Ordering number : EN7180A

SANYO Semiconductors
DATA SHEET

N-Channel Silicon MOSFET

2SK3485 — General-Purpose Switching Device Applications

Features

- Low ON-resistance.
- Ultrahigh-speed switching.
- 2.5V drive.

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		20	V
Gate-to-Source Voltage	V_{GSS}		±10	V
Drain Current (DC)	I_D		2.5	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	10	A
Allowable Power Dissipation	P_D	Mounted on a ceramic board (250mm²×0.8mm)	1.0	W
		Tc=25°C	3.5	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		−55 to +150	°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}=0V	20			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=20V, V_{GS}=0V			1	μA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±8V, V_{DS}=0V			±10	μA
Cutoff Voltage	$V_{GS}(off)$	V_{DS}=10V, I_D=1mA	0.4		1.3	V
Forward Transfer Admittance	$\|yfs\|$	V_{DS}=10V, I_D=1.3A	2.8	4.0		S
Static Drain-to-Source On-State Resistance	$R_{DS}(on)1$	I_D=1.3A, V_{GS}=4V		110	140	mΩ
	$R_{DS}(on)2$	I_D=0.7A, V_{GS}=2.5V		140	195	mΩ

Marking : LB

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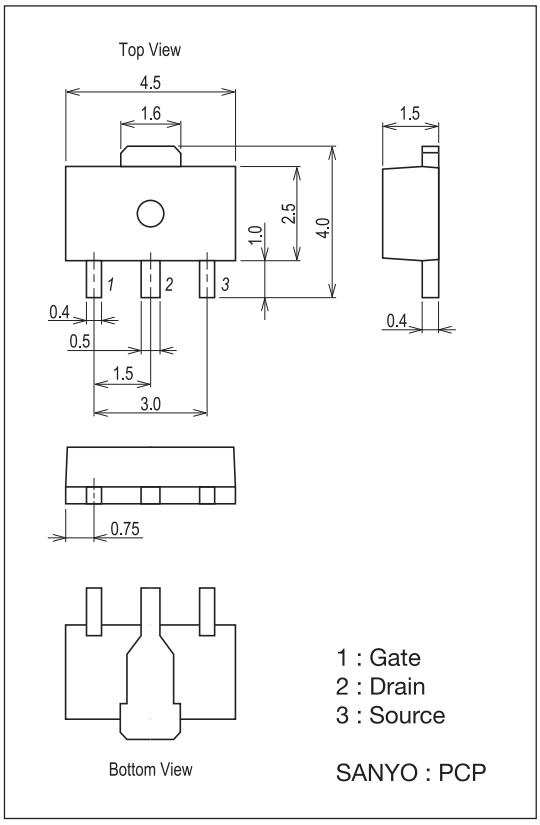
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	V_{DS}=10V, f=1MHz		190		pF
Output Capacitance	Coss	V_{DS}=10V, f=1MHz		40		pF
Reverse Transfer Capacitance	Crss	V_{DS}=10V, f=1MHz		25		pF
Turn-ON Delay Time	t_d(on)	See specified Test Circuit.		9		ns
Rise Time	t_r	See specified Test Circuit.		33		ns
Turn-OFF Delay Time	t_d(off)	See specified Test Circuit.		25		ns
Fall Time	t_f	See specified Test Circuit.		21		ns
Total Gate Charge	Qg	V_{DS}=10V, V_{GS}=4V, I_D=2.5A		2.7		nC
Gate-to-Source Charge	Qgs	V_{DS}=10V, V_{GS}=4V, I_D=2.5A		0.6		nC
Gate-to-Drain “Miller” Charge	Qgd	V_{DS}=10V, V_{GS}=4V, I_D=2.5A		0.6		nC
Diode Forward Voltage	V_{SD}	I_S=2.5A, V_{GS}=0V		0.92	1.2	V

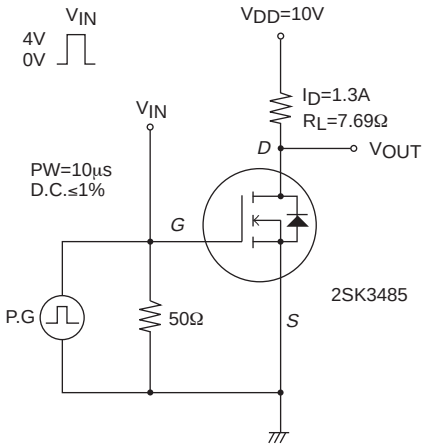
Package Dimensions

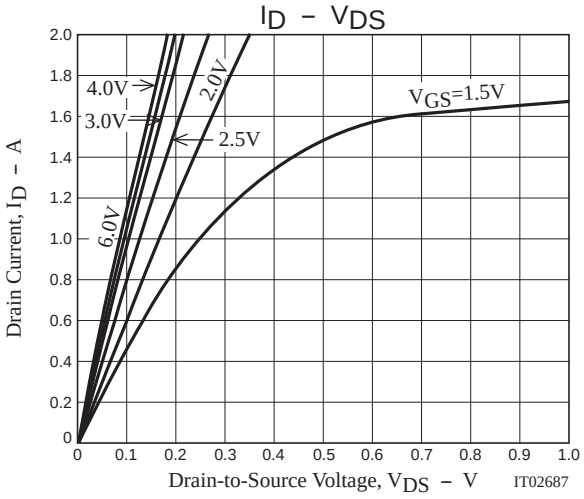
unit : mm (typ)

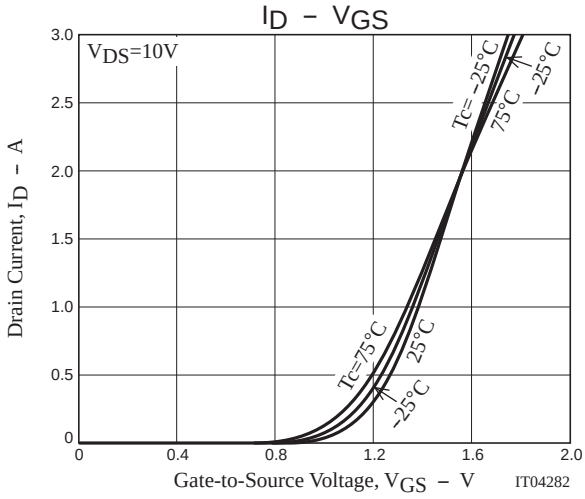
7007B-003

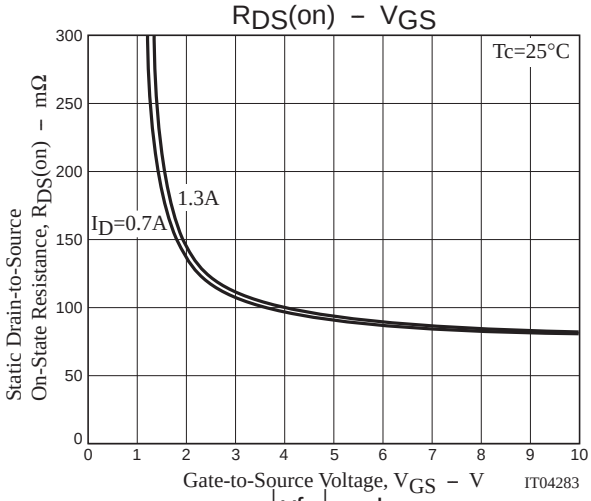


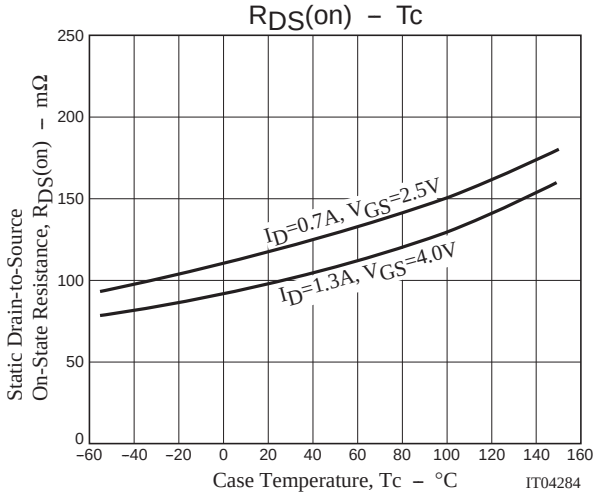
Switching Time Test Circuit

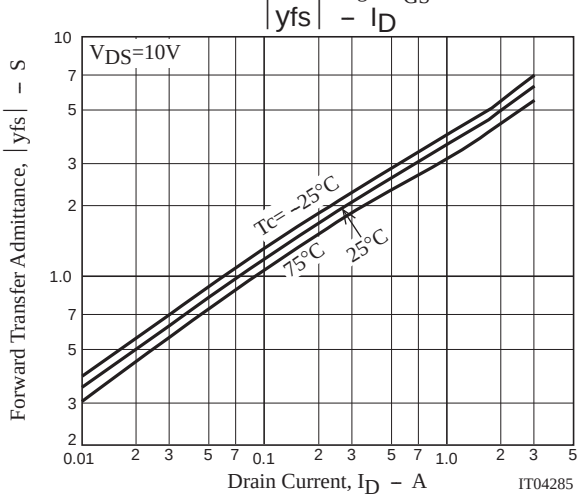


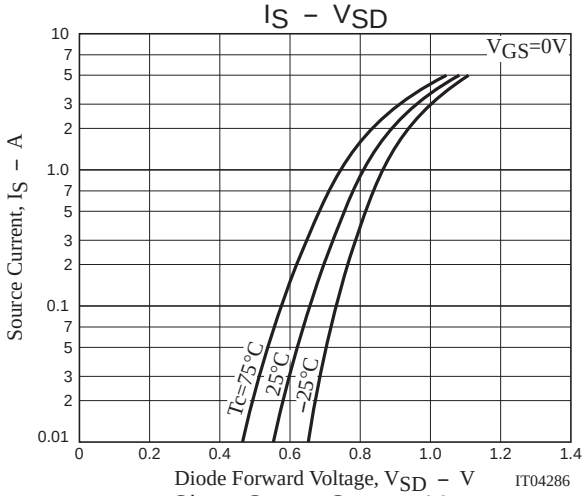


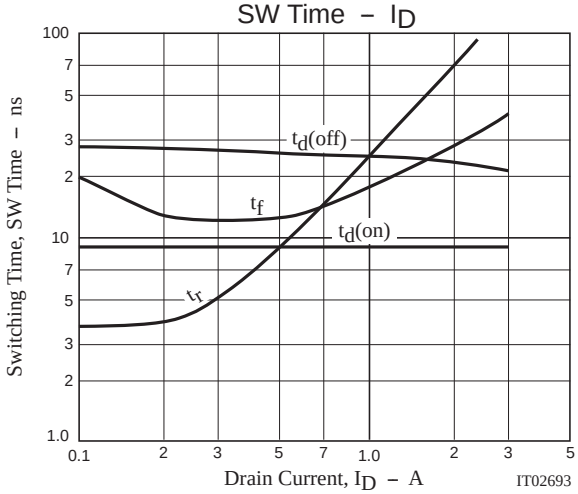


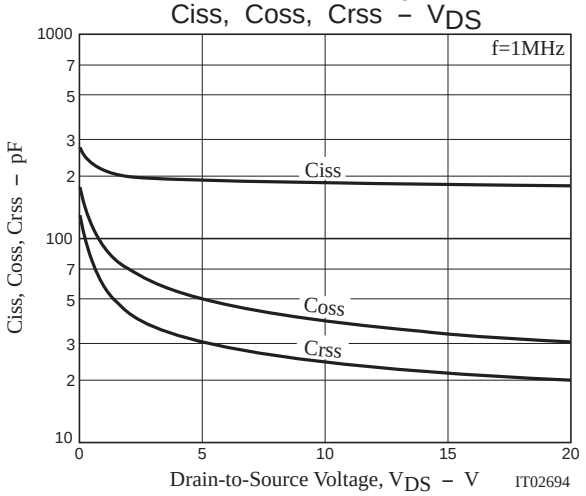

RDS(on) – VGS
Tc=25°C
ID=0.7A
1.3A
Static Drain-to-Source On-State Resistance, RDS(on) – mΩ
Gate-to-Source Voltage, VGS – V
IT04283

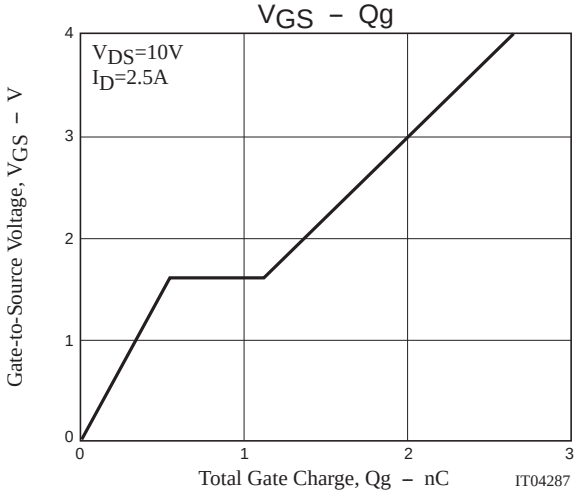

RDS(on) – Tc
ID=0.7A, VGS=2.5V
ID=1.3A, VGS=4.0V
Static Drain-to-Source On-State Resistance, RDS(on) – mΩ
Case Temperature, Tc – °C
IT04284

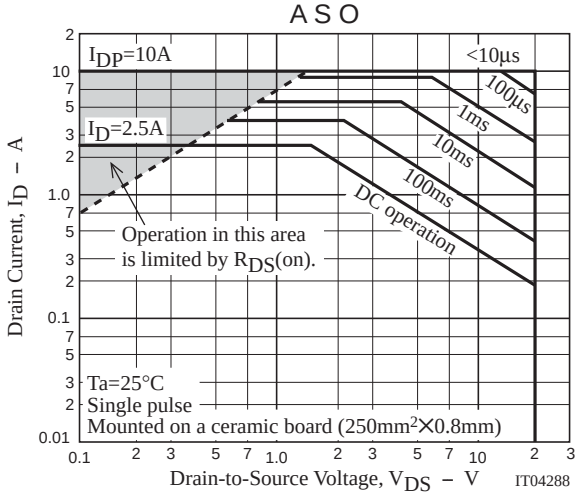

|yfs| – ID
VDS=10V
Tc=–25°C
75°C
25°C
Forward Transfer Admittance, |yfs| – S
Drain Current, ID – A
IT04285

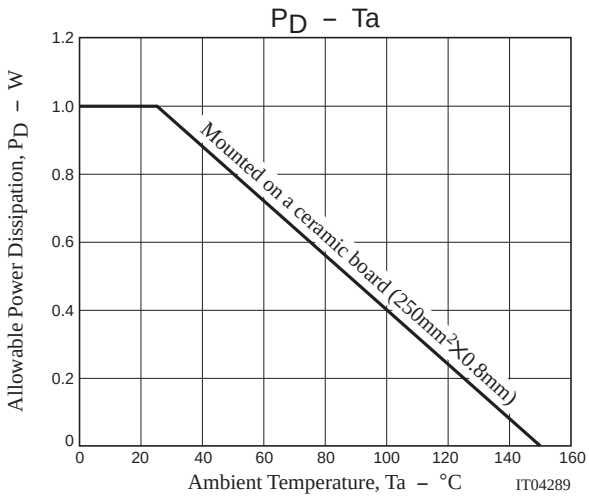

IS – VSD
VGS=0V
Tc=75°C
25°C
–25°C
Source Current, IS – A
Diode Forward Voltage, VSD – V
IT04286

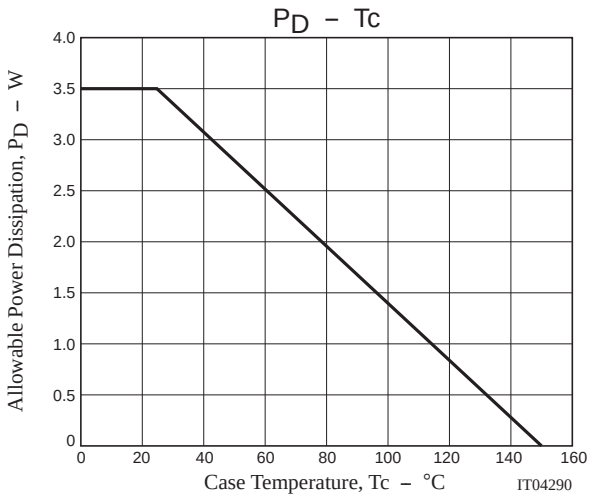

SW Time – ID
td(off)
tf
td(on)
tr
Switching Time, SW Time – ns
Drain Current, ID – A
IT02693


Ciss, Coss, Crss – VDS
f=1MHz
Ciss
Coss
Crss
Ciss, Coss, Crss – pF
Drain-to-Source Voltage, VDS – V
IT02694


VGS – Qg
VDS=10V
ID=2.5A
Gate-to-Source Voltage, VGS – V
Total Gate Charge, Qg – nC
IT04287


A S O
IDP=10A
<10μs
100μs
1ms
10ms
100ms
DC operation
ID=2.5A
Operation in this area is limited by RDS(on).
Ta=25°C
Single pulse
Mounted on a ceramic board (250mm2×0.8mm)
Drain Current, ID – A
Drain-to-Source Voltage, VDS – V
IT04288





Note on usage : Since the 2SK3485 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.