

# 2SK3711

December 2005

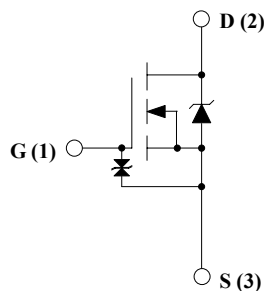
## ■Features

- Low on-resistance
- Built-in gate protection diode
- Avalanche energy capability guaranteed

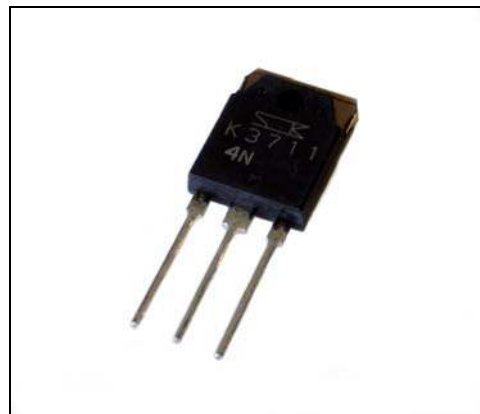
## ■Applications

- Electric power steering
- High current switching

## ■Equivalent circuit



## ■Package—TO3P



## Absolute maximum ratings

(Ta=25°C)

Characteristic	Symbol	Rating	Unit
Drain to Source Voltage	VDSS	60	V
Gate to Source Voltage	VGSS	±20	V
Continuous Drain Current	ID	±70A	A
Pulsed Drain Current	ID (pulse) *1	±140A	A
Maximum Power Dissipation	PD	130 (Tc=25°C)	W
Single Pulse Avalanche Energy	EAS *2	468	mJ
Channel Temperature	Tch	150	°C
Storage Temperature	Tstg	-55 to 150	°C

\*1 PW≤100μs, duty cycle≤1%

\*2 VDD=20V, L=1mH, ILp=25A, unclamped, RG=50Ω. See Fig.1

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## Electrical characteristics

(Ta=25°C)

Characteristic	Symbol	Test Conditions	Limits			Unit
			MIN	TYP	MAX	
Drain to Source breakdown Voltage	V(BR)DSS	ID=100μA, VGS=0V	60			V
Gate to Source Leakage Current	IGSS	VGS=±15V			±10	μA
Drain to Source Leakage Current	IDSS	VDS=60V, VGS=0V			100	μA
Gate Threshold Voltage	VTH	VDS=10V, ID=1mA	2.0	3.0	4.0	V
Forward Transconductance	Re(Yfs)	VDS=10V, ID=35A	30	80		S
Static Drain to Source On-Resistance	RDS(ON)	ID=35A, VGS=10V		5.0	6.0	mΩ
Input Capacitance	Ciss	VDS=10V		8000		pF
Output Capacitance	Coss	VGS=0V		1250		
Reverse Transfer Capacitance	Crss	f=1MHz		1000		
Turn-On Delay Time	td(on)	ID=35A, VDD≈20V RL=0.57Ω, VGS=10V Rg=22Ω Refer to Fig. 2		110		ns
Rise Time	tr			100		
Turn-Off Delay Time	td(off)			440		
Fall Time	tf			160		
Source-Drain Diode Forward Voltage	VSD	ISD=50A, VGS=0V		0.9	1.5	V
Source-Drain Diode Recovery Time	trr	ISD=25A, di/dt=50A/μs		100		ns

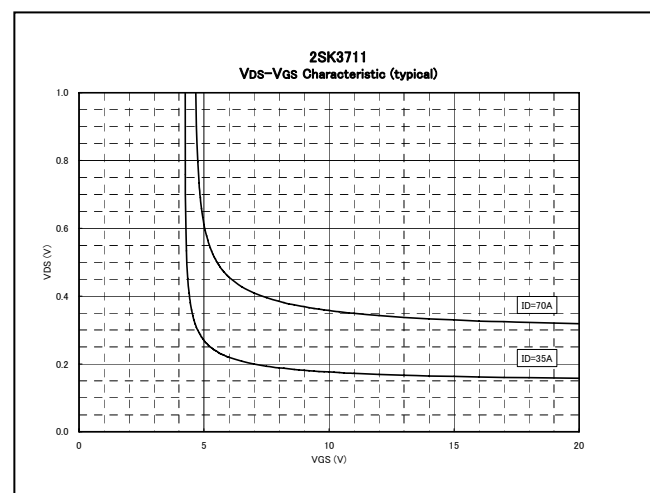
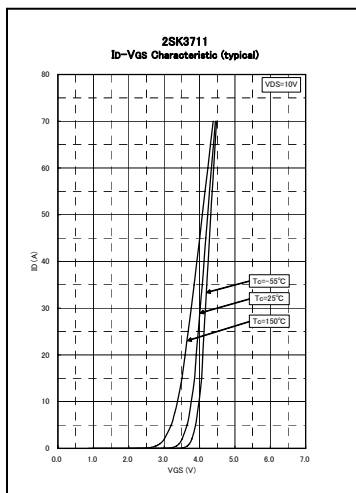
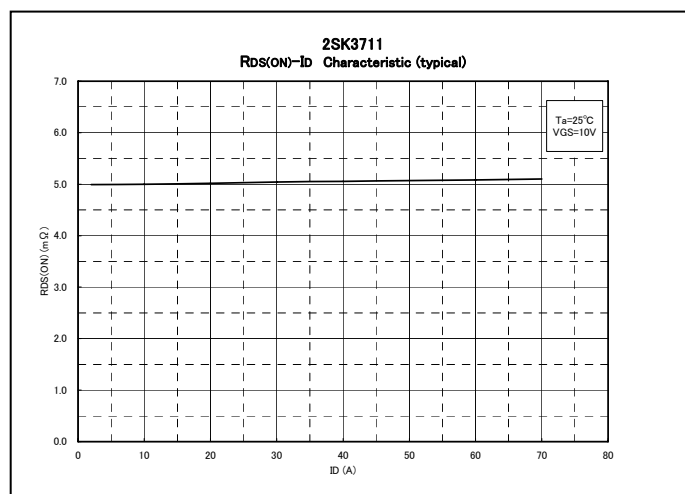
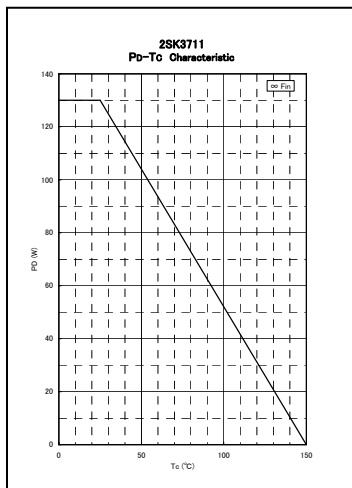
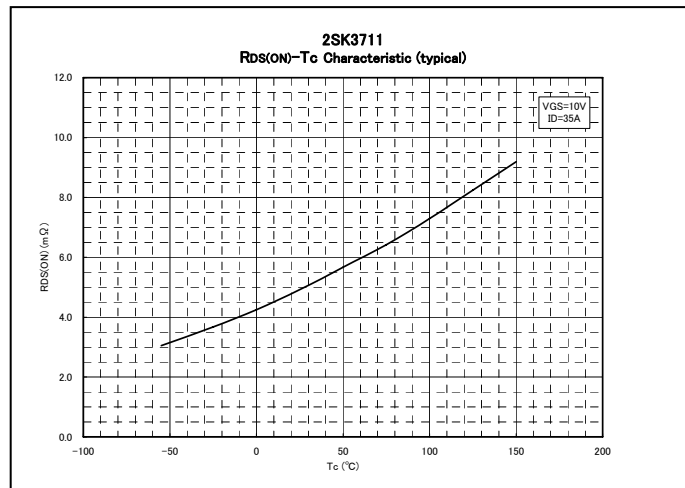
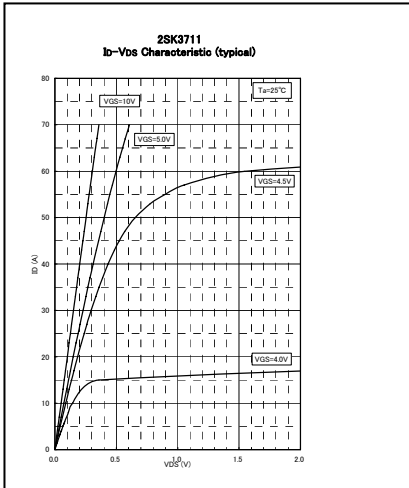
# 60V N -ch MOSFET

# 2SK3711

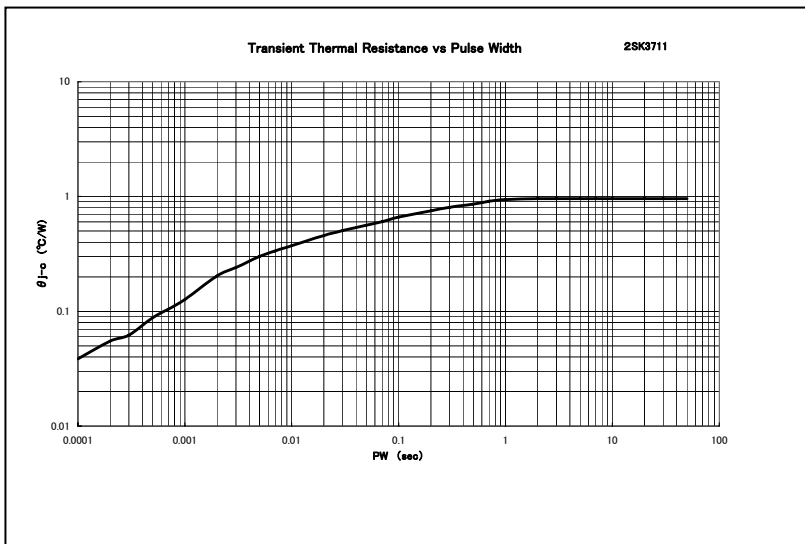
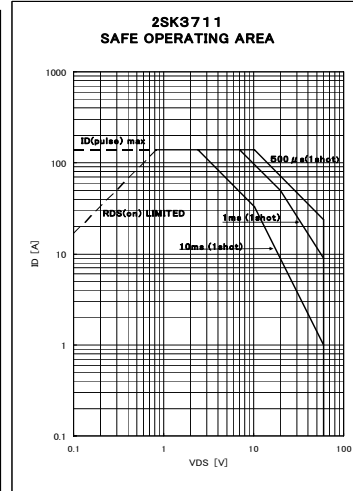
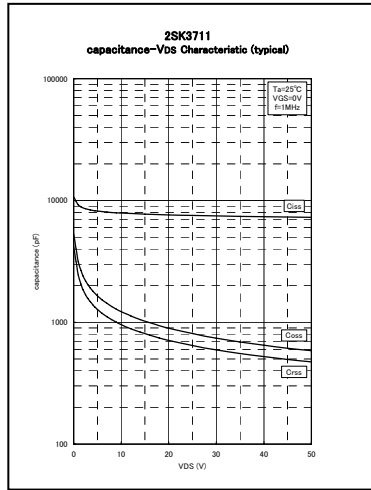
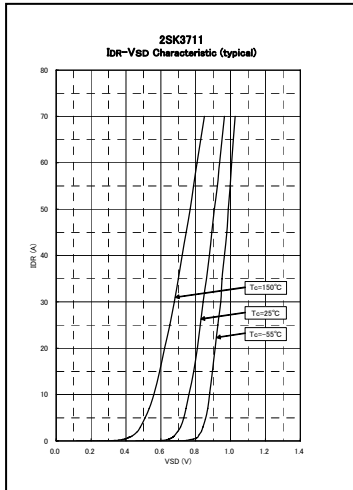


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## Characteristic Curves (Tc=25°C)



**Characteristic Curves (Tc=25°C)**



# 60V N -ch MOSFET 2SK3711

Fig.1 Unclamped Inductive Test Method

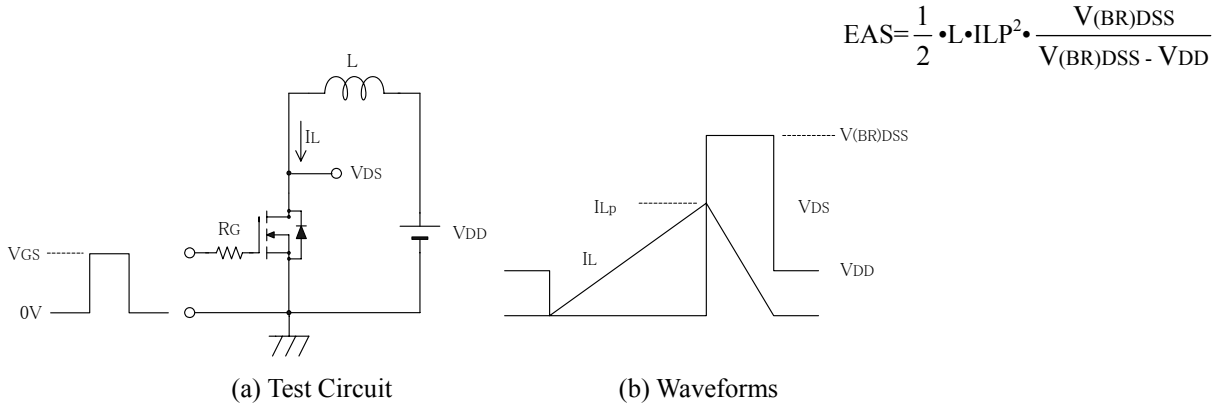
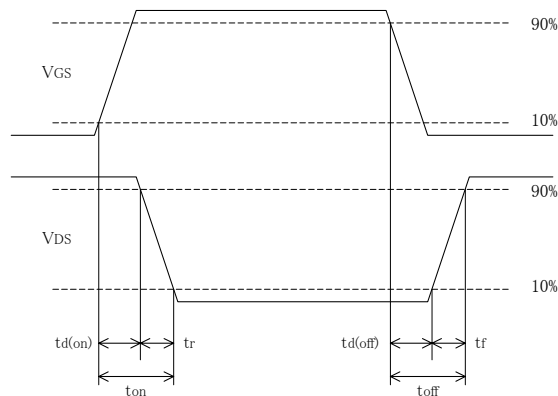
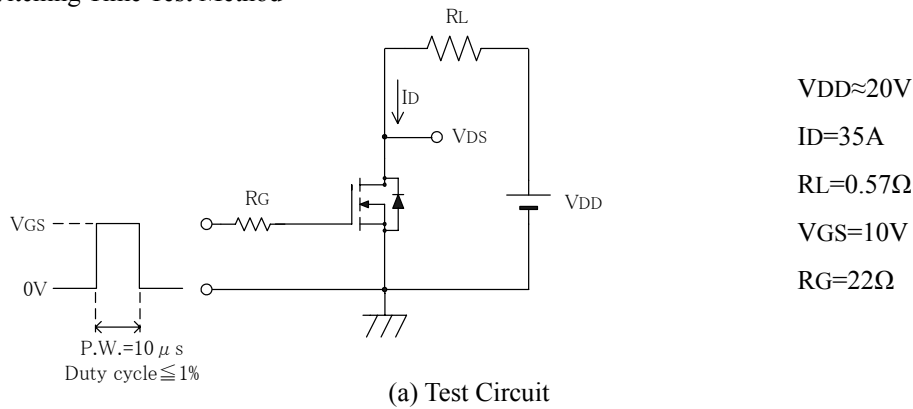


Fig.2 Switching Time Test Method



(b) Waveforms

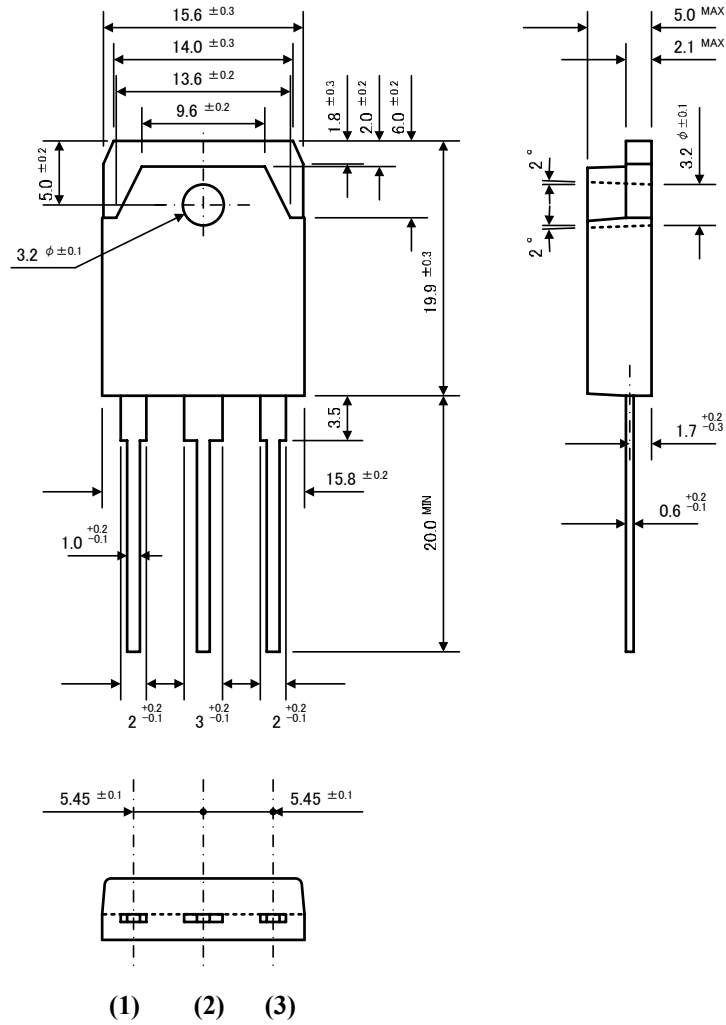
60V N -ch MOSFET  
**2SK3711**



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**External Dimensions**

MT100 (TO3P)



Mass: Approx. 6.0g

- (1) Gate
- (2) Drain (Back Side)
- (3) Source

## <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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## 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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