2SK2570

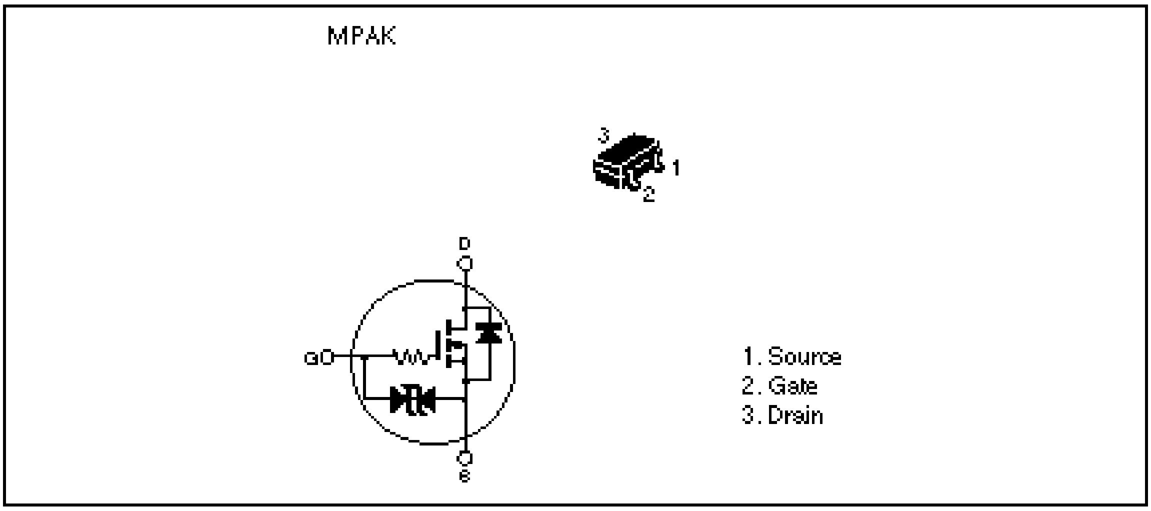
Silicon N-Channel MOS FET
Low Frequency Power Switching

ADE-208-574
1st. Edition

Features

- Low on-resistance
  $R_{DS(on)}$ = 0. 8Ω typ. (V_{GS} = 4 V, I_D = 100 mA)
- 2.5V gate drive devices.
- Small package (MPAK)

Outline



Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DSS}	20	V
Gate to source voltage	V_{GSS}	±10	V
Drain current	I_D	0.2	A
Drain peak current	$I_{D(pulse)}$*[1]	0.4	A
Channel dissipation	Pch	150	mW
Channel temperature	Tch	150	°C
Storage temperature	Tstg	–55 to +150	°C

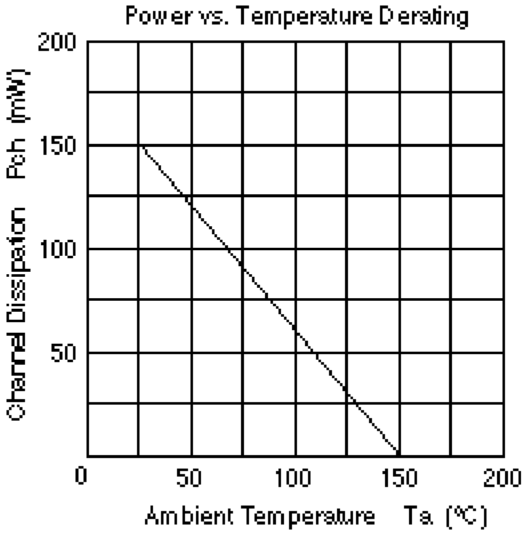
Note: 1. PW ≤ 10μs, duty cycle ≤ 1 %

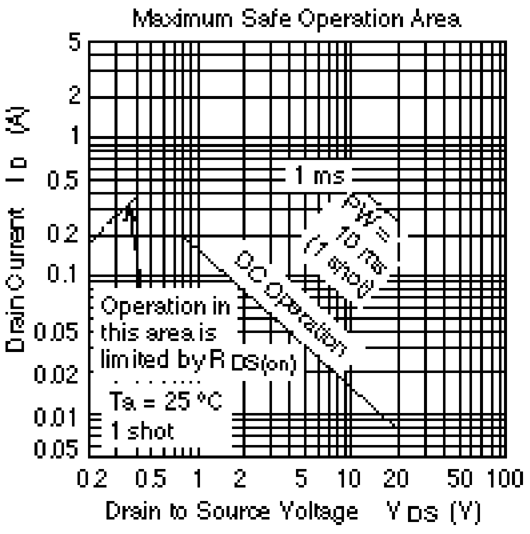
Electrical Characteristics (Ta = 25°C)

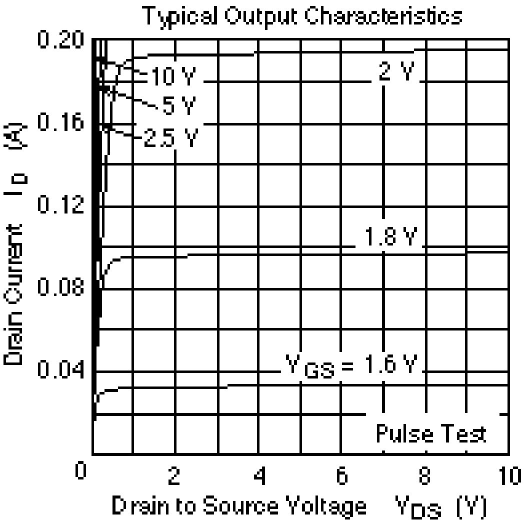
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	20	—	—	V	I_D = 10μA, V_{GS} = 0
Gate to source breakdown voltage	$V_{(BR)GSS}$	±10	—	—	V	I_G = ±100μA, V_{DS} = 0
Zero gate voltege drain current	I_{DSS}	—	—	1.0	μA	V_{DS} = 20 V, V_{GS} = 0
Gate to source leak current	I_{GSS}	—	—	±5.0	μA	V_{GS} = ±6.5V, V_{DS} = 0
Gate to source cutoff voltage	$V_{GS(off)}$	0.5	—	1.5	V	I_D = 10μA, V_{DS} = 5V
Static drain to source on state resistance	$R_{DS(on)}$	—	0.8	1.1	Ω	I_D = 100 mA V_{GS} = 4V*[1]
		—	1.3	2.2	Ω	I_D = 40 mA V_{GS} = 2.5V*[1]
Forward transfer admittance	$\|y_{fs}\|$	0.22	0.35	—	S	I_D = 100 mA V_{DS} = 10V*[1]
Input capacitance	Ciss	—	45	—	pF	V_{DS} = 10V
Output capacitance	Coss	—	33	—	pF	V_{GS} = 0
Reverse transfer capacitance	Crss	—	9.6	—	pF	f = 1MHz
Turn-on delay time	$t_{d(on)}$	—	20	—	ns	V_{GS} = 5V, I_D = 100 mA R_L = 100Ω
Rise time	t_r	—	60	—	ns	
Turn-off delay time	$t_{d(off)}$	—	240	—	ns	
Fall time	t_f	—	140	—	ns	

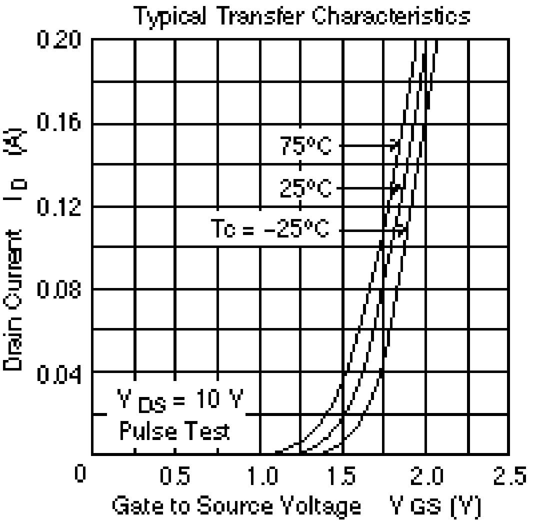
Notes: 1. Pulse test
2. Marking is “ZL–”

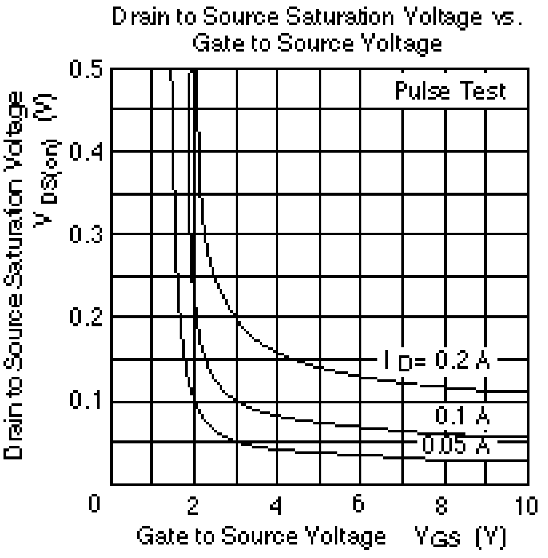
Main Characteristics



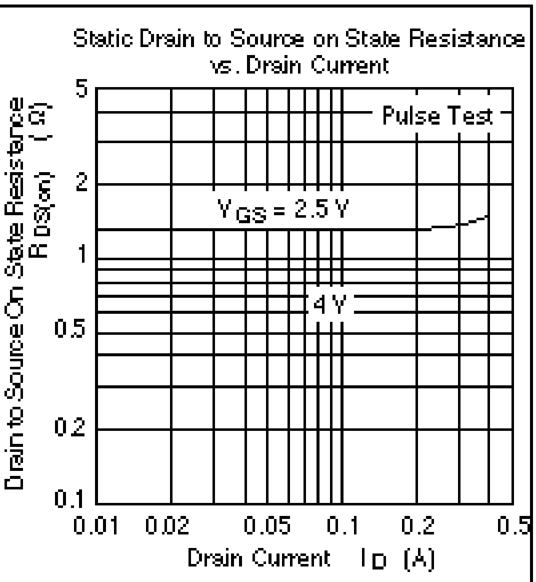




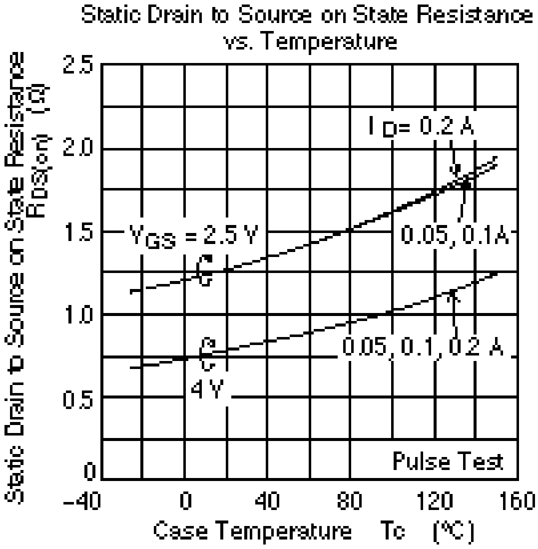




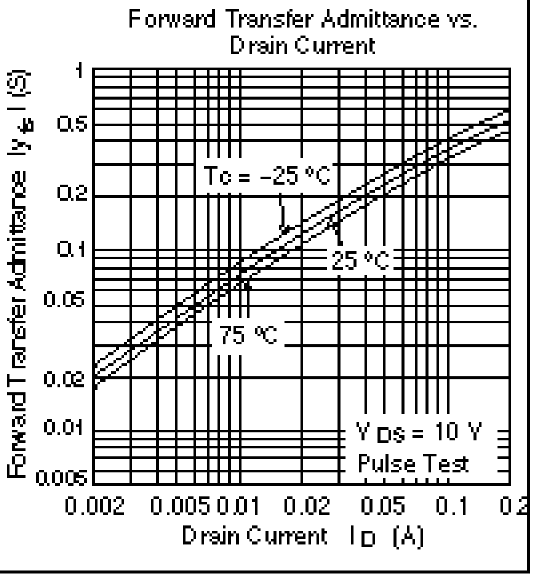
Drain to Source Saturation Voltage vs. Gate to Source Voltage



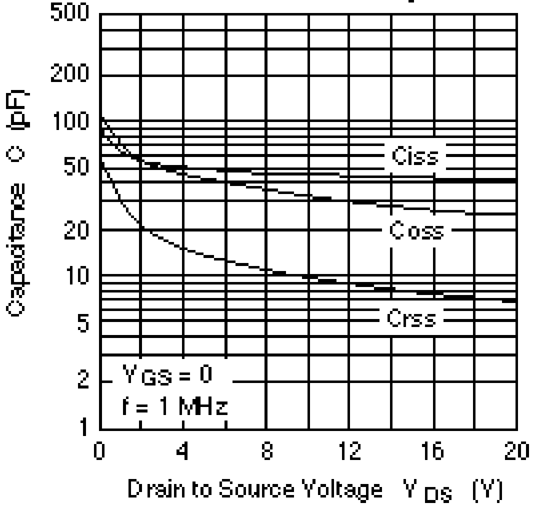
Static Drain to Source on State Resistance vs. Drain Current



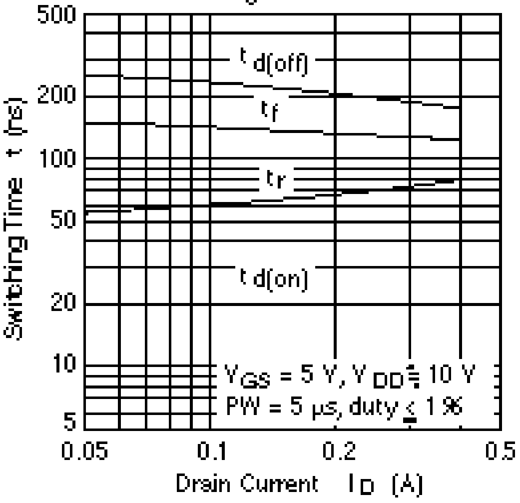
Static Drain to Source on State Resistance vs. Temperature



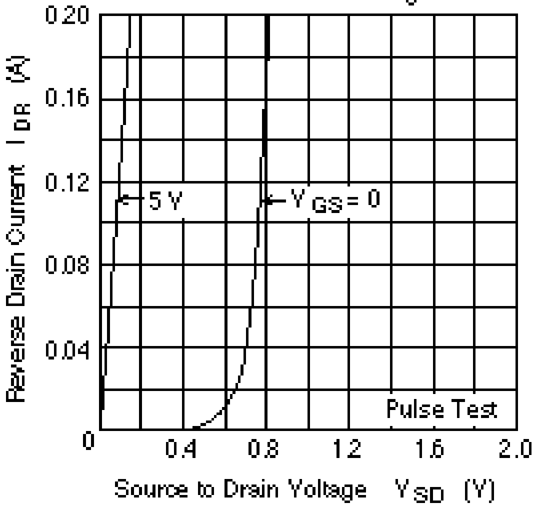
Forward Transfer Admittance vs. Drain Current



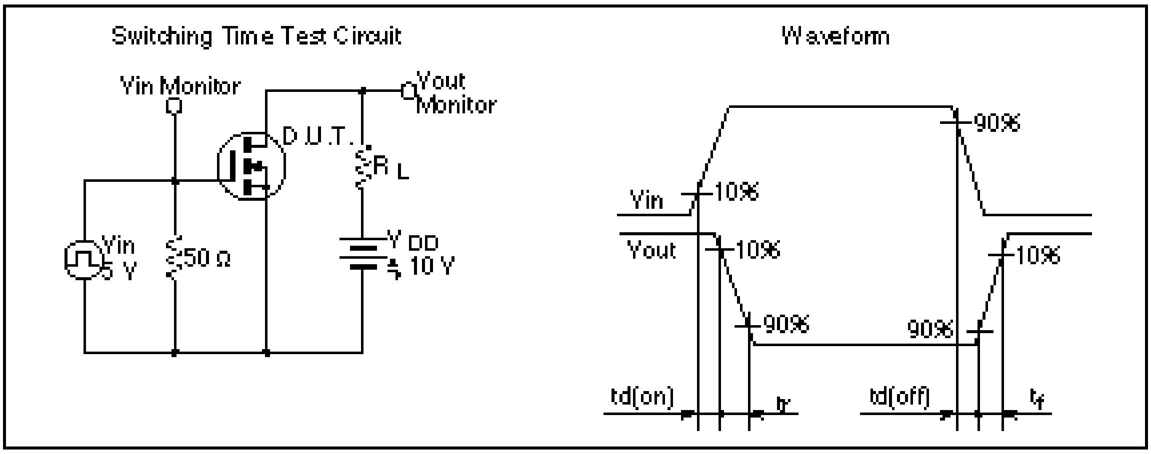
Typical Capacitance vs.
Drain to Source Voltage



Switching Characteristics

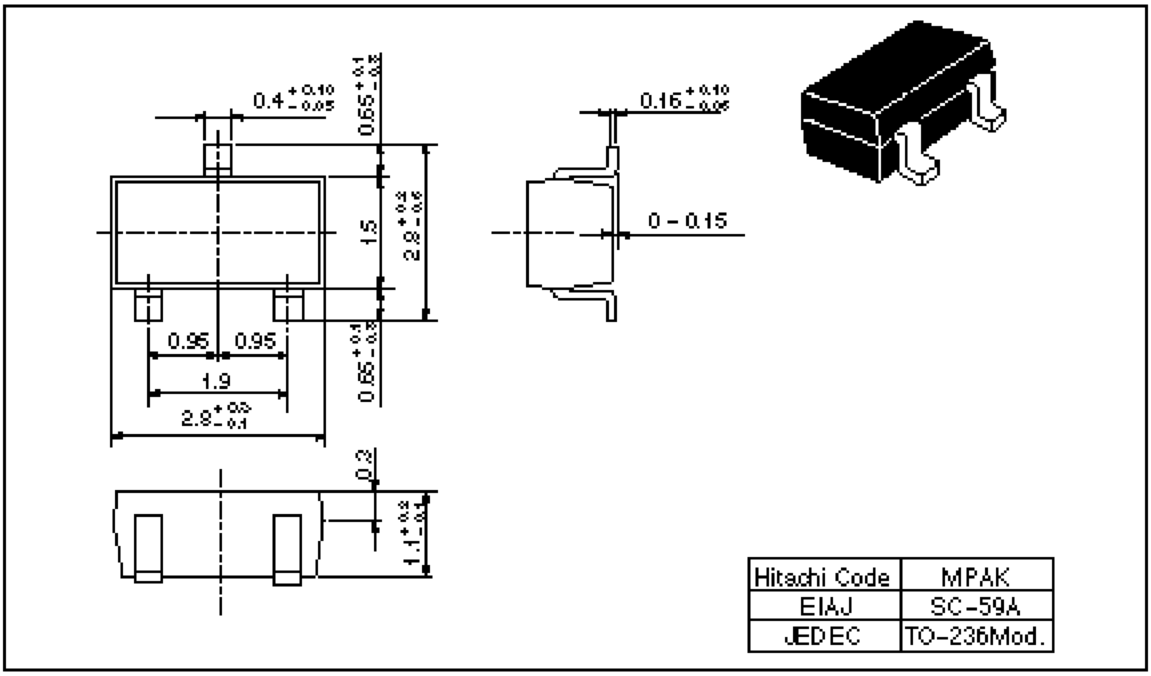


Reverse Drain Current vs.
Source to Drain Voltage


Switching Time Test Circuit
Vin Monitor
Vout
Monitor
D.U.T.
RL
Vin
5 V
50 Ω
VDD
10 V
Waveform
Vin
10%
90%
Vout
10%
90%
90%
10%
td(on)
tr
td(off)
tf

Package Dimensions

Unit: mm



Hitachi Code	MPAK
EIAJ	SC-59A
JEDEC	TO-236Mod.

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