



2SK1416

Ultrahigh-Speed Switching Applications

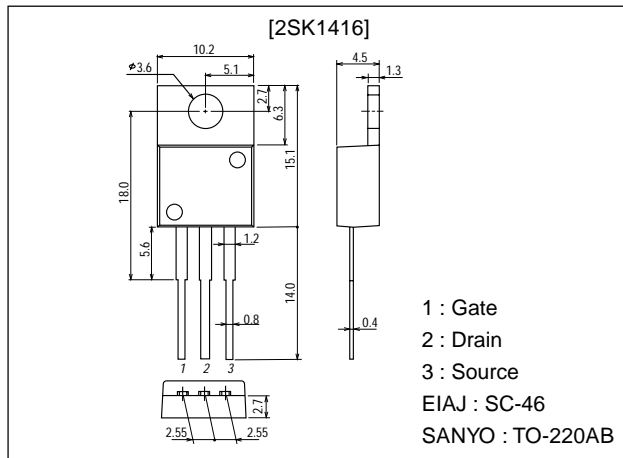
Features

- Low ON-state resistance.
- Ultrahigh-speed switching.
- Converters.

Package Dimensions

unit:mm

2052C



Specifications

Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		60	V
Gate-to-Source Voltage	V_{GSS}		± 20	V
Drain Current (DC)	I_D		15	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu s$, duty cycle $\leq 1\%$	60	A
Allowable Power Dissipation	P_D	$T_c = 25^\circ C$	40	W
			1.75	W
Channel Temperature	T_{ch}		150	$^\circ C$
Storage Temperature	T_{stg}		-55 to +150	$^\circ C$

Electrical Characteristics at Ta = 25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1mA, V_{GS}=0$	60			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=60V, V_{GS}=0$			100	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0$			± 100	nA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10V, I_D=1mA$	1.5		2.5	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10V, I_D=10A$	6.0	10		S
Static Drain-to-Source ON-State Resistance	$R_{DS(on)}$	$I_D=10A, V_{GS}=10V$		0.060	0.080	Ω

(Note) Be careful in handling the 2SK1416 because it has no protection diode between gate and source.

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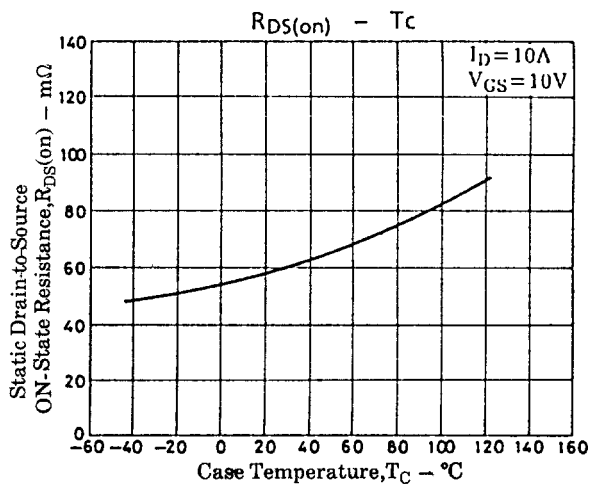
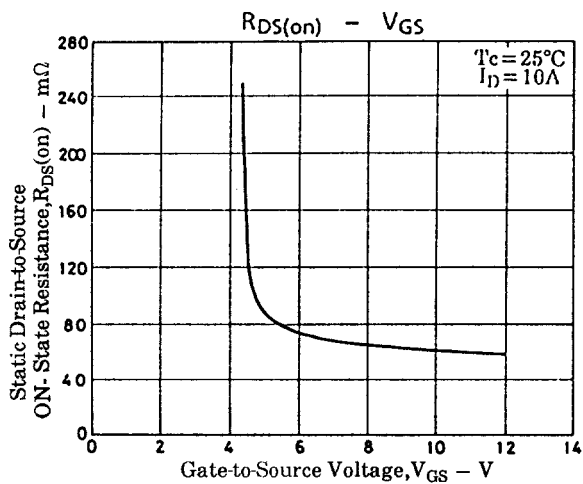
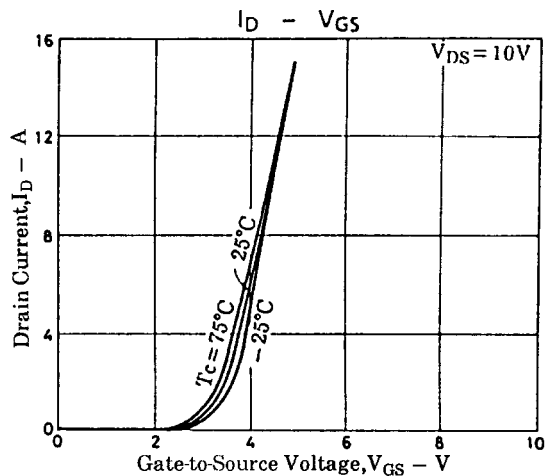
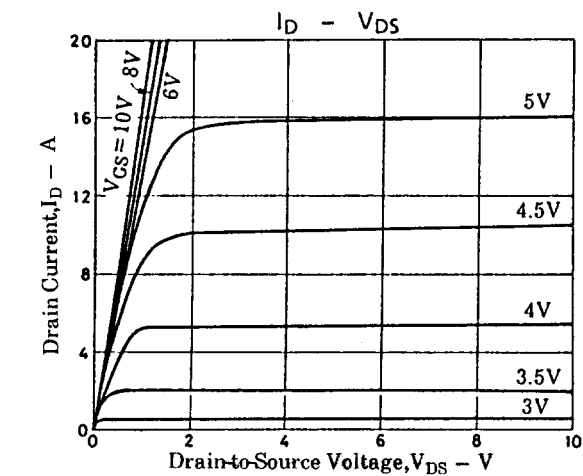
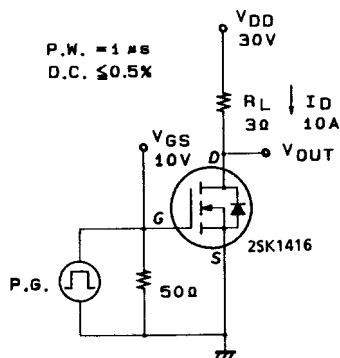
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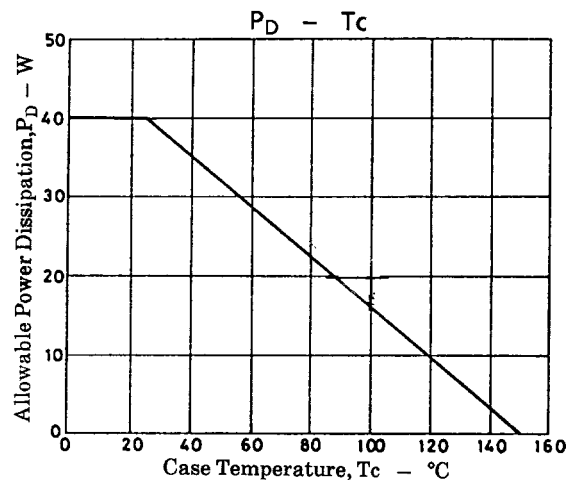
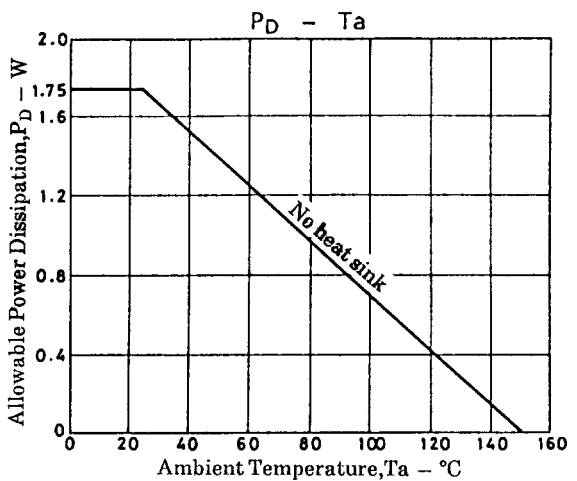
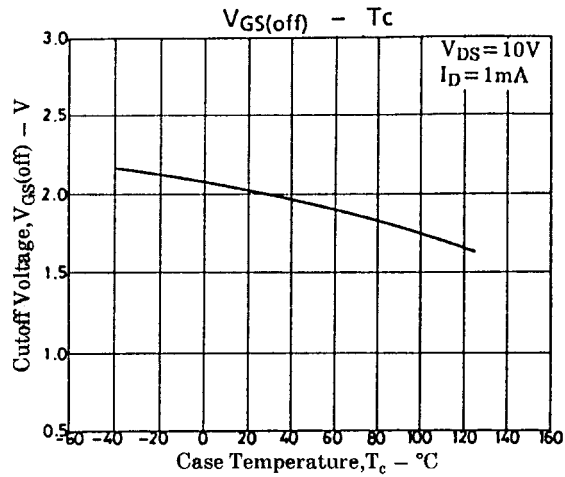
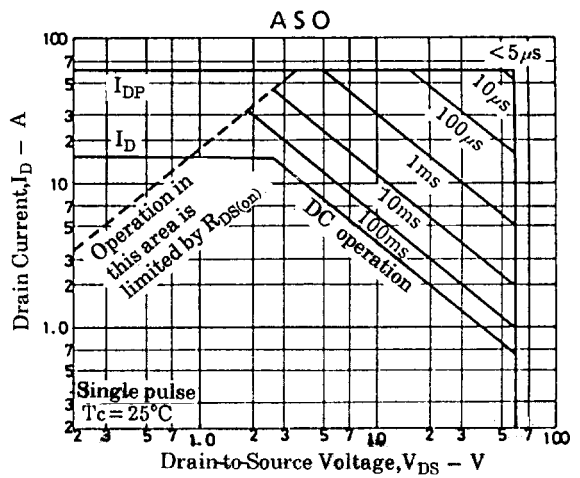
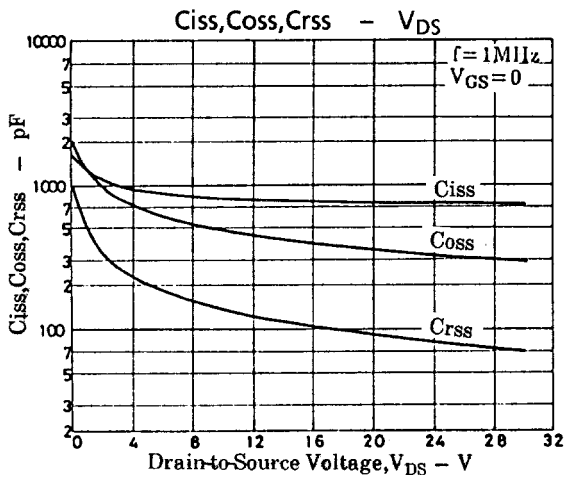
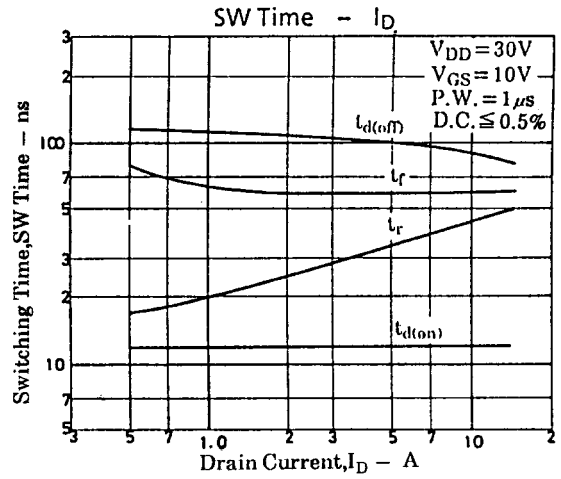
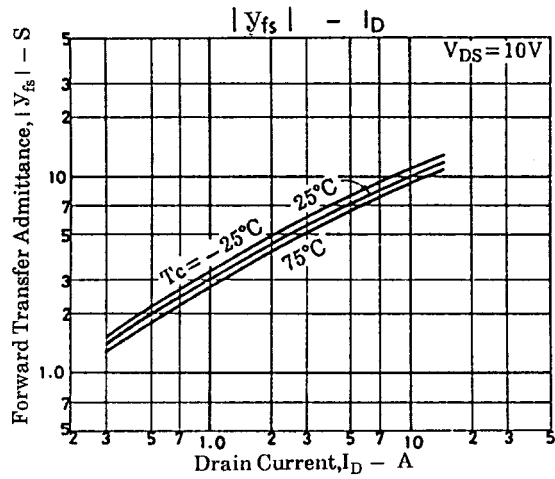
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	$V_{DS}=20V, f=1MHz$		750		pF
Output Capacitance	Coss	$V_{DS}=20V, f=1MHz$		350		pF
Reverse Transfer Capacitance	Crss	$V_{DS}=20V, f=1MHz$		90		pF
Turn-ON Delay Time	$t_{d(on)}$	$I_D=10A, V_{GS}=10V, V_{DD}=30V, R_{GS}=50\Omega$		12		ns
Rise Time	t_r	$I_D=10A, V_{GS}=10V, V_{DD}=30V, R_{GS}=50\Omega$		43		ns
Turn-OFF Delay Time	$t_{d(off)}$	$I_D=10A, V_{GS}=10V, V_{DD}=30V, R_{GS}=50\Omega$		90		ns
Fall Time	t_f	$I_D=10A, V_{GS}=10V, V_{DD}=30V, R_{GS}=50\Omega$		60		ns
Diode Forward Voltage	V_{SD}	$I_S=15A, V_{GS}=0$			1.8	V

Switching Time Test Circuit





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