



# SCH1402

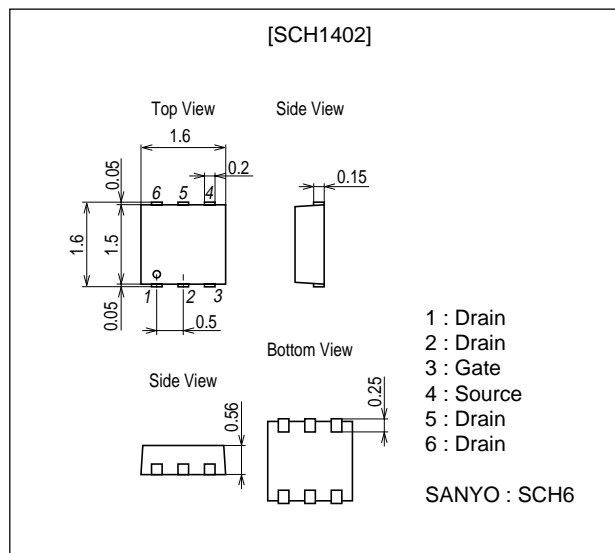
## Ultrahigh-Speed Switching Applications

### Features

- Low ON-resistance.
- Ultrahigh-speed switching.
- 1.8V drive.

### Package Dimensions

unit : mm  
2221



### Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V <sub>DSS</sub>		20	V
Gate-to-Source Voltage	V <sub>GSS</sub>		±10	V
Drain Current (DC)	I <sub>D</sub>		3	A
Drain Current (Pulse)	I <sub>DP</sub>	PW≤10μs, duty cycle≤1%	12	A
Allowable Power Dissipation	P <sub>D</sub>	Mounted on a ceramic board (900mm²×0.8mm)	0.8	W
Channel Temperature	T <sub>ch</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-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 <sub>D</sub> =1mA, V <sub>GS</sub> =0	20			V
Zero-Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =20V, V <sub>GS</sub> =0			1	μA
Gate-to-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±8V, V <sub>DS</sub> =0			±10	μA
Cutoff Voltage	V <sub>GS(off)</sub>	V <sub>DS</sub> =10V, I <sub>D</sub> =1mA	0.4		1.3	V
Forward Transfer Admittance	y <sub>fs</sub>	V <sub>DS</sub> =10V, I <sub>D</sub> =1.5A	3.36	5.6		S

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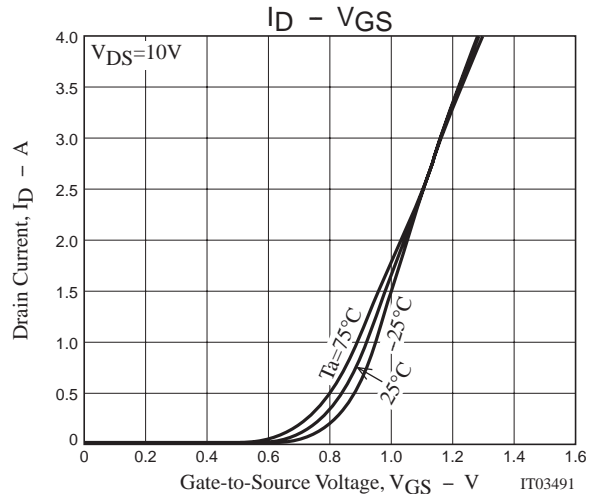
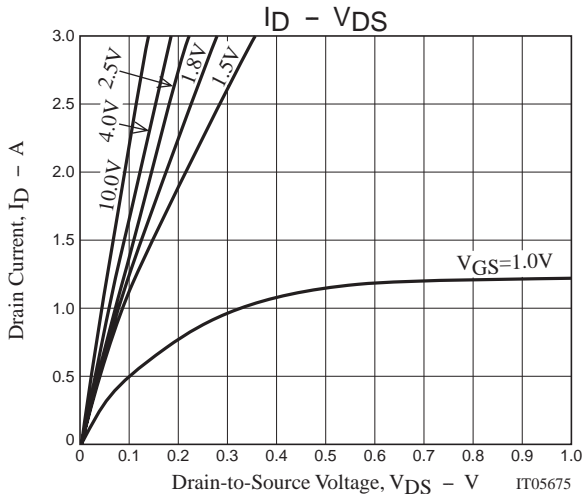
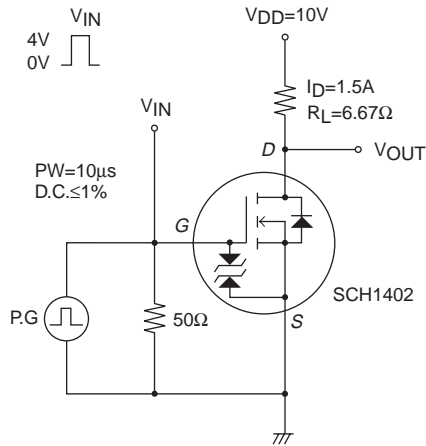
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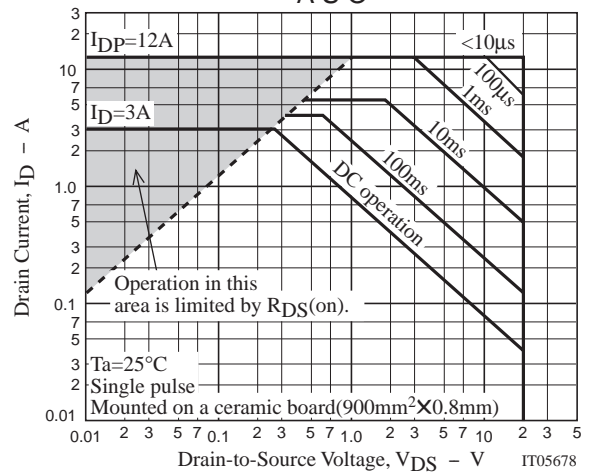
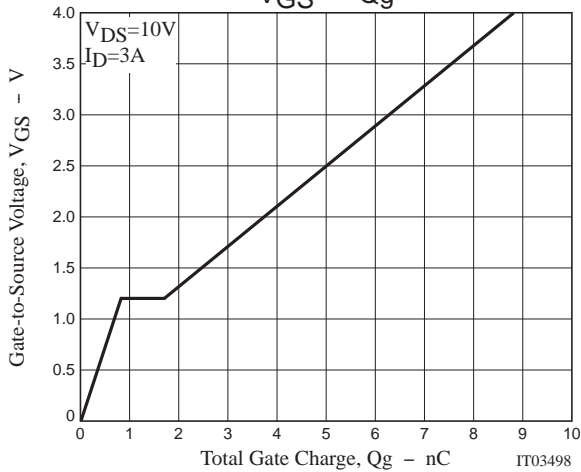
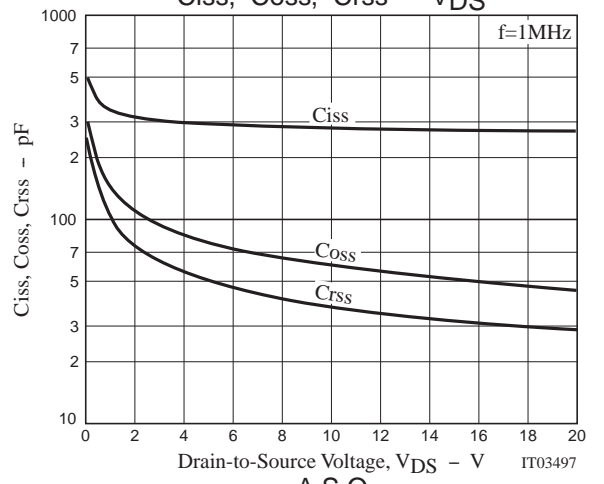
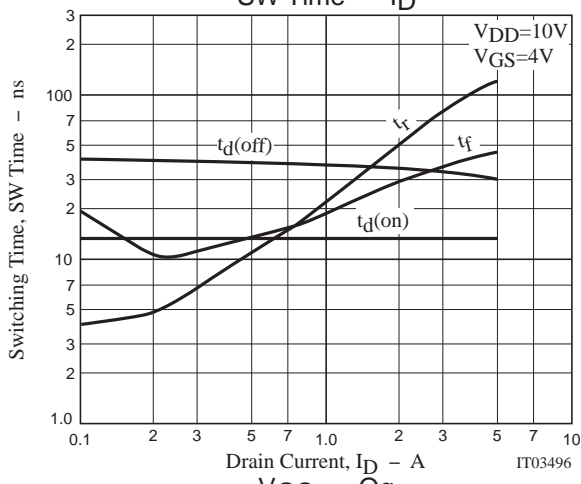
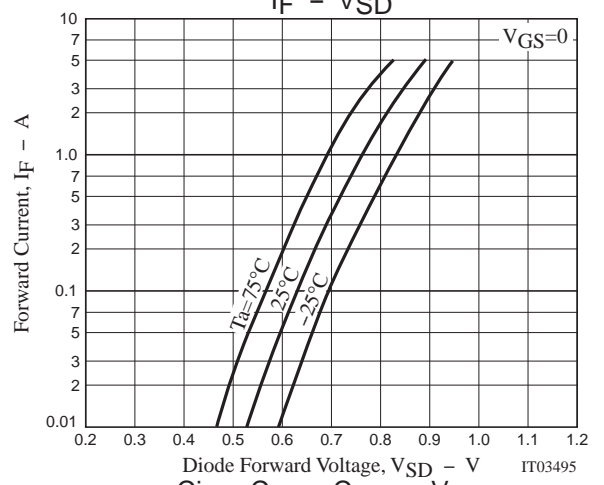
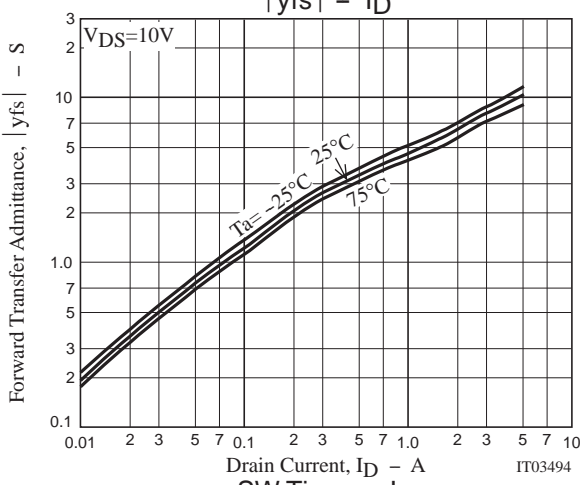
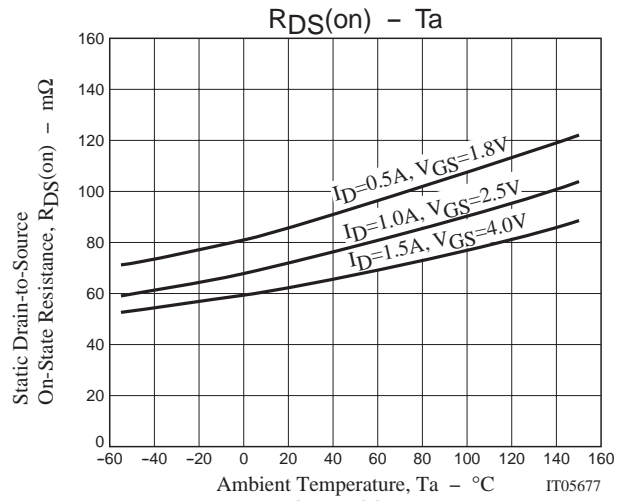
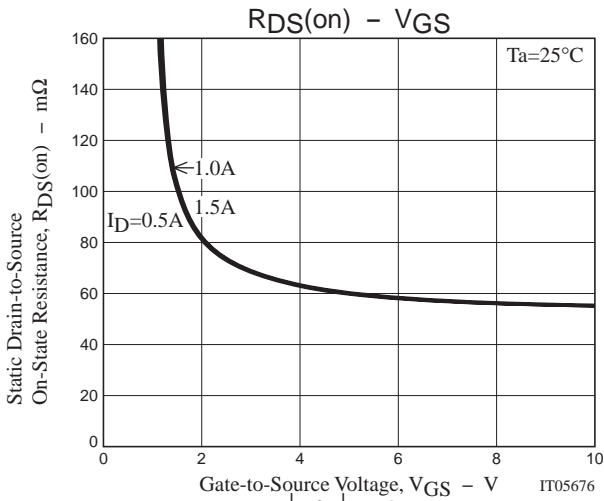
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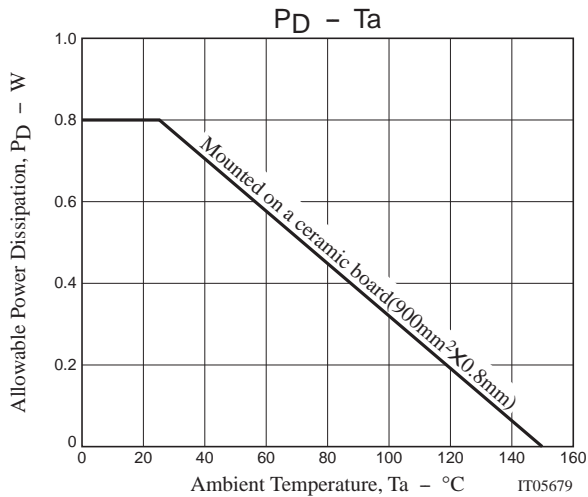
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=1.5A, V_{GS}=4V$		63	82	m $\Omega$
	$R_{DS(on)2}$	$I_D=1A, V_{GS}=2.5V$		73	102	m $\Omega$
	$R_{DS(on)3}$	$I_D=0.5A, V_{GS}=1.8V$		87	133	m $\Omega$
Input Capacitance	$C_{iss}$	$V_{DS}=10V, f=1MHz$		280		pF
Output Capacitance	$C_{oss}$	$V_{DS}=10V, f=1MHz$		60		pF
Reverse Transfer Capacitance	$C_{rss}$	$V_{DS}=10V, f=1MHz$		38		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit.		13		ns
Rise Time	$t_r$	See specified Test Circuit.		35		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit.		35		ns
Fall Time	$t_f$	See specified Test Circuit.		25		ns
Total Gate Charge	$Q_g$	$V_{DS}=10V, V_{GS}=4V, I_D=3A$		8.8		nC
Gate-to-Source Charge	$Q_{gs}$	$V_{DS}=10V, V_{GS}=4V, I_D=3A$		0.85		nC
Gate-to-Drain "Miller" Charge	$Q_{gd}$	$V_{DS}=10V, V_{GS}=4V, I_D=3A$		0.85		nC
Diode Forward Voltage	$V_{SD}$	$I_S=3A, V_{GS}=0$		0.82	1.2	V

## Switching Time Test Circuit



# SCH1402





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