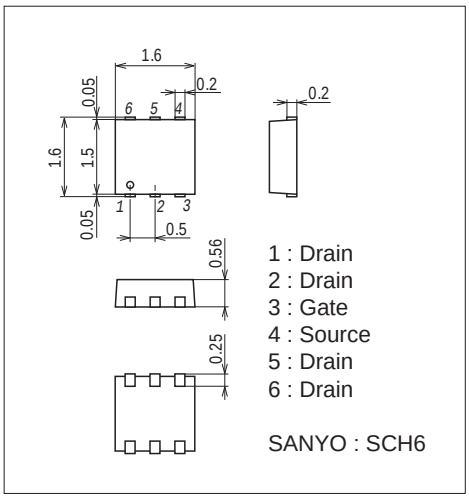
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	V_{DS}=10V, f=1MHz		260		pF
Output Capacitance	Coss	V_{DS}=10V, f=1MHz		65		pF
Reverse Transfer Capacitance	Crss	V_{DS}=10V, f=1MHz		50		pF
Turn-ON Delay Time	t_{d}(on)	See specified Test Circuit.		6.2		ns
Rise Time	t_{r}	See specified Test Circuit.		19		ns
Turn-OFF Delay Time	t_{d}(off)	See specified Test Circuit.		30		ns
Fall Time	t_{f}	See specified Test Circuit.		28		ns
Total Gate Charge	Qg	V_{DS}=10V, V_{GS}=4.5V, I_{D}=3.5A		2.8		nC
Gate-to-Source Charge	Qgs	V_{DS}=10V, V_{GS}=4.5V, I_{D}=3.5A		0.6		nC
Gate-to-Drain “Miller” Charge	Qgd	V_{DS}=10V, V_{GS}=4.5V, I_{D}=3.5A		0.9		nC
Diode Forward Voltage	V_{SD}	I_{S}=3.5A, V_{GS}=0V		0.85	1.2	V

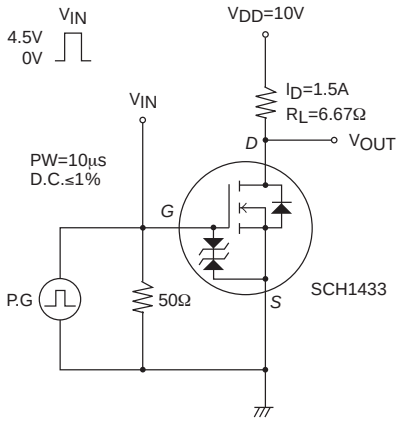
Package Dimensions

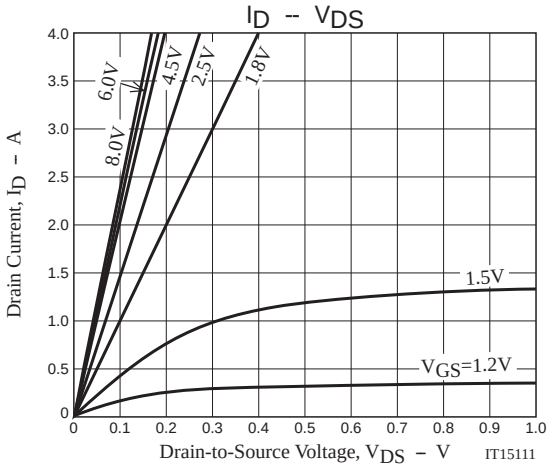
unit : mm (typ)

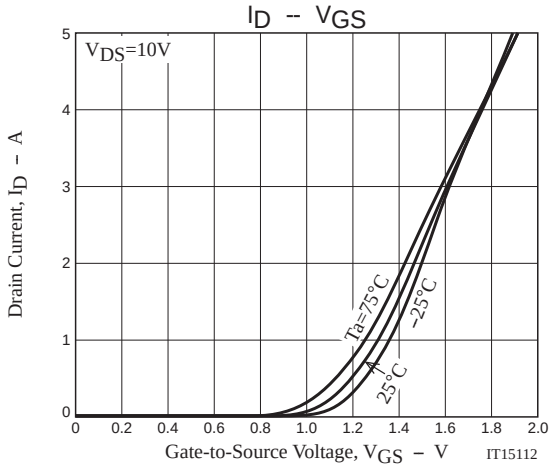
7028-002

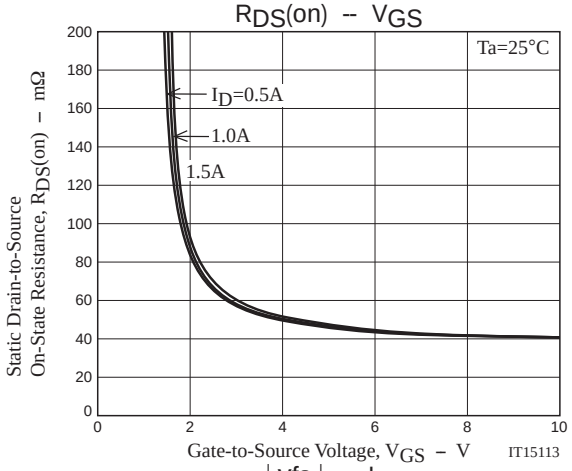


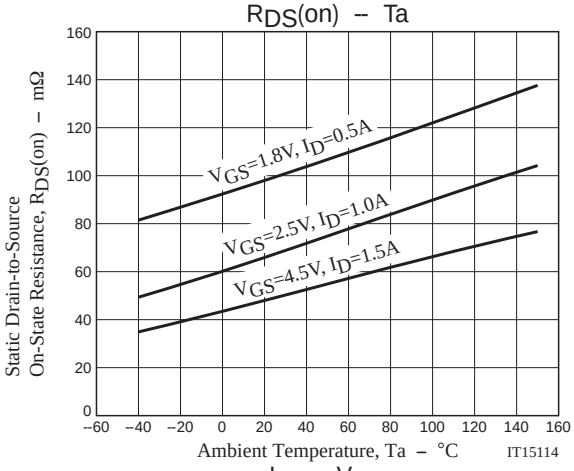
Switching Time Test Circuit

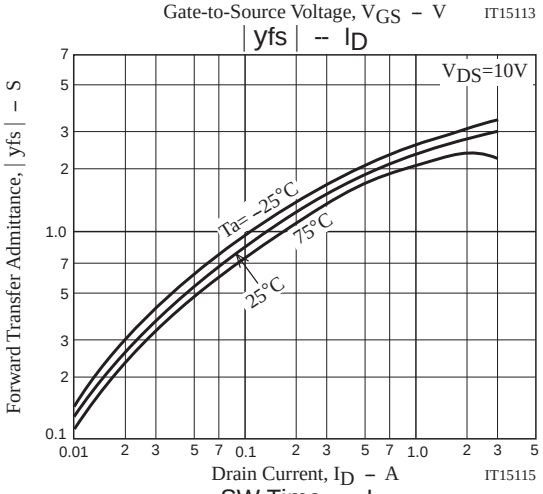


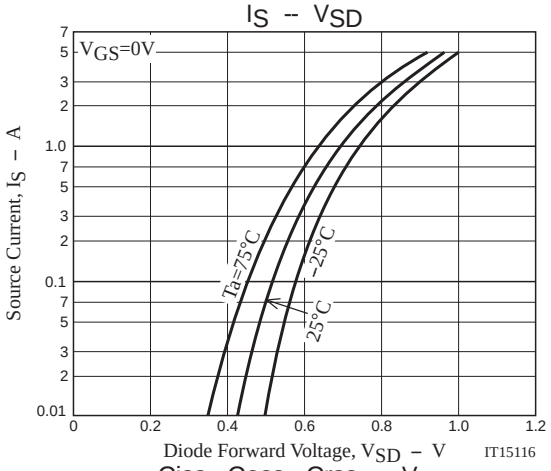


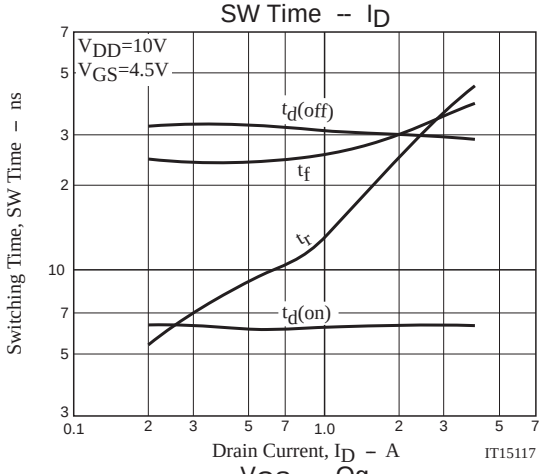


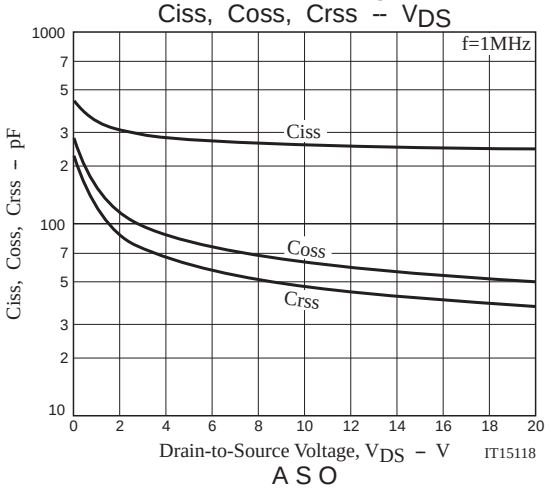


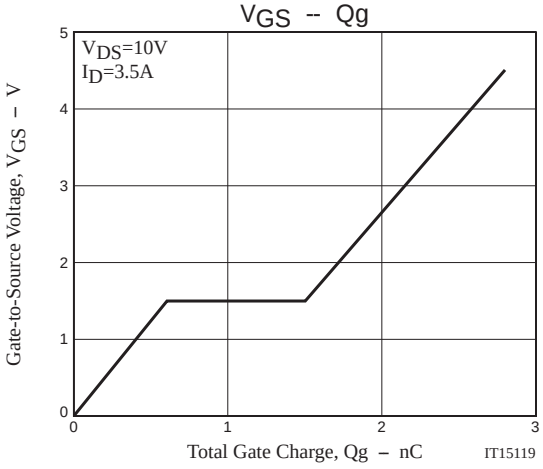


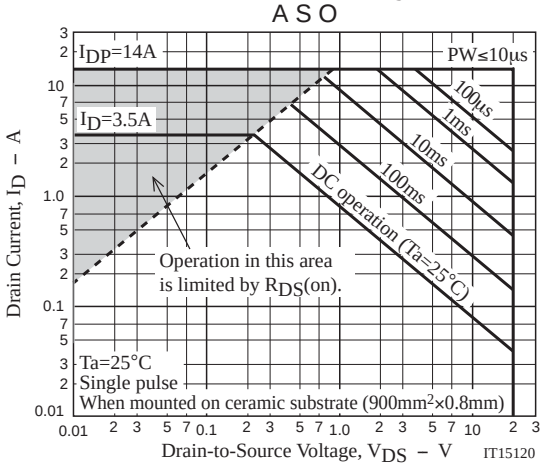


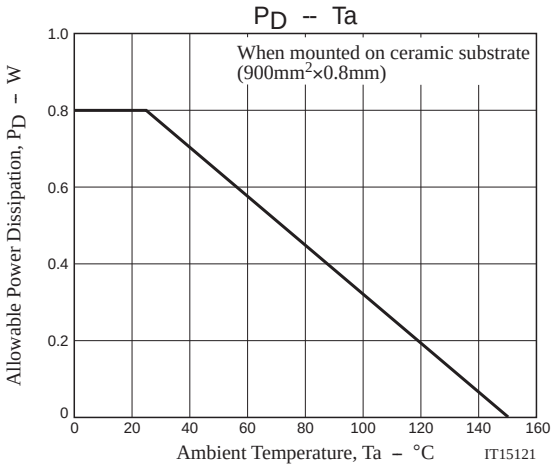












Note on usage : Since the SCH1433 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.