Ordering number : EN8638

SANYO Semiconductors

DATA SHEET

N-Channel Silicon MOSFET

2SK3836 — General-Purpose Switching Device Applications

Features

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

Specifications

Absolute Maximum Ratings at Ta=25°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≤10μs, duty cycle≤1%	132	A
Allowable Power Dissipation	P_D		3.0	W
		Tc=25°C	40	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		–55 to +150	°C
Avalanche Energy (Single Pulse) *1	E_{AS}		130	mJ
Avalanche Current *2	I_{AV}		33	A

*1 V_{DD}=20V, L=200μH, I_{AV}=33A

*2 L≤200μH, single pulse

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}=0V	100			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=100V, V_{GS}=0V			1	μA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±16V, V_{DS}=0V			±10	μA
Cutoff Voltage	$V_{GS(off)}$	V_{DS}=10V, I_D=1mA	1.2		2.6	V
Forward Transfer Admittance	$\|yfs\|$	V_{DS}=10V, I_D=17A	18	30		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	I_D=17A, V_{GS}=10V		26	34	mΩ
	$R_{DS(on)2}$	I_D=17A, V_{GS}=4V		31	43	mΩ

Marking : K3836

Continued on next page.

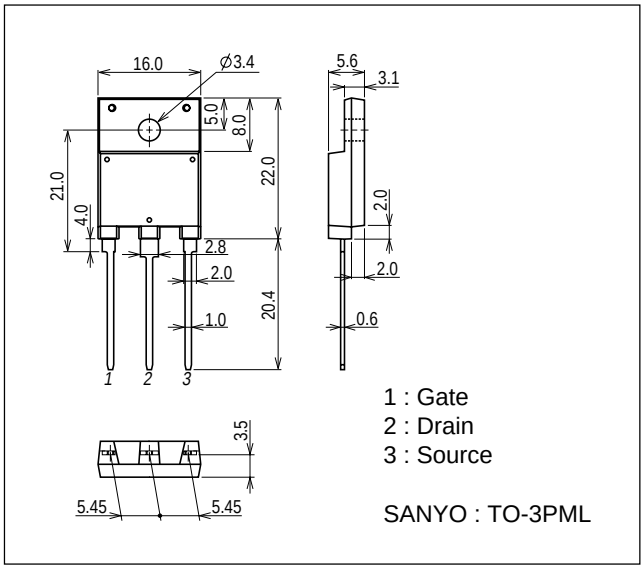
SANYO Electric Co.,Ltd. Semiconductor Company
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

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

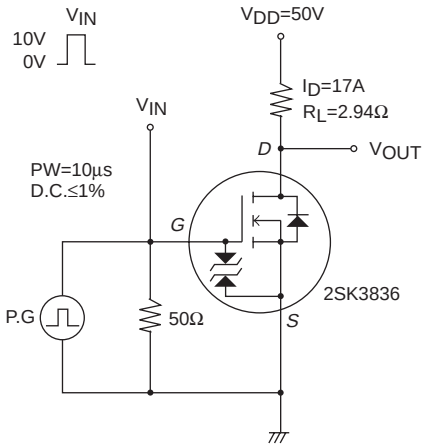
Package Dimensions

unit : mm

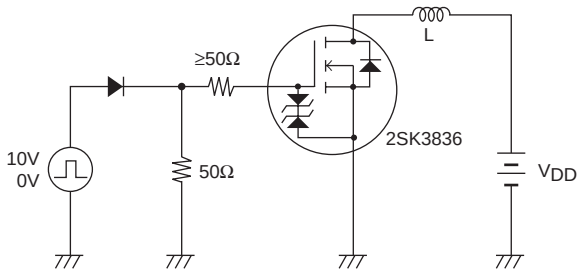
7505-003

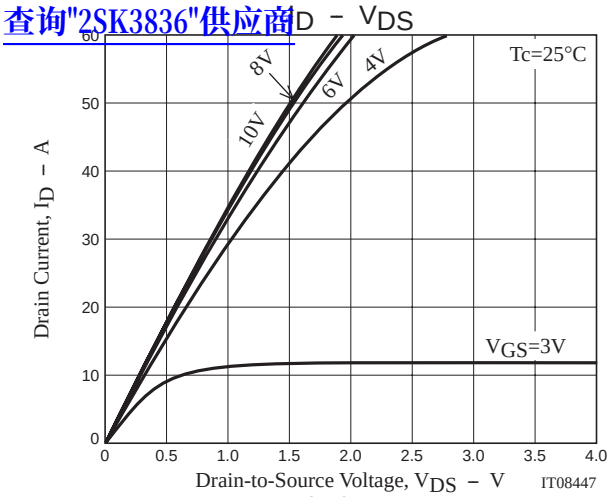


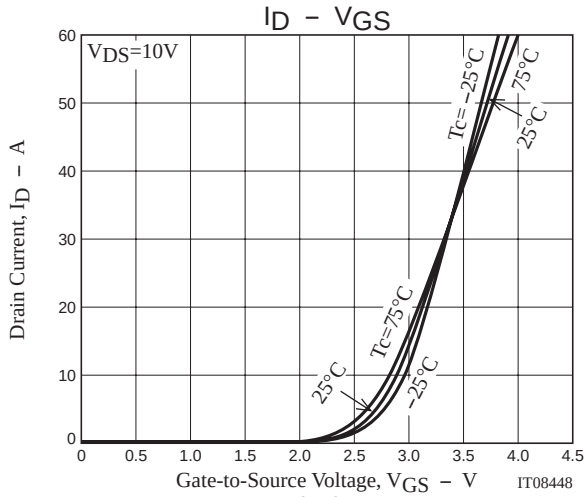
Switching Time Test Circuit

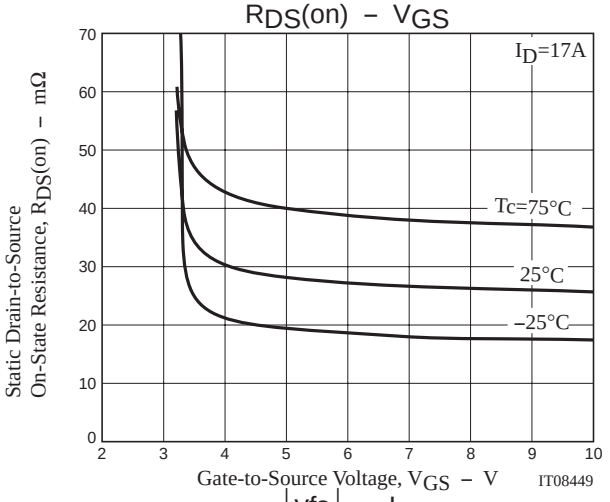


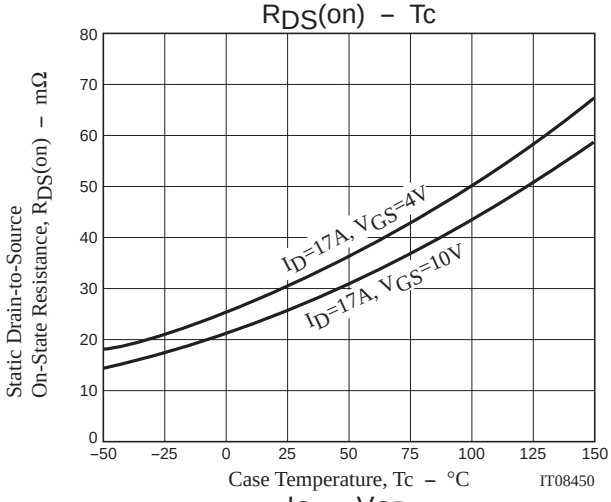
Avalanche Resistance Test Circuit

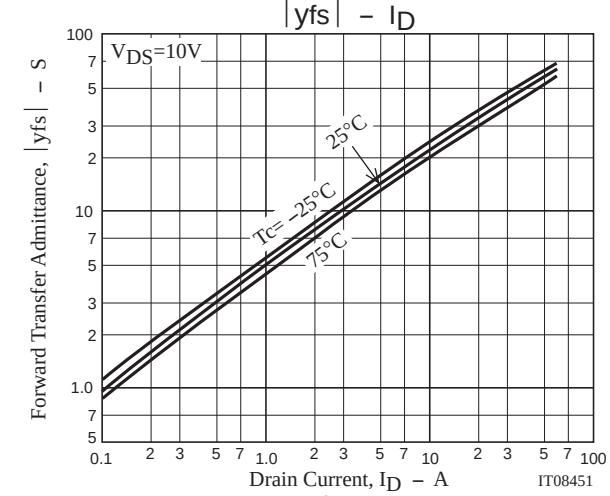


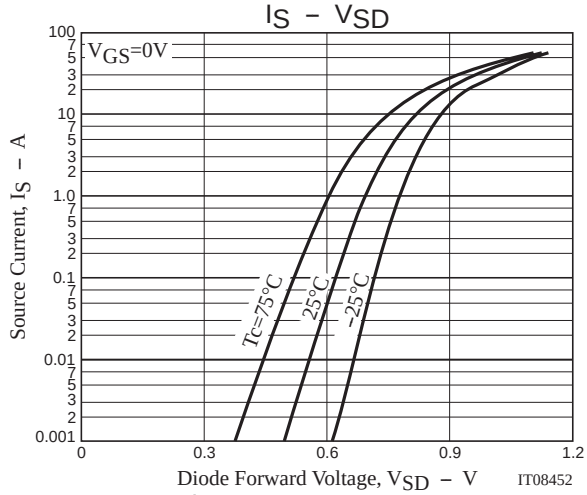


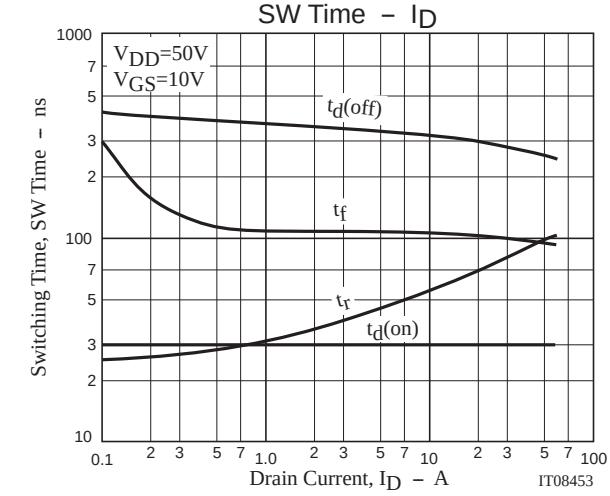


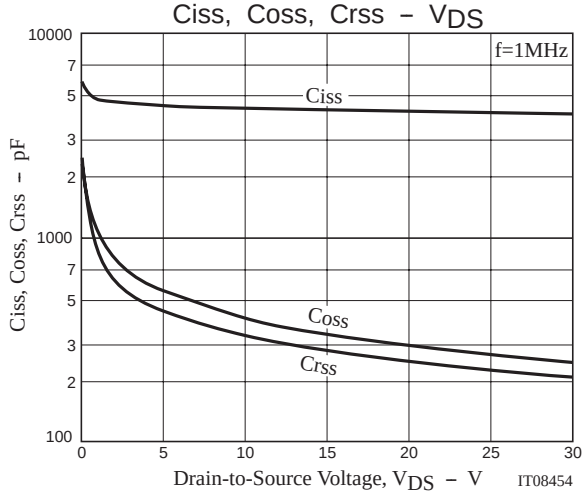


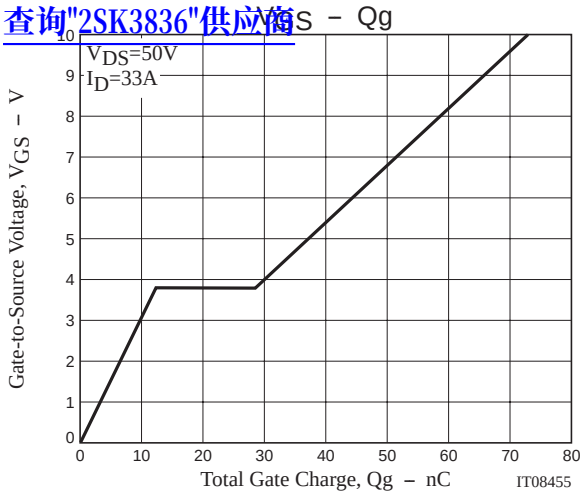


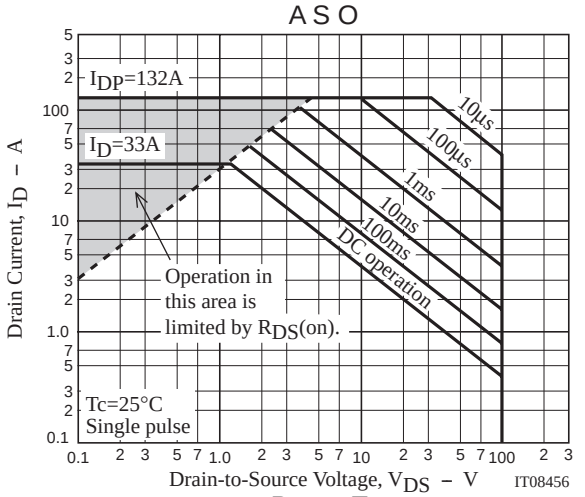


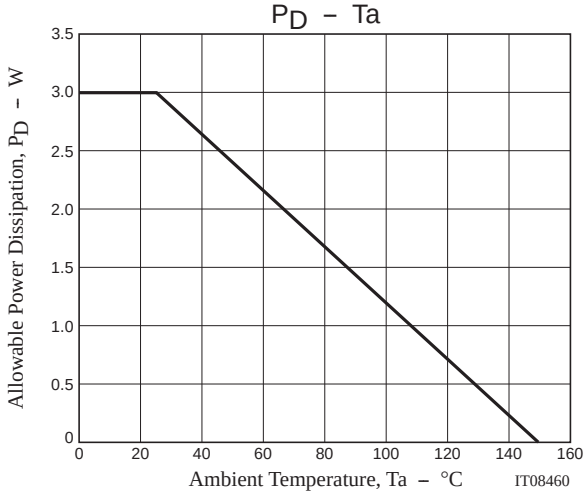


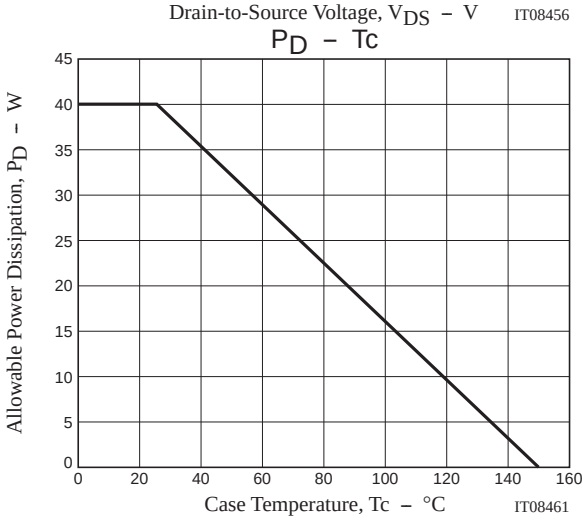












Note on usage : Since the 2SK3836 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.