



2SK3836 — N-Channel Silicon MOSFET

General-Purpose Switching Device Applications

Features

- Ultrahigh-speed switching.
- 4V drive.
- Avalanche resistance guarantee.

Specifications

Absolute Maximum Ratings at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		100	V
Gate-to-Source Voltage	V_{GSS}		± 20	V
Drain Current (DC)	I_D		33	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu\text{s}$, duty cycle $\leq 1\%$	132	A
Allowable Power Dissipation	P_D		3.0	W
		$T_c=25^\circ\text{C}$	40	W
Channel Temperature	T_{ch}		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$
Avalanche Energy (Single Pulse) *1	E_{AS}		130	mJ
Avalanche Current *2	I_{AV}		33	A

*1 $V_{DD}=20\text{V}$, $L=200\mu\text{H}$, $I_{AV}=33\text{A}$

*2 $L \leq 200\mu\text{H}$, single pulse

Electrical Characteristics at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1\text{mA}$, $V_{GS}=0\text{V}$	100			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=100\text{V}$, $V_{GS}=0\text{V}$			1	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 16\text{V}$, $V_{DS}=0\text{V}$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10\text{V}$, $I_D=1\text{mA}$	1.2		2.6	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10\text{V}$, $I_D=17\text{A}$	18	30		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=17\text{A}$, $V_{GS}=10\text{V}$		26	34	$\text{m}\Omega$
	$R_{DS(on)2}$	$I_D=17\text{A}$, $V_{GS}=4\text{V}$		31	43	$\text{m}\Omega$

Marking : K3836

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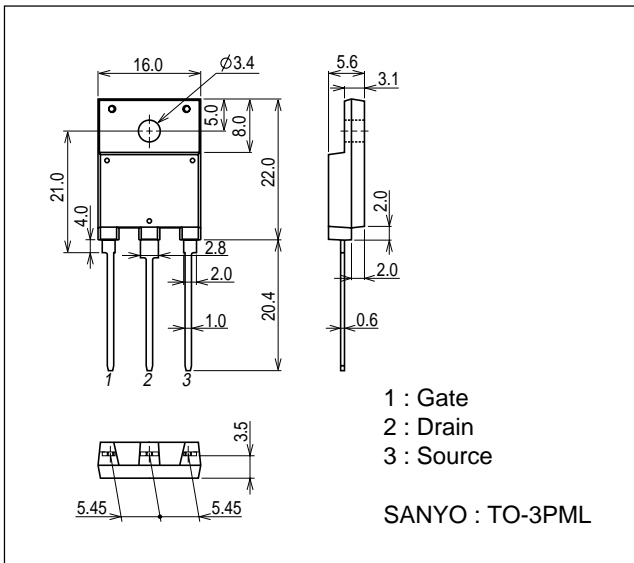
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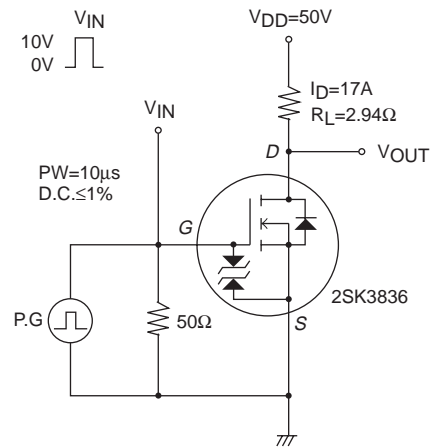
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	$V_{DS}=20V, f=1MHz$		4200		pF
Output Capacitance	Coss	$V_{DS}=20V, f=1MHz$		300		pF
Reverse Transfer Capacitance	Crss	$V_{DS}=20V, f=1MHz$		250		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit.		30		ns
Rise Time	t_r	See specified Test Circuit.		65		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit.		300		ns
Fall Time	t_f	See specified Test Circuit.		110		ns
Total Gate Charge	Qg	$V_{DS}=50V, V_{GS}=10V, I_D=33A$		79		nC
Gate-to-Source Charge	Qgs	$V_{DS}=50V, V_{GS}=10V, I_D=33A$		14		nC
Gate-to-Drain "Miller" Charge	Qgd	$V_{DS}=50V, V_{GS}=10V, I_D=33A$		18		nC
Diode Forward Voltage	V_{SD}	$I_S=33A, V_{GS}=0V$		0.95	1.2	V

Package Dimensions

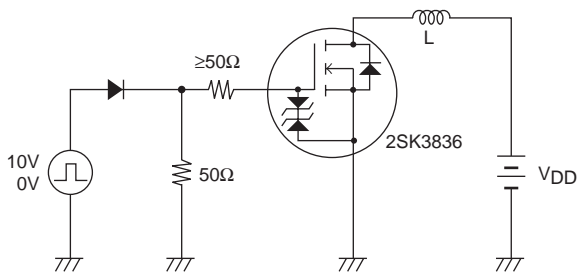
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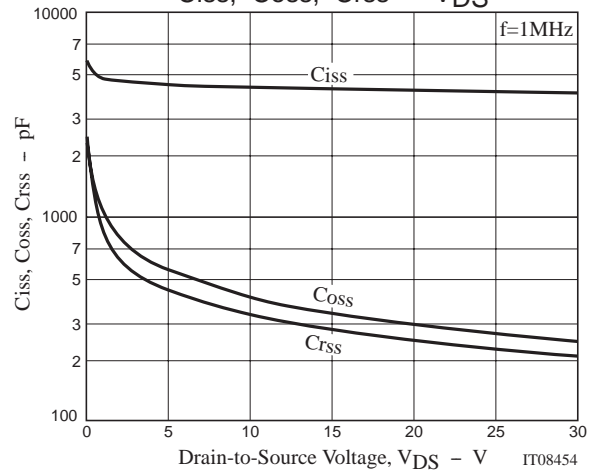
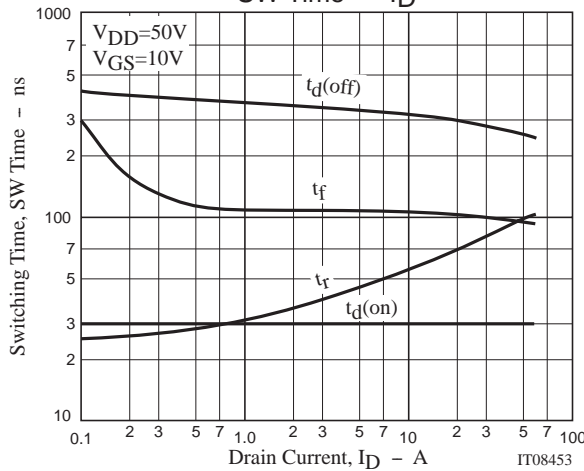
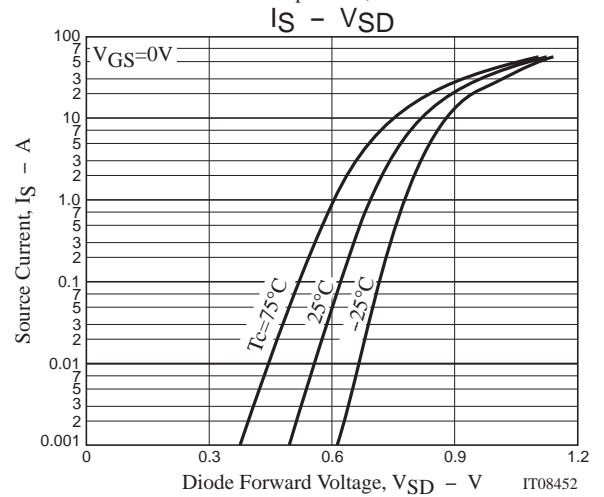
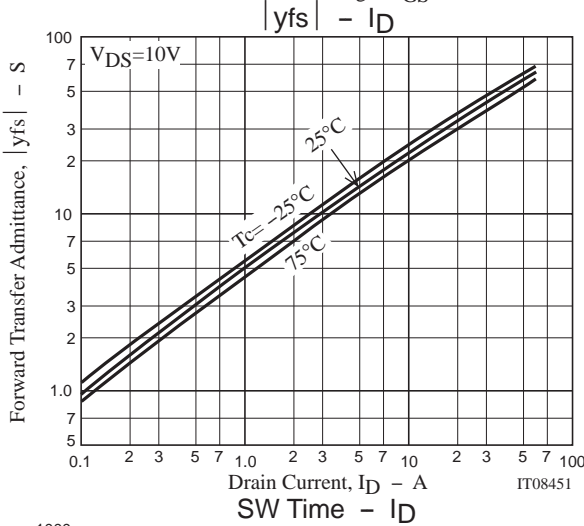
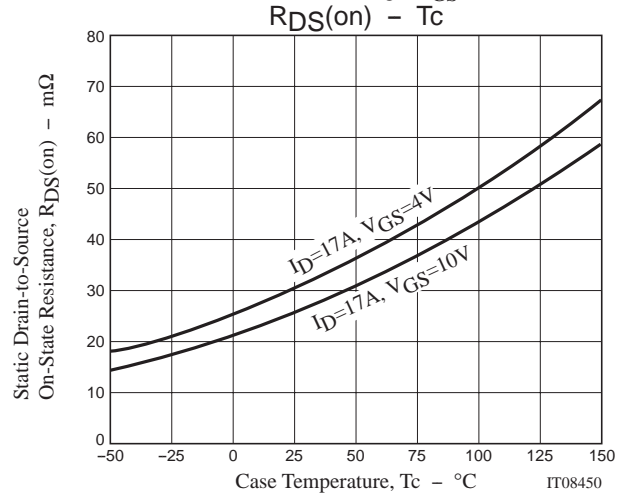
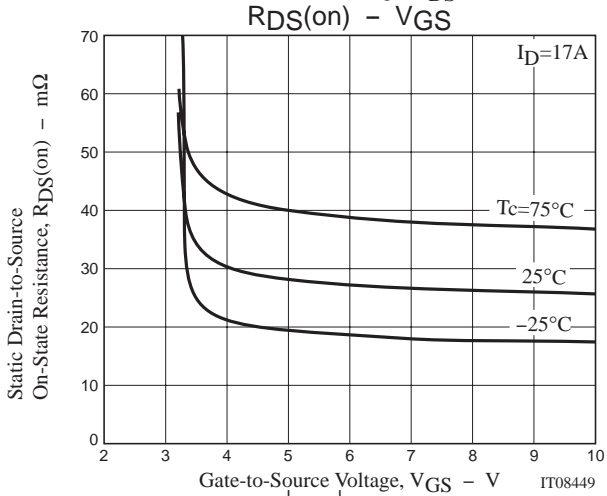
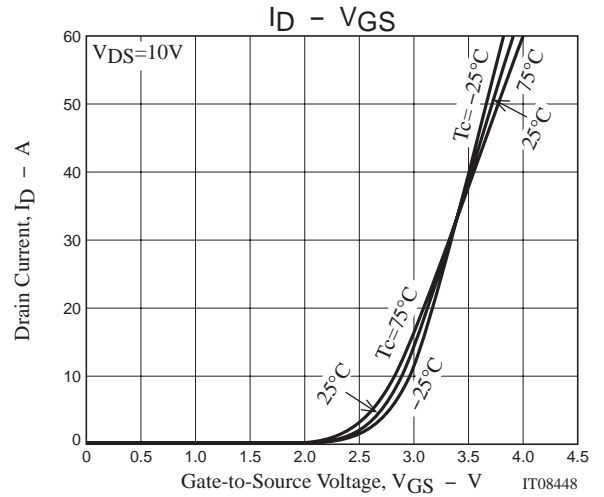
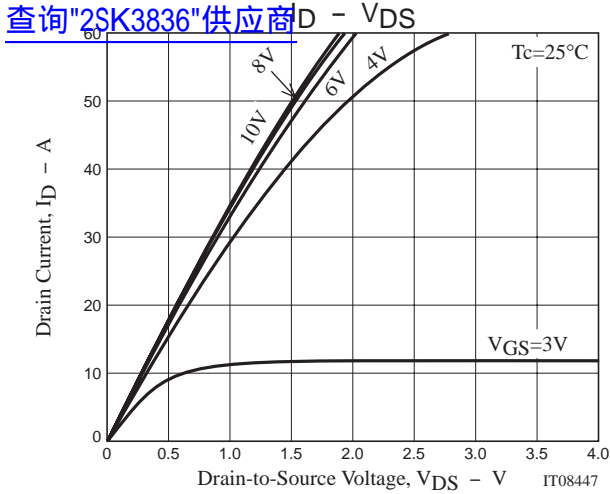


Switching Time Test Circuit

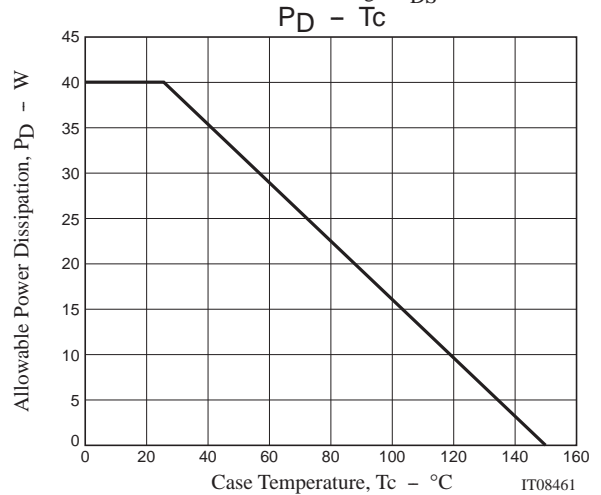
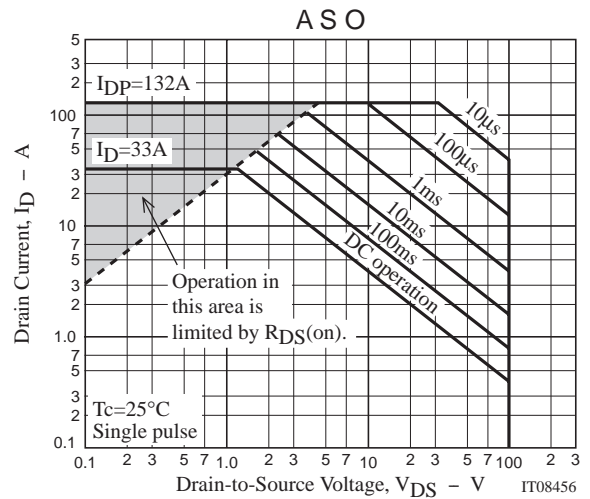
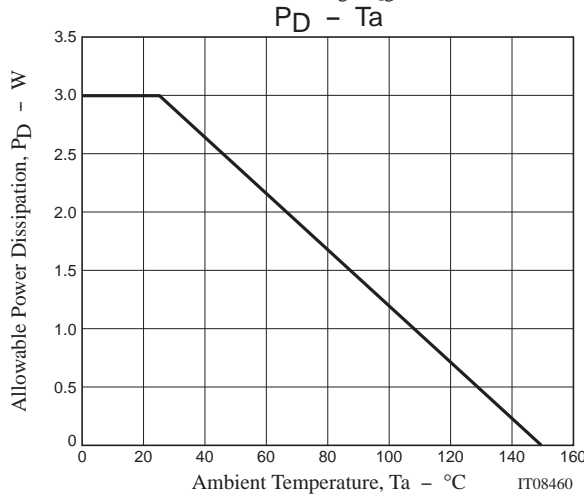
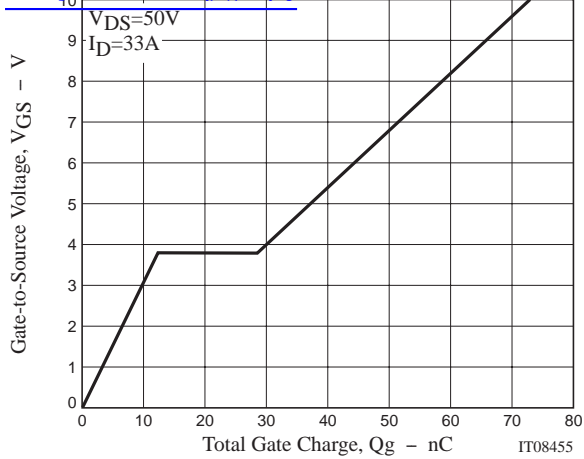


Avalanche Resistance Test Circuit





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Note on usage : Since the 2SK3836 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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