Ordering number : ENA0361A

SANYO Semiconductors

DATA SHEET

N-Channel Silicon MOSFET

2SK2617ALS — General-Purpose Switching Device Applications

Features

- Low ON-resistance.
- Low Qg.
- Ultrahigh-speed switching.

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		500	V
Gate-to-Source Voltage	V_{GSS}		±30	V
Drain Current (DC)	I_{Dc}*1	Limited only by maximum temperature	5	A
	I_{Dpack}*2	SANYO's ideal heat dissipation condition	4.5	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	16	A
Allowable Power Dissipation	P_D		2.0	W
		Tc=25°C (SANYO's ideal heat dissipation condition)	25	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		−55 to +150	°C
Avalanche Energy (Single Pulse) *3	E_{AS}		88	mJ
Avalanche Current *4	I_{AV}		4	A

*1 Shows chip capability

*2 Package limited

*3 V_{DD}=50V, L=10mH, I_{AV}=4A

*4 L≤10mH, single pulse

Marking : K2617

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SANYO Semiconductor Co., Ltd.

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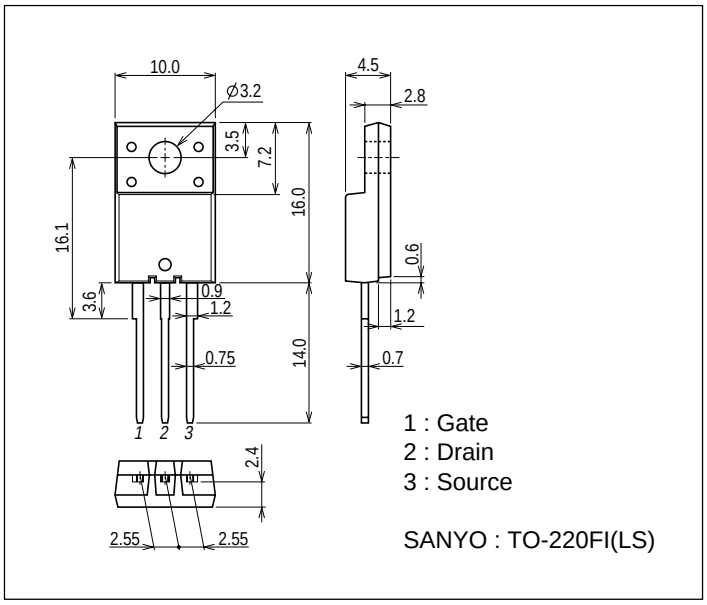
Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=1mA, V_{GS}=0V	500			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=500V, V_{GS}=0V			1.0	mA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±30V, V_{DS}=0V			±100	nA
Cutoff Voltage	$V_{GS}(off)$	V_{DS}=10V, I_D=1mA	3.5		5.5	V
Forward Transfer Admittance	$\|yfs\|$	V_{DS}=10V, I_D=2A	1.1	2.2		S
Static Drain-to-Source On-State Resistance	$R_{DS}(on)$	I_D=2A, V_{GS}=15V		1.2	1.6	Ω
Input Capacitance	Ciss	V_{DS}=20V, f=1MHz		550		pF
Output Capacitance	Coss	V_{DS}=20V, f=1MHz		190		pF
Reverse Transfer Capacitance	Crss	V_{DS}=20V, f=1MHz		95		pF
Total Gate Charge	Qg	V_{DS}=200V, I_D=4A, V_{GS}=10V		15		nC
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit.		15		ns
Rise Time	t_r	See specified Test Circuit.		15		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit.		45		ns
Fall Time	t_f	See specified Test Circuit.		25		ns
Diode Forward Voltage	V_{SD}	I_S=4A, V_{GS}=0V		0.95	1.2	V

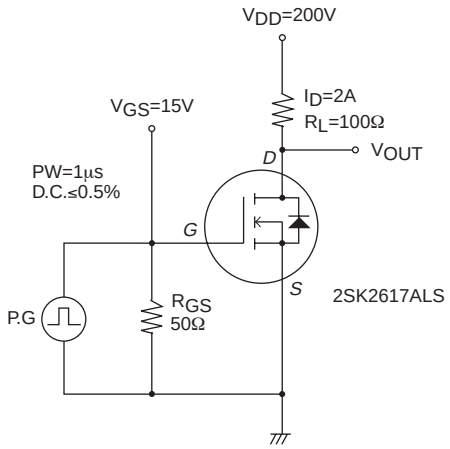
Package Dimensions

unit : mm (typ)

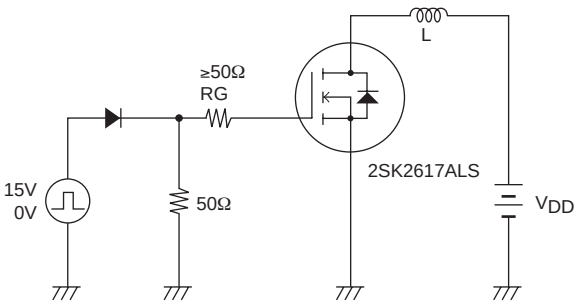
7509-002

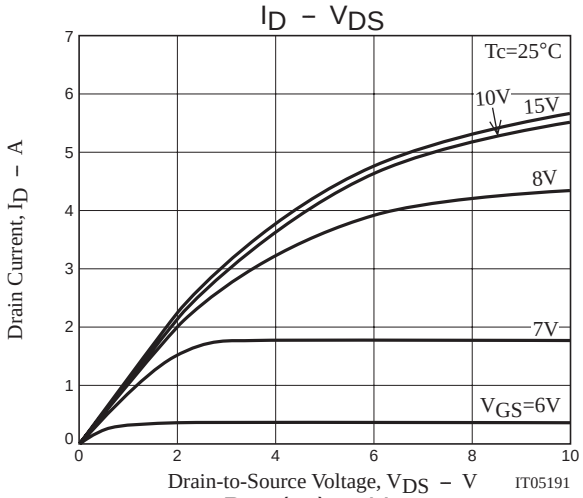


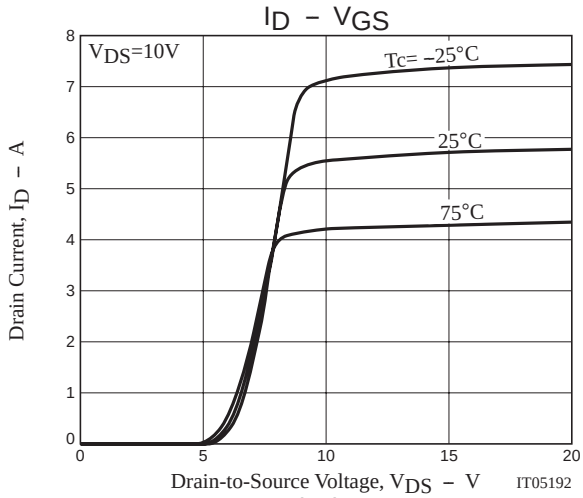
Switching Time Test Circuit

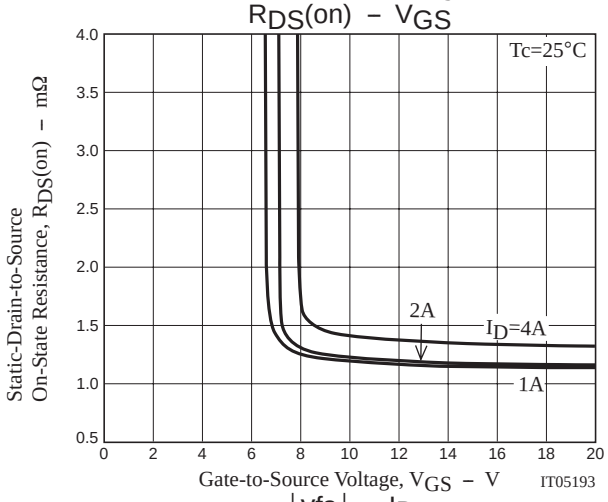


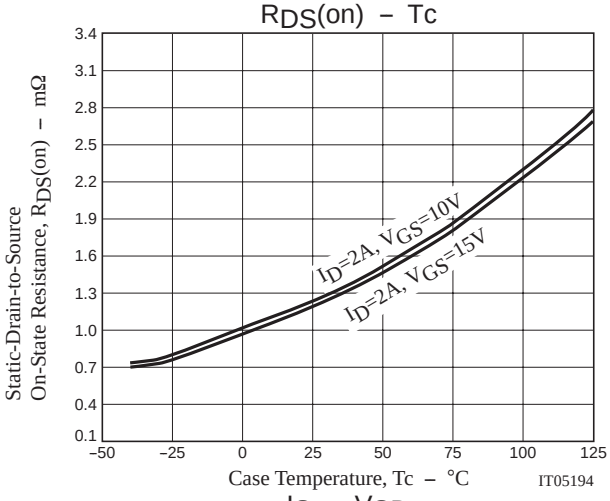
Avalanche Resistance Test Circuit

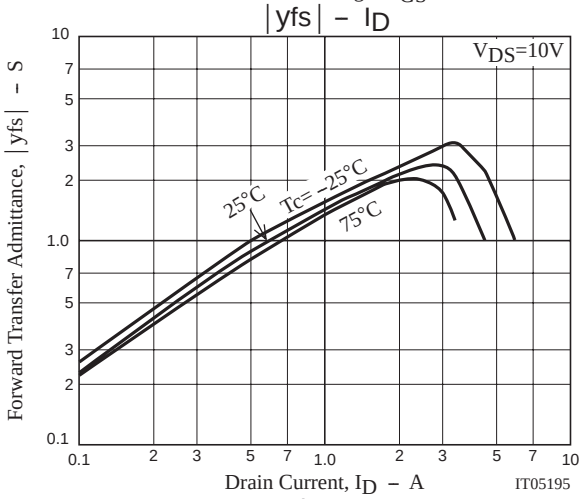


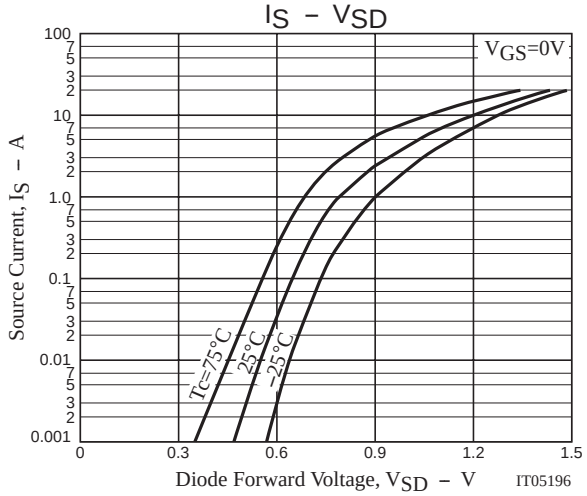

ID – VDS
Tc=25°C
10V
15V
8V
7V
VGS=6V
Drain Current, ID – A
Drain-to-Source Voltage, VDS – V
IT05191

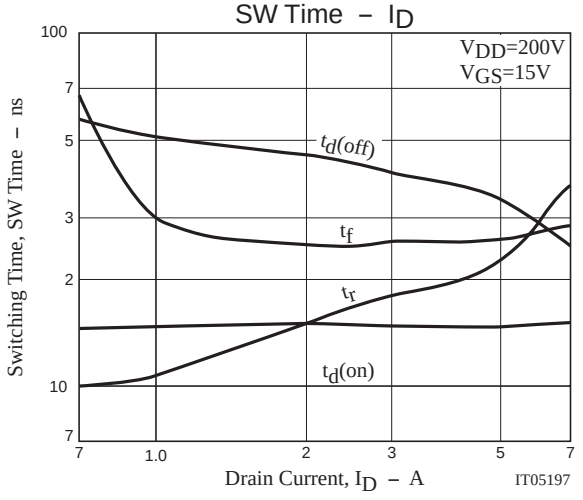

ID – VGS
VDS=10V
Tc= –25°C
25°C
75°C
Drain Current, ID – A
Drain-to-Source Voltage, VDS – V
IT05192

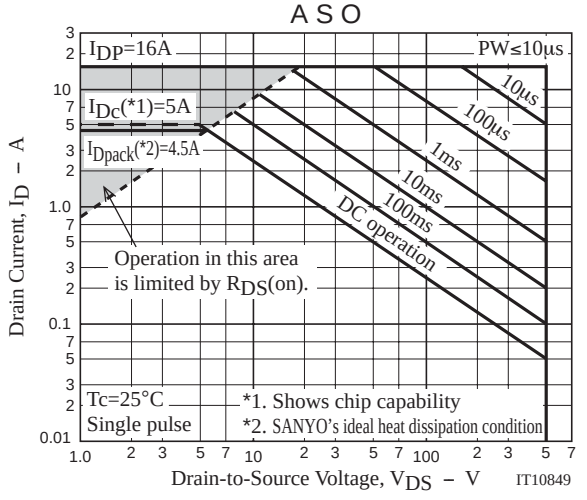

RDS(on) – VGS
Tc=25°C
2A
ID=4A
1A
Static-Drain-to-Source On-State Resistance, RDS(on) – mΩ
Gate-to-Source Voltage, VGS – V
IT05193

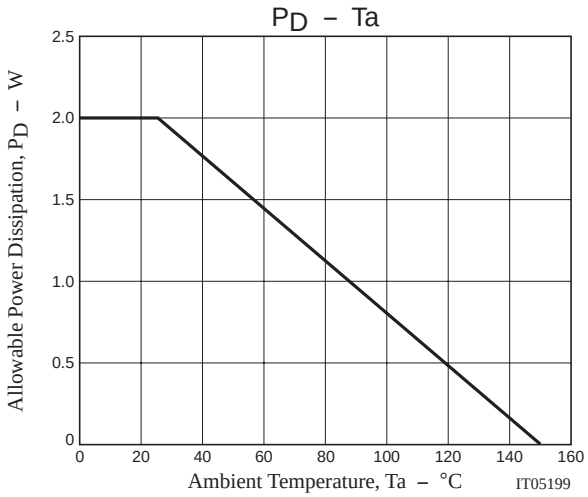

RDS(on) – Tc
ID=2A, VGS=10V
ID=2A, VGS=15V
Static-Drain-to-Source On-State Resistance, RDS(on) – mΩ
Case Temperature, Tc – °C
IT05194

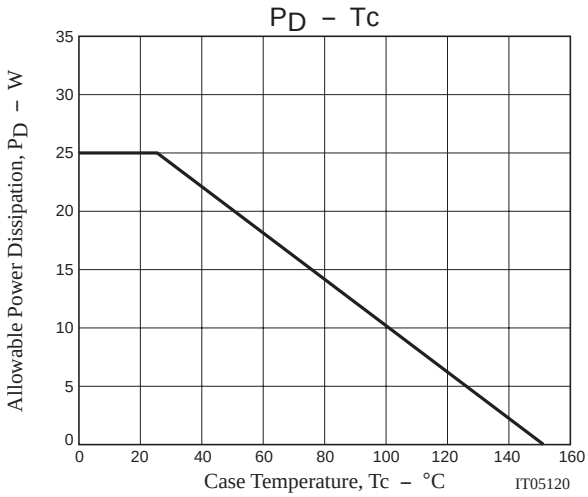

|yfs| – ID
VDS=10V
25°C
Tc= –25°C
75°C
Forward Transfer Admittance, |yfs| – S
Drain Current, ID – A
IT05195

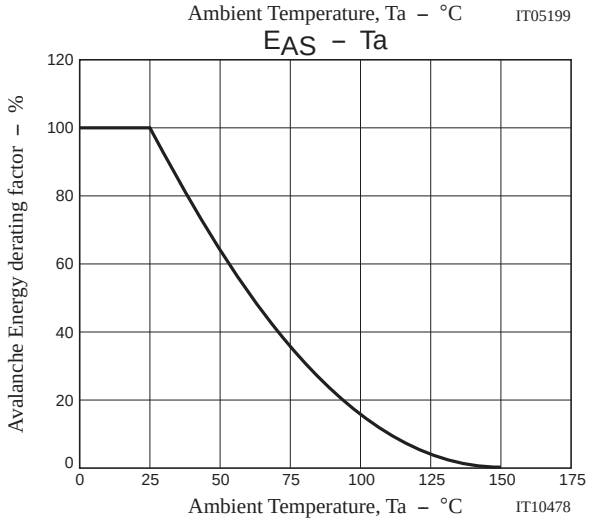

IS – VSD
VGS=0V
Tc=75°C
25°C
–25°C
Source Current, IS – A
Diode Forward Voltage, VSD – V
IT05196


SW Time – ID
VDD=200V
VGS=15V
td(off)
tf
tr
td(on)
Switching Time, SW Time – ns
Drain Current, ID – A
IT05197


A S O
IDP=16A
PW≤10μs
IDC(*1)=5A
IDpack(*2)=4.5A
10μs
100μs
1ms
10ms
100ms
DC operation
Operation in this area is limited by RDS(on).
Tc=25°C
Single pulse
*1. Shows chip capability
*2. SANYO's ideal heat dissipation condition
Drain Current, ID – A
Drain-to-Source Voltage, VDS – V
IT10849







Note on usage : Since the 2SK2617ALS is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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