

No.4177

**2SK1813**

N-Channel MOS Silicon FET

High-Speed  
Switching Applications**Features**

- Low ON resistance.
- Very high-speed switching.
- Converters.

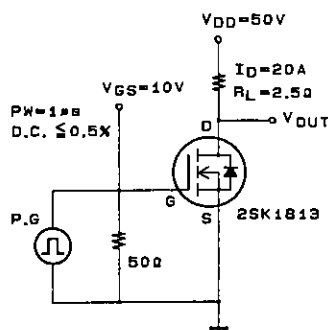
**Absolute Maximum Ratings at Ta = 25°C**

			unit	
Drain to Source Voltage	V <sub>DSS</sub>	100	V	
Gate to Source Voltage	V <sub>GS</sub>	±20	V	
Drain Current(DC)	I <sub>D</sub>	30	A	
Drain Current(Pulse)	I <sub>DP</sub>	PW ≤ 10 μs, duty cycle ≤ 1%	120	A
Allowable Power Dissipation	P <sub>D</sub>	Tc = 25°C	1.65	W
			70	W
Junction Temperature	T <sub>j</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +150	°C

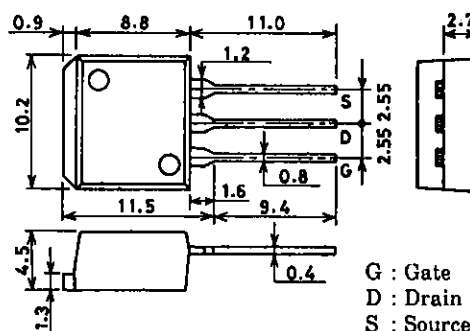
**Electrical Characteristics at Ta = 25°C**

			min	typ	max	unit
D-S Breakdown Voltage	V <sub>DSS</sub>	I <sub>D</sub> = 1mA, V <sub>GS</sub> = 0	100			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = 100V, V <sub>GS</sub> = 0			100	μA
Gate to Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> = ±20V, V <sub>DS</sub> = 0			±100	nA
Cutoff Voltage	V <sub>GS(off)</sub>	V <sub>DS</sub> = 10V, I <sub>D</sub> = 1mA	1.5		2.5	V
Forward Transfer Admittance	Y <sub>fs</sub>	V <sub>DS</sub> = 10V, I <sub>D</sub> = 20A	13	22		S
Static Drain to Source on State Resistance	R <sub>DSON</sub>	I <sub>D</sub> = 20A, V <sub>GS</sub> = 10V	0.040	0.055		Ω
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> = 20V, f = 1MHz		2400		pF
Output Capacitance	C <sub>oss</sub>	V <sub>DS</sub> = 20V, f = 1MHz		700		pF
Reverse Transfer Capacitance	C <sub>rss</sub>	V <sub>DS</sub> = 20V, f = 1MHz		200		pF
Turn-ON Delay Time	t <sub>d(on)</sub>	I <sub>D</sub> = 20A, V <sub>GS</sub> = 10V V <sub>DD</sub> = 50V, R <sub>GS</sub> = 50Ω		30		ns
Rise Time	t <sub>r</sub>		90		ns	
Turn-OFF Delay Time	t <sub>d(off)</sub>		320		ns	
Fall Time	t <sub>f</sub>		130		ns	
Diode Forward Voltage	V <sub>SD</sub>	I <sub>F</sub> = 30A, V <sub>GS</sub> = 0			1.8	V

(Note) Be careful in handling the 2SK1813 because it has no protection diode between gate and source.

**Switching Time Test Circuit****Package Dimensions 2089**

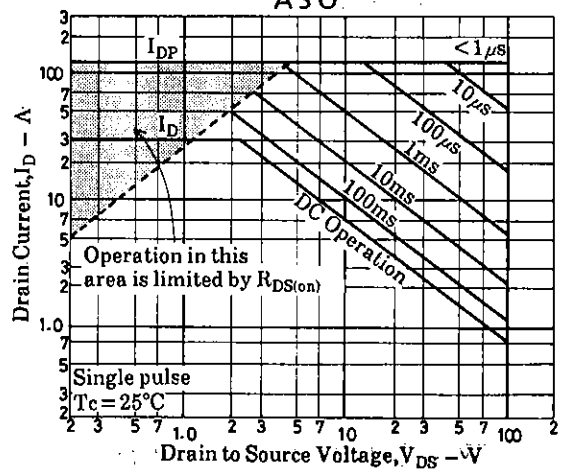
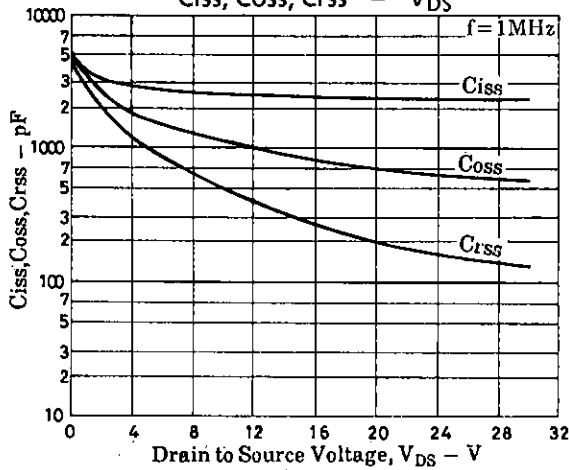
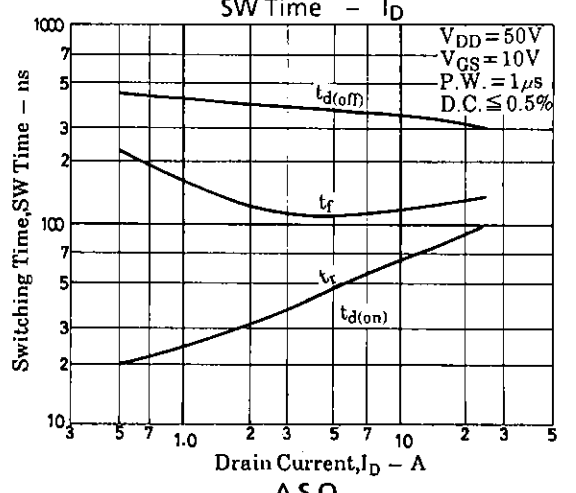
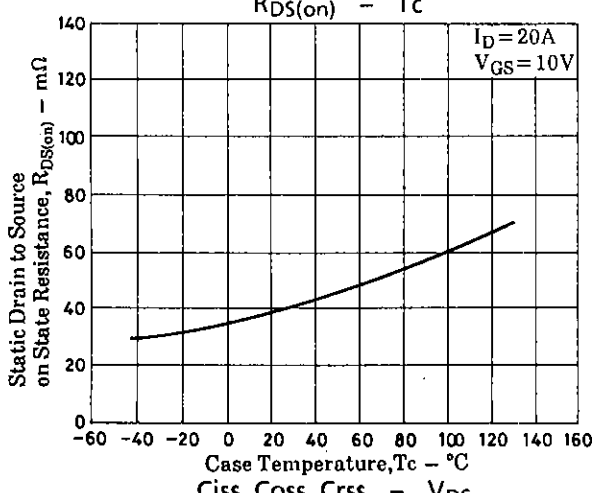
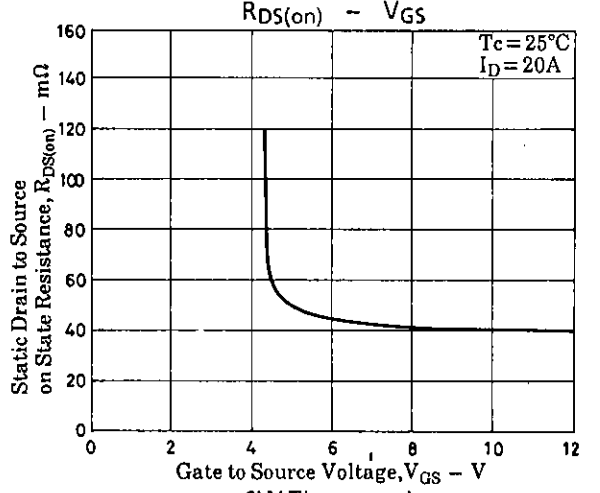
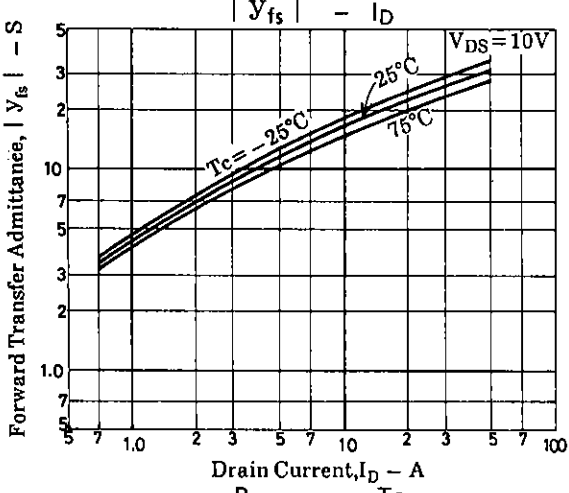
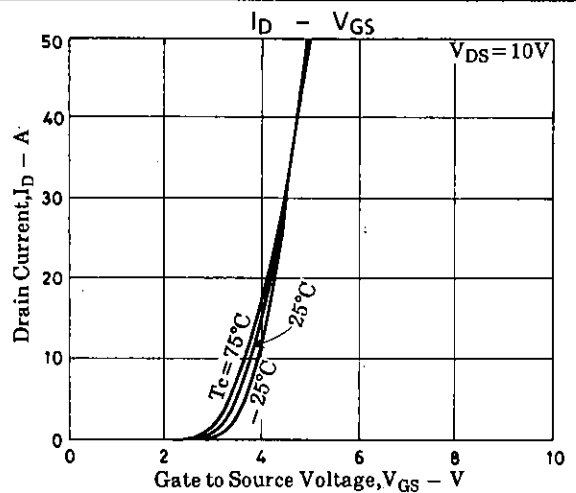
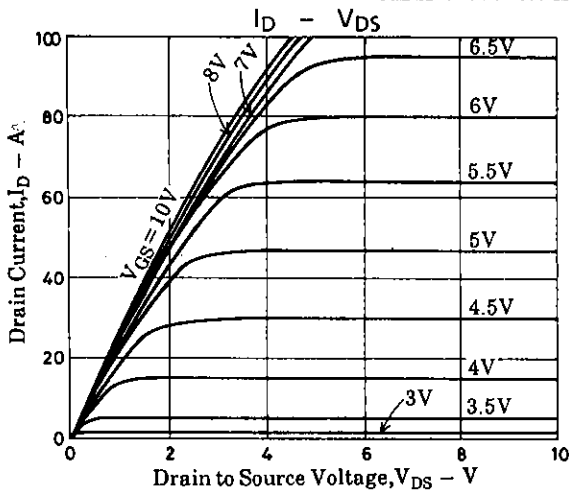
(unit : mm)

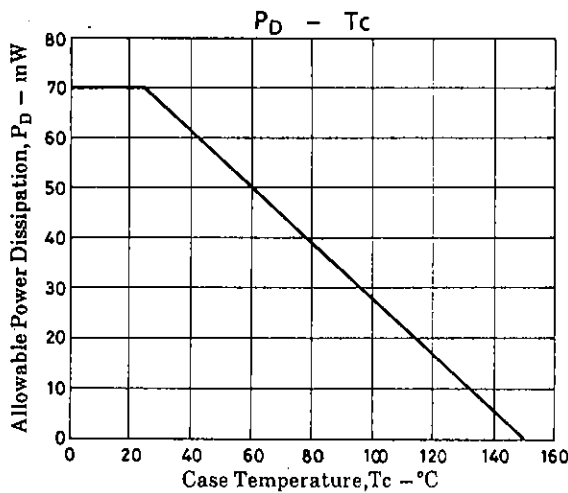
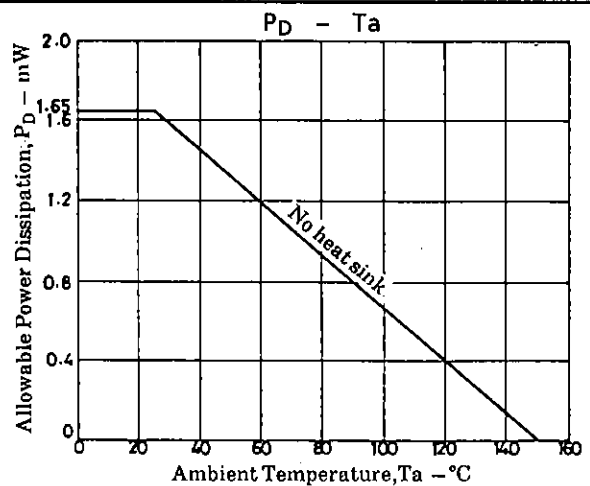
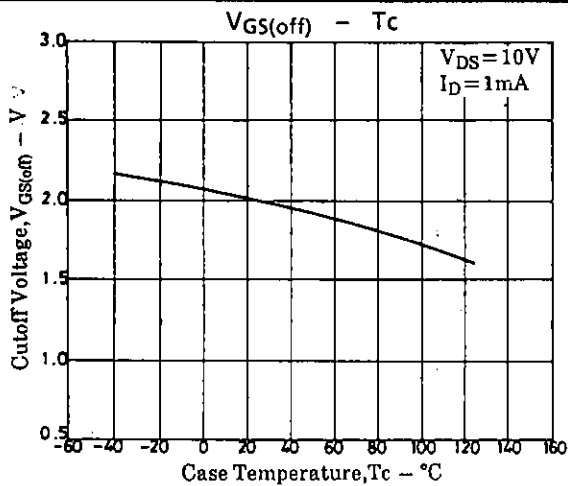


G : Gate  
D : Drain  
S : Source  
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