

**SCH1402**

## Ultrahigh-Speed Switching Applications

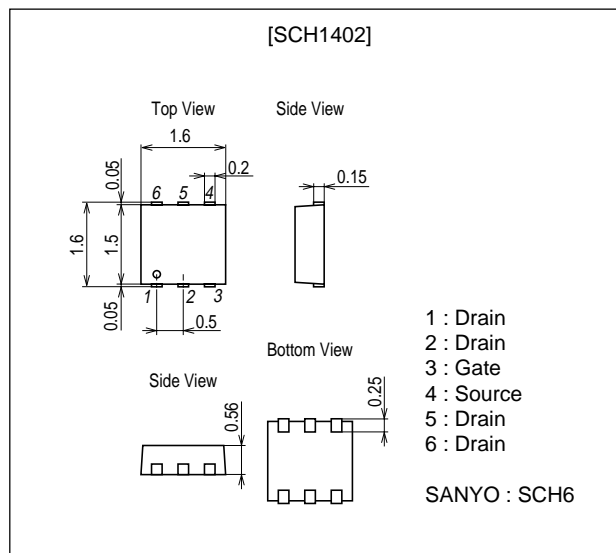
### Features

- 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	$V_{DS}$		20	V
Gate-to-Source Voltage	$V_{GS}$		$\pm 10$	V
Drain Current (DC)	$I_D$		3	A
Drain Current (Pulse)	$I_{DP}$	$PW \leq 10\mu s$ , duty cycle $\leq 1\%$	12	A
Allowable Power Dissipation	$P_D$	Mounted on a ceramic board (900mm <sup>2</sup> ×0.8mm)	0.8	W
Channel Temperature	$T_{ch}$		150	°C
Storage Temperature	$T_{stg}$		-55 to +150	°C

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = 1mA$ , $V_{GS} = 0$	20			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 20V$ , $V_{GS} = 0$			1	$\mu A$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS} = \pm 8V$ , $V_{DS} = 0$			$\pm 10$	$\mu A$
Cutoff Voltage	$V_{GS(off)}$	$V_{DS} = 10V$ , $I_D = 1mA$	0.4		1.3	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS} = 10V$ , $I_D = 1.5A$	3.36	5.6		S

Marking : KB

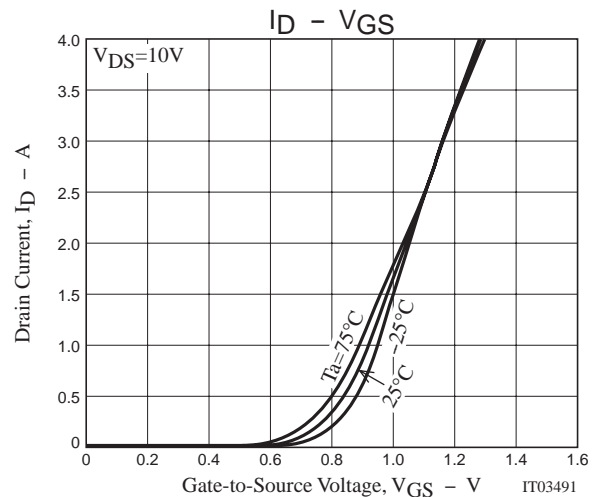
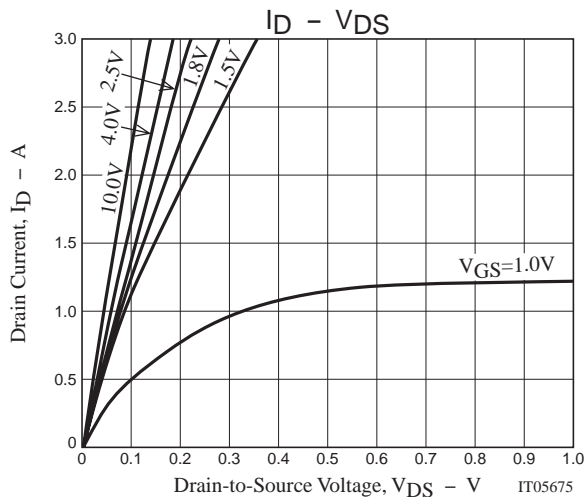
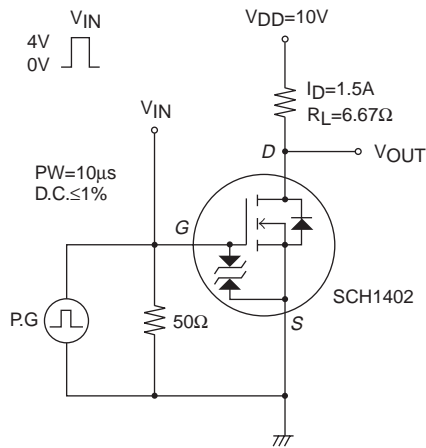
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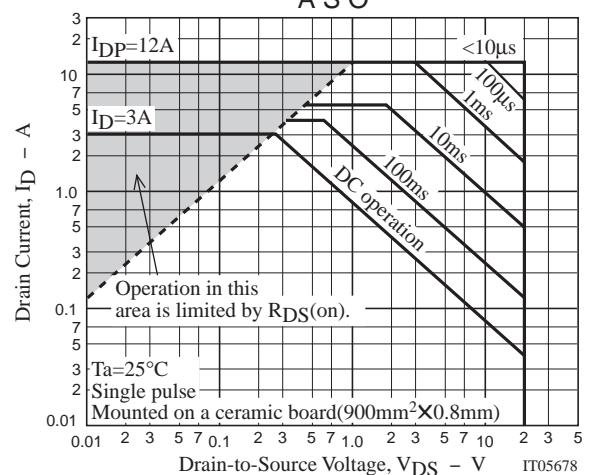
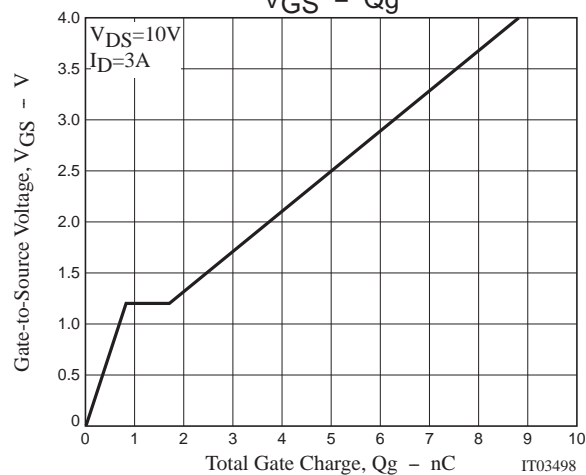
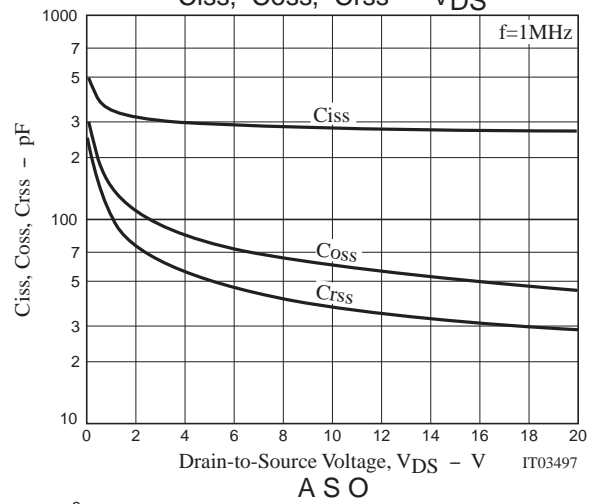
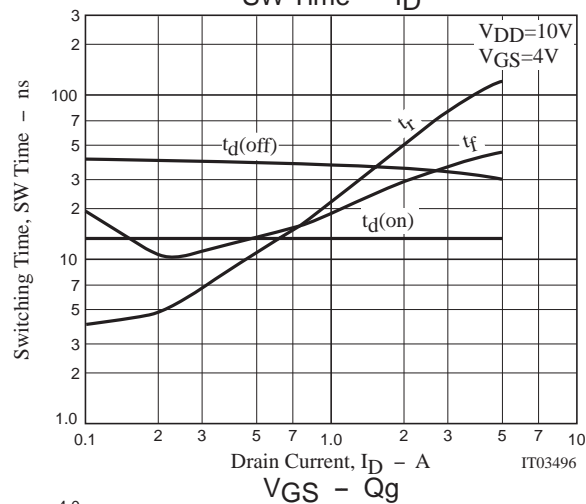
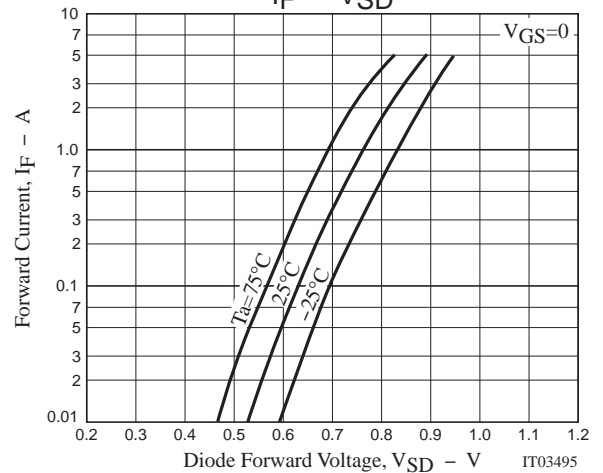
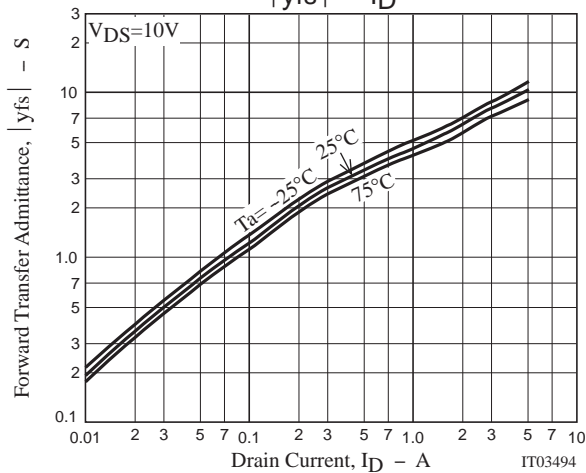
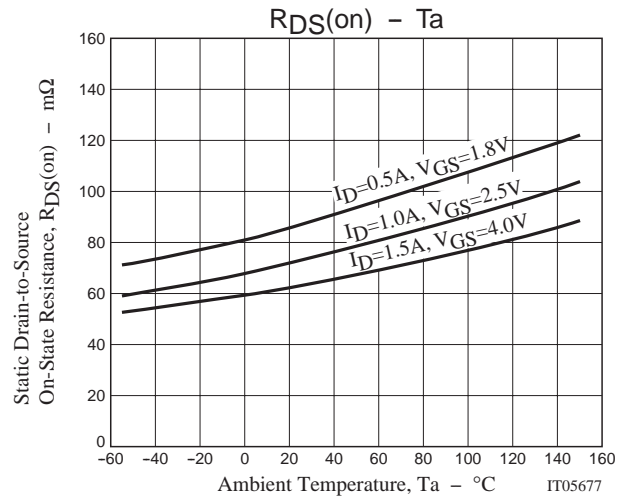
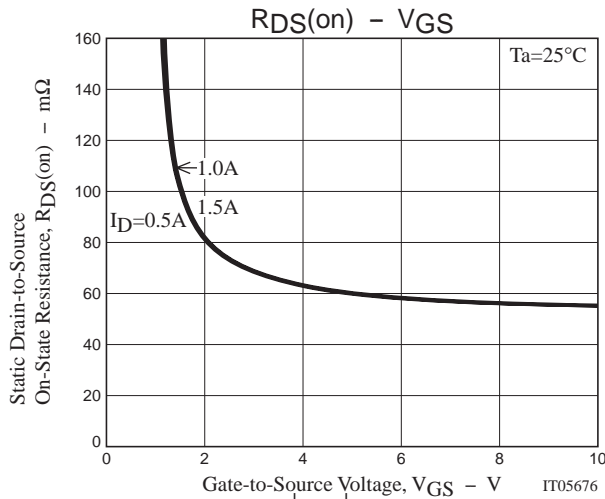
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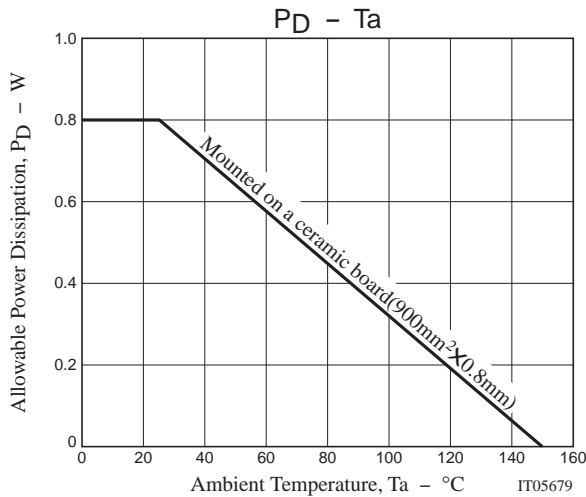
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=1.5A, V_{GS}=4V$		63	82	$m\Omega$
	$R_{DS(on)2}$	$I_D=1A, V_{GS}=2.5V$		73	102	$m\Omega$
	$R_{DS(on)3}$	$I_D=0.5A, V_{GS}=1.8V$		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







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