

# N-Channel MOS FET

## FKP250A

June, 2007

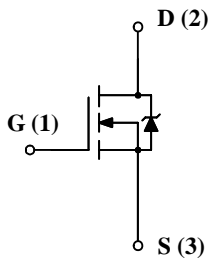
### ■Features

- Low on-resistance
- Low input capacitance
- Avalanche energy capability guaranteed

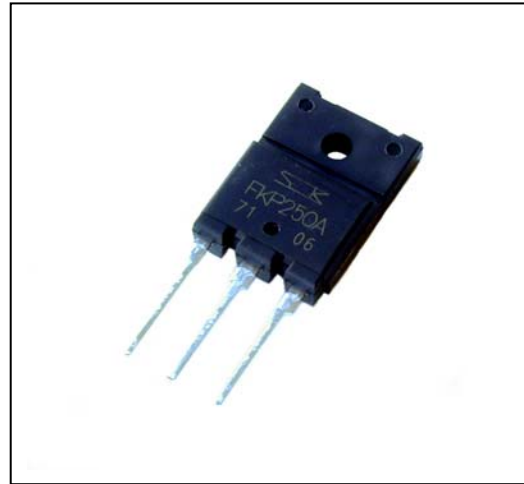
### ■Applications

- PDP driving
- High speed switching

### ■Equivalent circuit



### ■Package---FM100 (TO-3P Full Mold)



### ■Absolute maximum ratings

(Ta=25°C)

Parameter	Symbol	Rating	Unit
Drain to Source Voltage	VDSS	250	V
Gate to Source Voltage	VGSS	±30	V
Continuous Drain Current	ID	±50A	A
Pulsed Drain Current	ID(pulse) *1	±200A	A
Maximum Power Dissipation	PD	85 (Tc=25°C)	W
Single Pulse Avalanche Energy	EAS *2	400	mJ
Avalanche Current	IAS	50	A
Channel Temperature	Tch	150	°C
Storage Temperature	Tstg	-55 to 150	°C

\*1 PW≤100μs, duty cycle≤1%

\*2 VDD=20V, L=300μH, ILp=50A, unclamped, RG=50Ω, See Fig.1

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## Electrical characteristics

(Ta=25°C)

Parameter	Symbol	Test Conditions	Limits			Unit
			MIN.	TYP.	MAX.	
Drain to Source breakdown Voltage	V(BR)DSS	ID=100μA, VGS=0V	250			V
Gate to Source Leakage Current	IGSS	VGS=±30V			±100	nA
Drain to Source Leakage Current	IDSS	VDS=250V, VGS=0V			100	μA
Gate Threshold Voltage	VTH	VDS=10V, ID=1mA	3.0		4.5	V
Forward Transconductance	Re(Yfs)	VDS=10V, ID=25A	30	42		S
Static Drain to Source On-Resistance	RDS(on)	ID=25A, VGS=10V		37	43	mΩ
Input Capacitance	Ciss	VDS=25V VGS=0V f=1MHz		3800		pF
Output Capacitance	Coss			630		
Reverse Transfer Capacitance	Crss			210		
Turn-On Delay Time	td(on)	ID=25A, VDD≈125V RL=5Ω, VGS=10V RG=5Ω See Fig.2		40		ns
Rise Time	tr			110		
Turn-Off Delay Time	td(off)			160		
Fall Time	tf			90		
Source-Drain Diode Forward Voltage	VSD	ISD=50A, VGS=0V		1.0	1.5	V
Gate Threshold Voltage Temp. Coefficient	$\frac{\Delta V_{TH}}{\Delta T_{ch}}$	VDS=10V, ID=1mA		-11		mV/°C

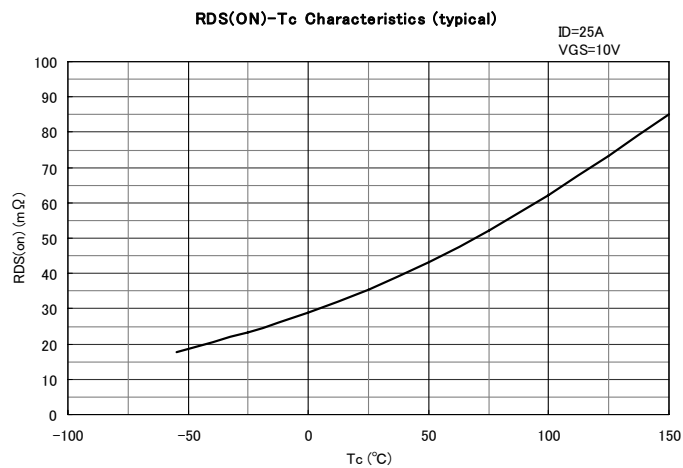
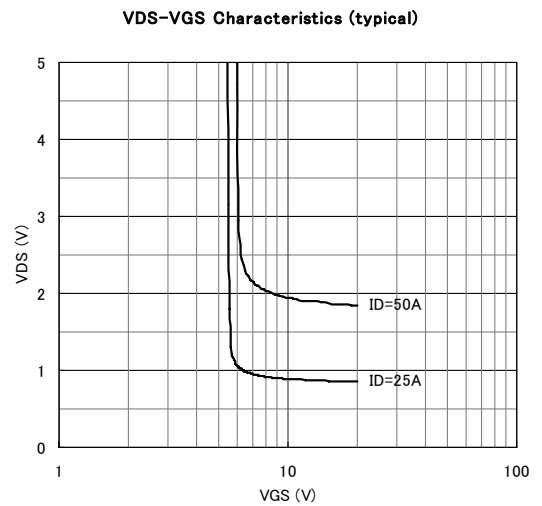
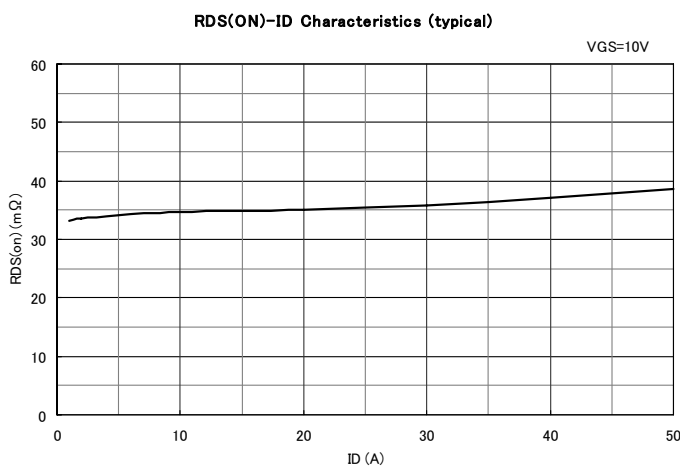
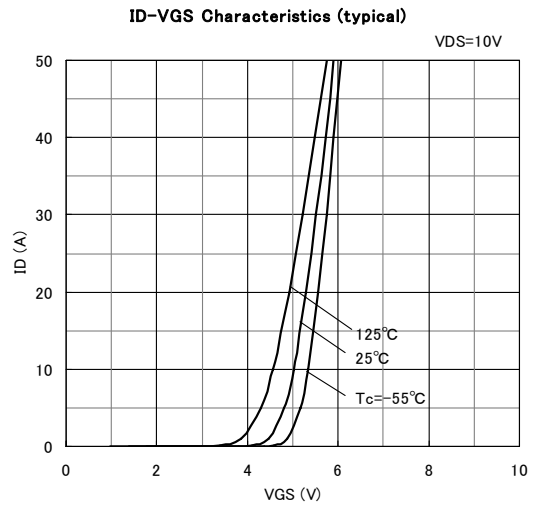
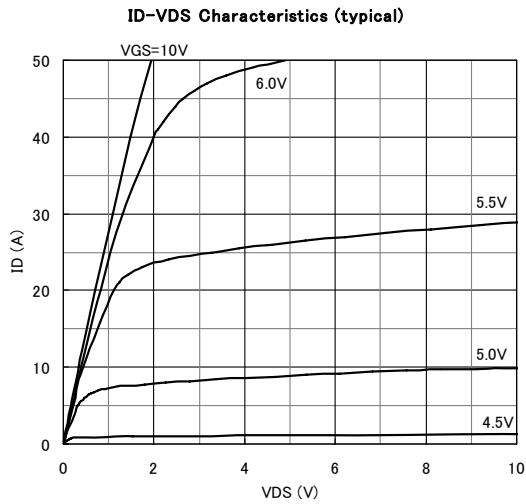
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### Characteristic Curves (Tc=25°C)



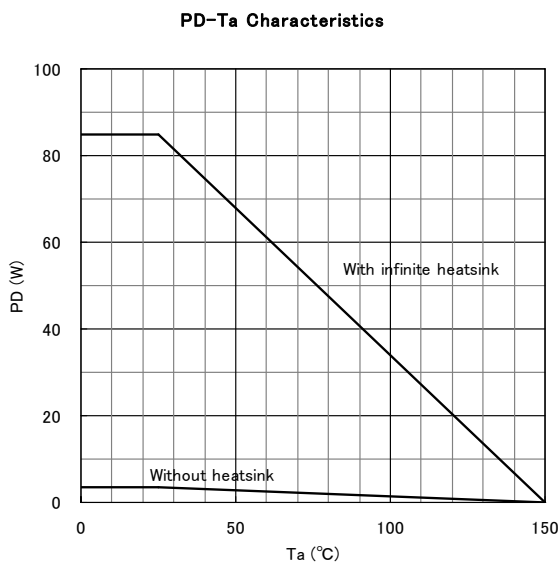
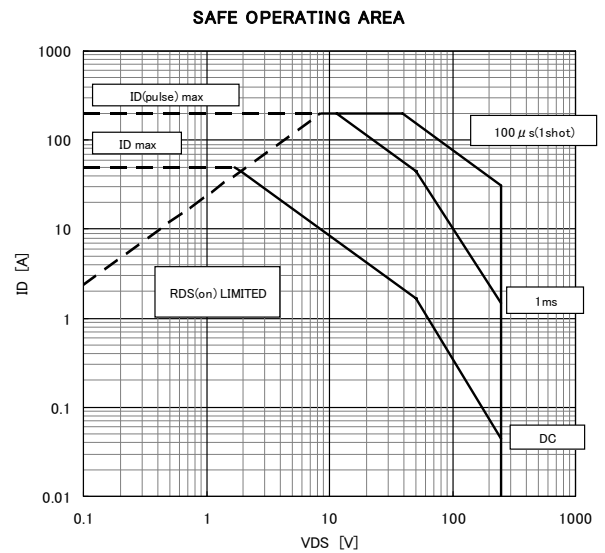
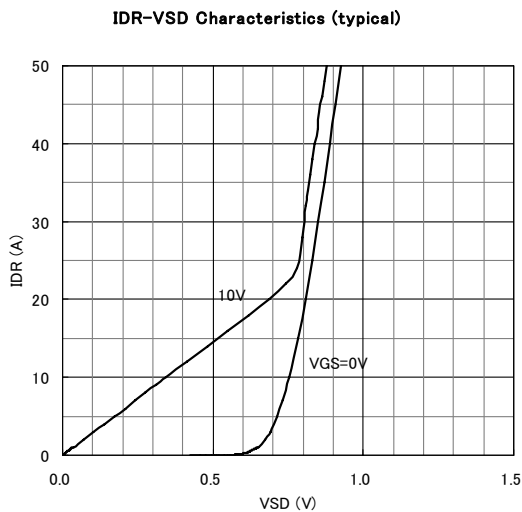
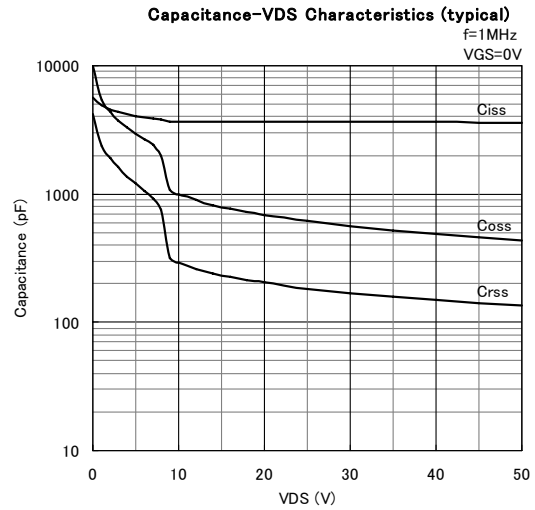
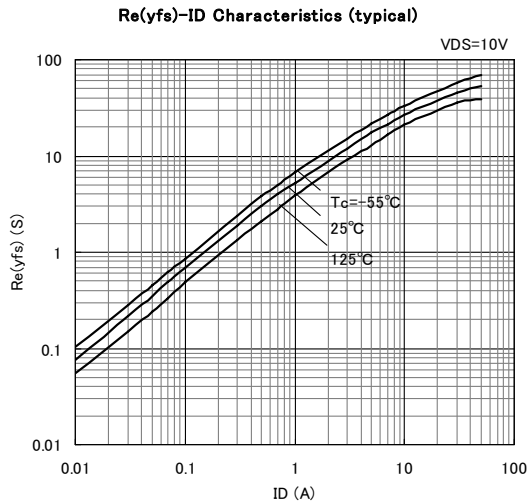
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### Characteristic Curves (Tc=25°C)



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Fig.1 Unclamped Inductive Test Method

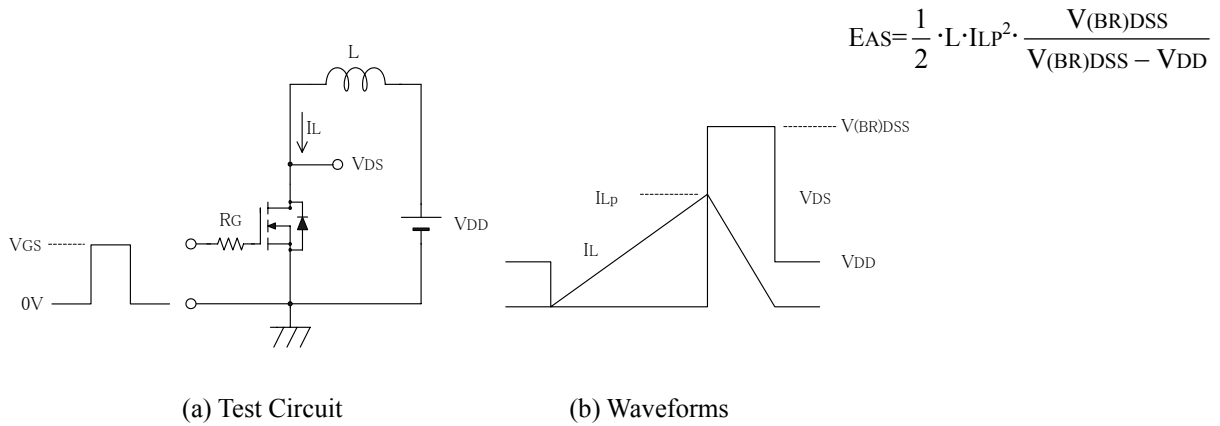
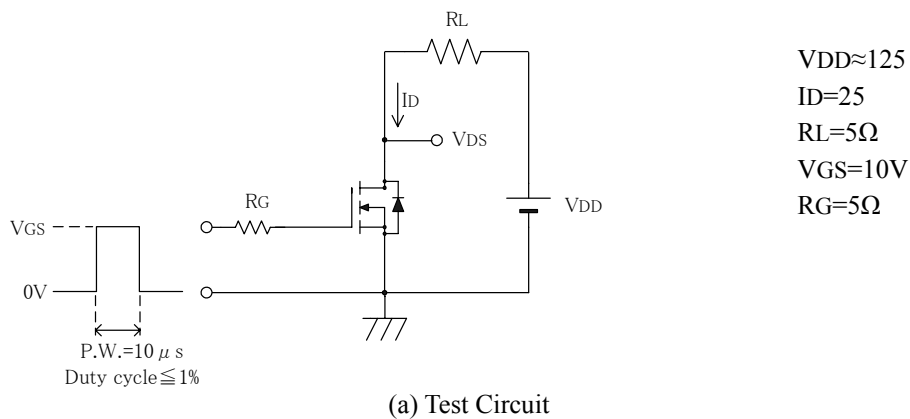
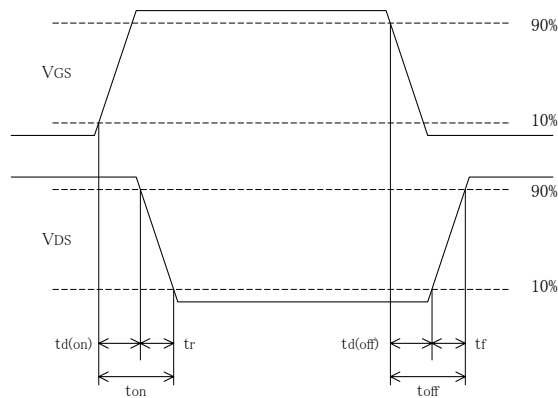


Fig.2 Switching Time Test Method



VDD ≈ 125  
ID = 25  
RL = 5Ω  
VGS = 10V  
RG = 5Ω



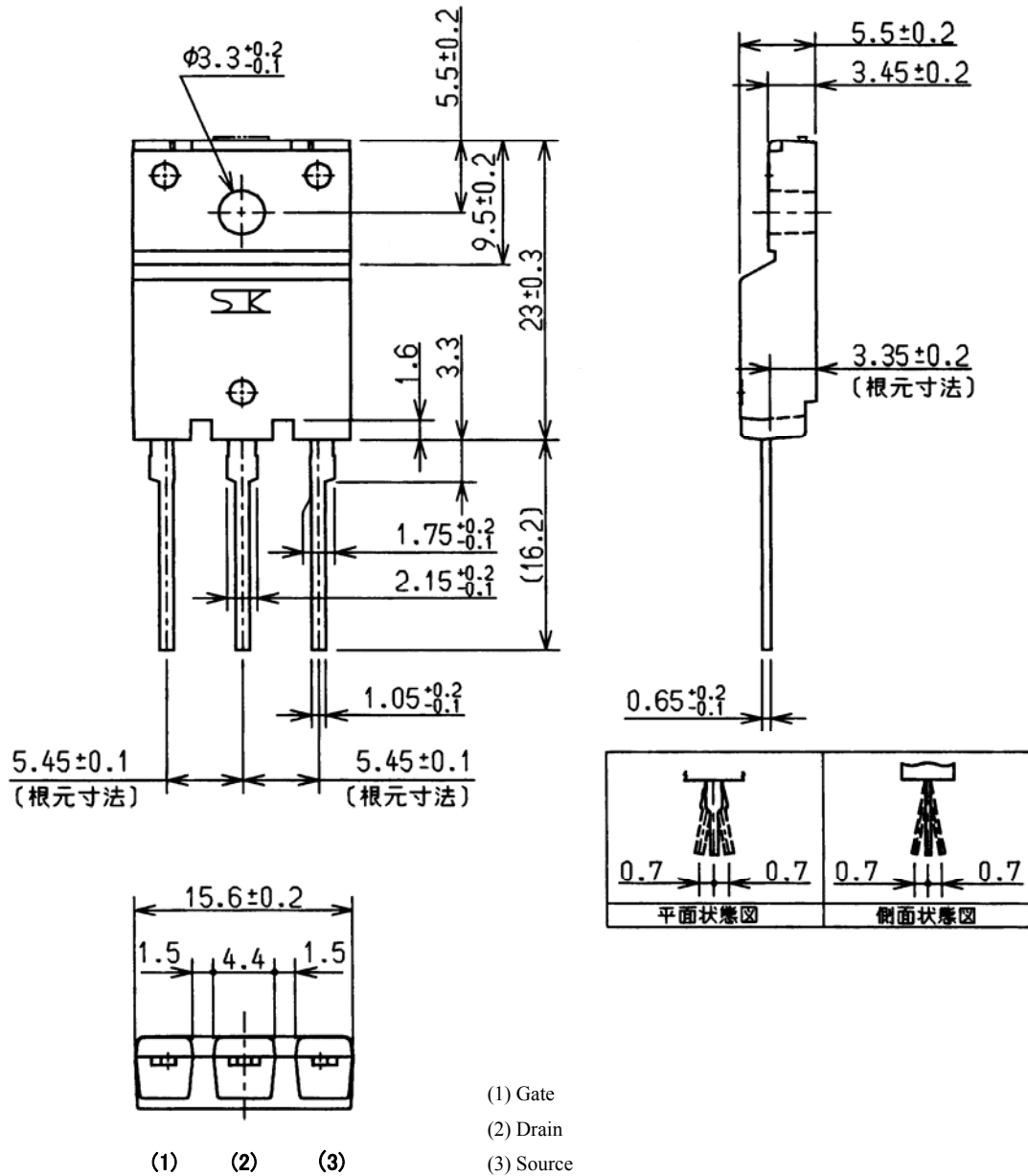
(b) Waveforms

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### External dimensions

FM100 (TO-3P Full Mold)



Weight Approx. 6.5g

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## <Worldwide Contacts>

### Asia Pacific

#### China

##### **Sanken Electric Hong Kong Co., Ltd.**

Suite 1026 Ocean Centre, Canton Road, Tsimshatsui, Kowloon, Hong Kong

Tel: 852-2735-5262

Fax: 852-2735-5494

##### **Sanken Electric (Shanghai) Co., Ltd.**

Room3202, Maxdo Centre, Xingyi Road 8, Changning district, Shanghai, China

Tel: 86-21-5208-1177

Fax: 86-21-5208-1757

##### **Taiwan Sanken Electric Co., Ltd.**

Room 1801, 18th Floor, 88 Jung Shiau East Road, Sec. 2, Taipei 100, Taiwan R.O.C.

Tel: 886-2-2356-8161

Fax: 886-2-2356-8261

#### India

##### **Saket Devices Pvt. Ltd.**

Office No.13, First Floor, Bandal - Dhankude Plaza, Near PMT Depot, Paud Road, Kothrud, Pune - 411 038, India

Tel: 91-20-5621-2340

91-20-2528-5449

Fax: 91-20-2528-5459

#### Japan

##### **Sanken Electric Co., Ltd. Overseas Sales Headquarters**

Metropolitan Plaza Bldg. 1-11-1 Nishi-Ikebukuro, Toshima-ku, Tokyo 171-0021, Japan

Tel: 81-3-3986-6164

Fax: 81-3-3986-8637

#### Korea

##### **Sanken Electric Korea Co., Ltd.**

Mirae Asset Life Bldg. 6F, 168 Kongduk-dong, Mapo-ku, Seoul, 121-705, Korea

Tel: 82-2-714-3700

Fax: 82-2-3272-2145

#### Singapore

##### **Sanken Electric Singapore Pte. Ltd.**

150 Beach Road, #14-03 The Gateway West, Singapore 189720

Tel: 65-6291-4755

Fax: 65-6297-1744

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**FKP250A**



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**Europe**

**United Kingdom**

**Sanken Power Systems (UK) Limited**

Pencoed Technology Park, Pencoed, Bridgend CF35 5HY. UK

Tel: 44-1656-869-100

Fax: 44-1656-869-162

**North America**

**United States**

**Allegro MicroSystems, Inc.**

115 Northeast Cutoff, Worcester, Massachusetts 01606, U.S.A.

Tel: 1-508-853-5000

Fax: 1-508-853-3353

**Allegro MicroSystems, Inc. (Southern California)**

14 Hughes Street, Suite B105, Irvine, CA 92618

Tel: 1-949-460-2003

Fax: 1-949-460-7837



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