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# N-Channel MOS FET

## FKP250A

June, 2007

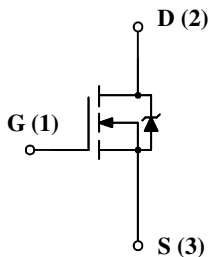
### ■Features

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

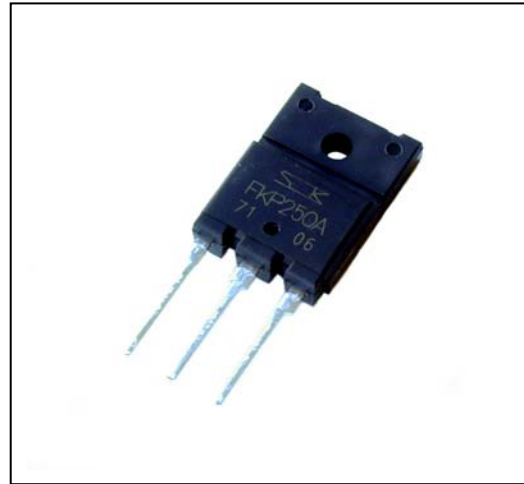
### ■Applications

- 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) * <sup>1</sup>	±200A	A
Maximum Power Dissipation	PD	85 (Tc=25°C)	W
Single Pulse Avalanche Energy	EAS * <sup>2</sup>	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

# N-Channel MOS FET

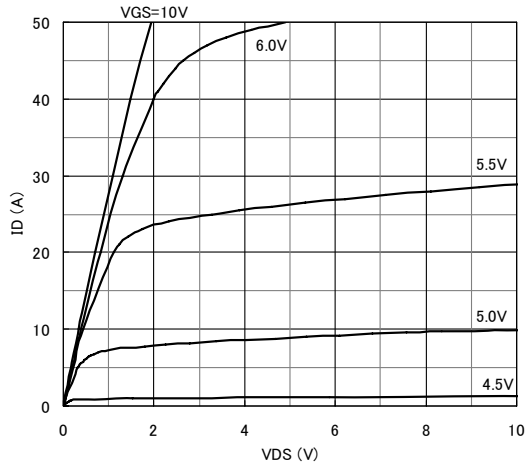
# FKP250A



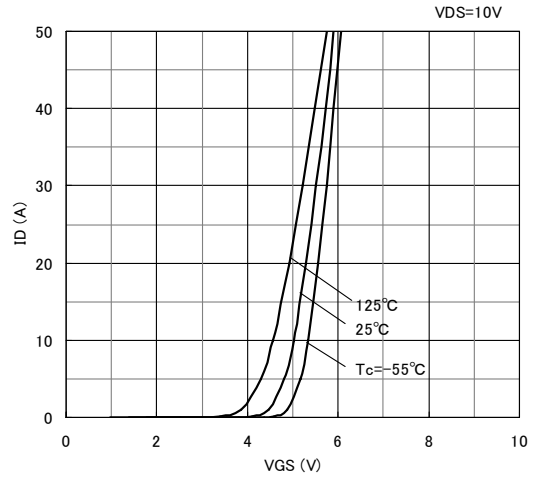
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## Characteristic Curves (Tc=25°C)

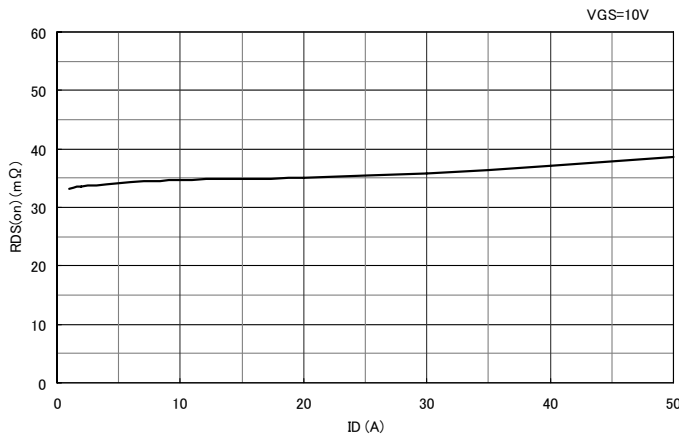
**ID-VDS Characteristics (typical)**



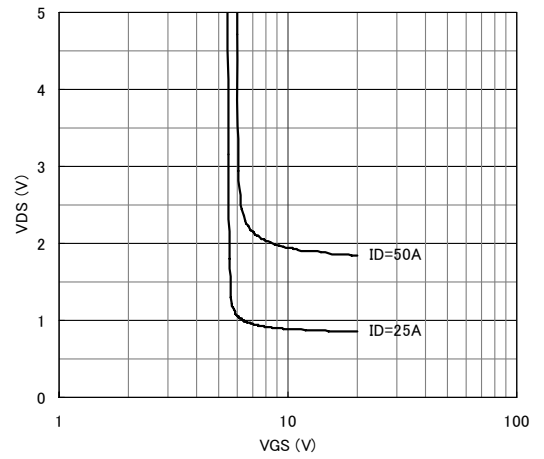
**ID-VGS Characteristics (typical)**



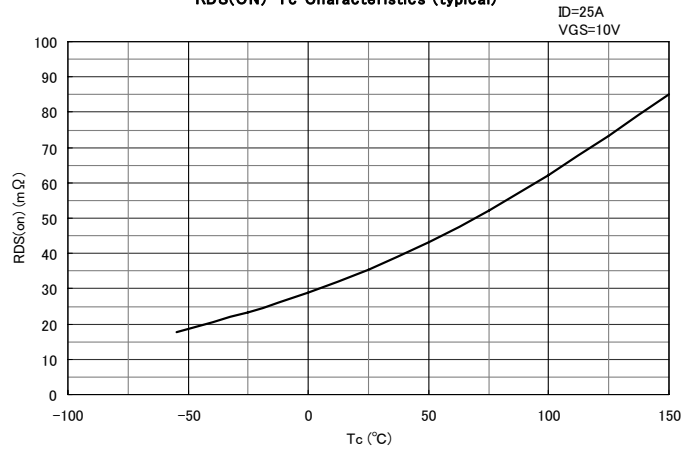
**RDS(ON)-ID Characteristics (typical)**



**VDS-VGS Characteristics (typical)**



**RDS(ON)-Tc Characteristics (typical)**



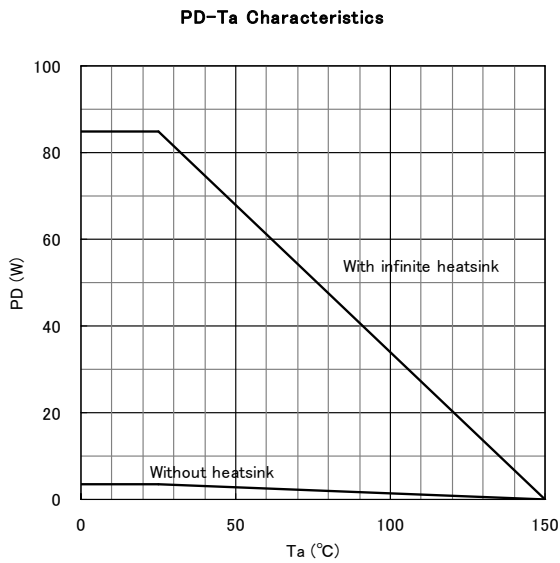
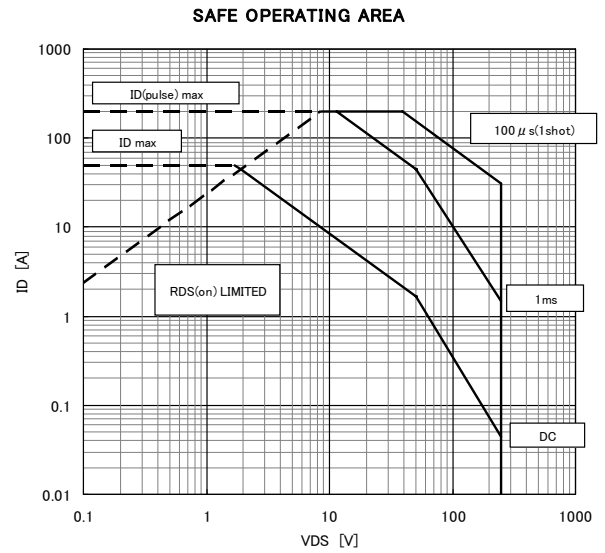
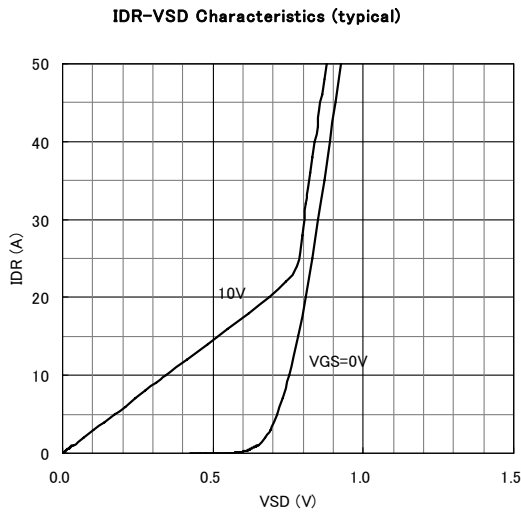
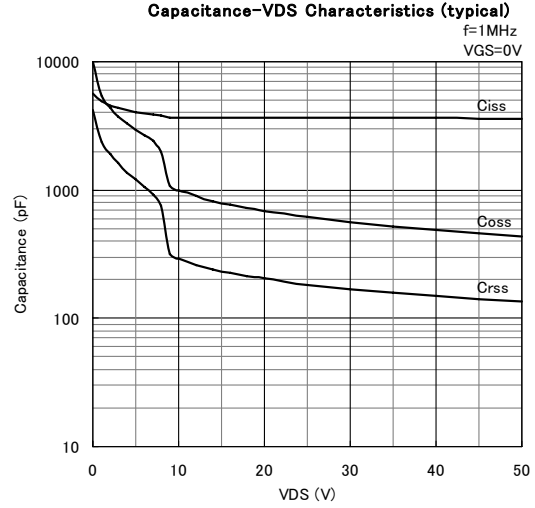
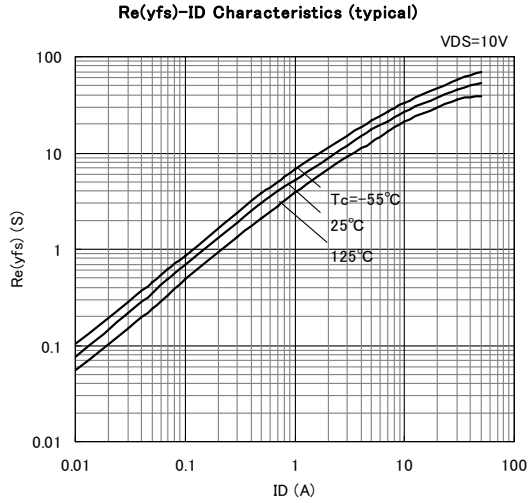
# N-Channel MOS FET

## FKP250A



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### Characteristic Curves (Tc=25°C)



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Fig.1 Unclamped Inductive Test Method

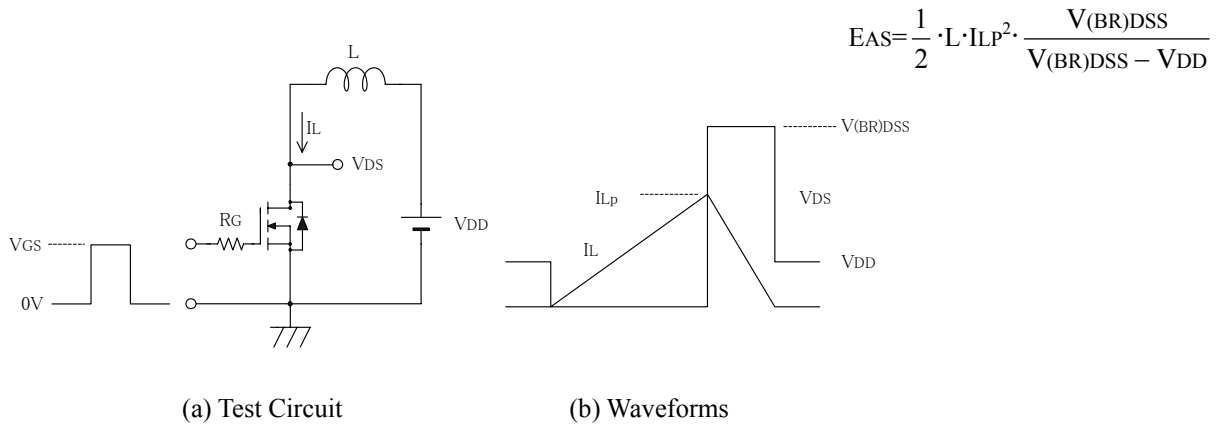
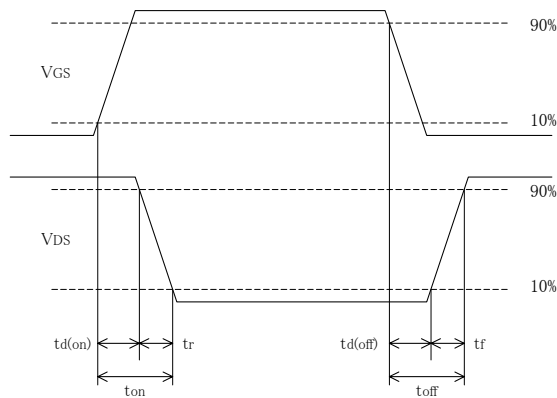
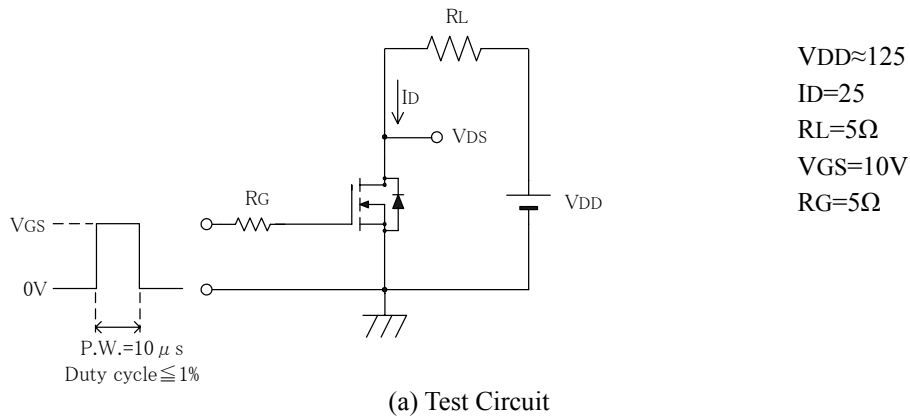


Fig.2 Switching Time Test Method



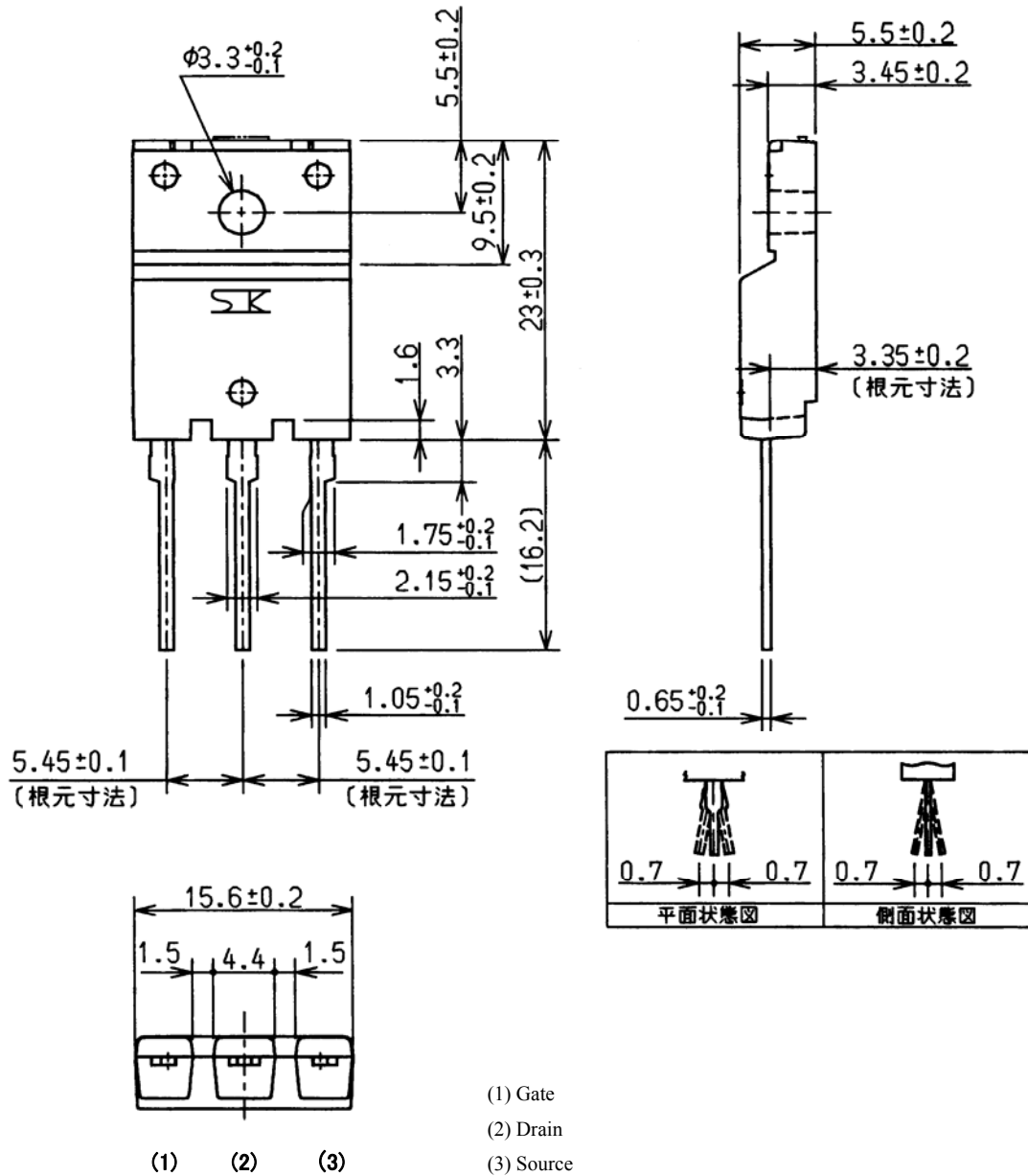
(b) Waveforms

# N-Channel MOS FET

## FKP250A

### External dimensions

FM100 (TO-3P Full Mold)



Weight Approx. 6.5g

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# FKP250A



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N-Channel MOS FET  
**FKP250A**



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