

# SANYO Semiconductors DATA SHEET

# 2SK3703— R-Channel Silicon MOSFET General-Purpose Switching Device Applications

### **Features**

- · Low ON-resistance.
- 4V drive.
- · Ultrahigh-speed switching.
- · Motor drive, DC / DC converter.
- · Avalanche resistance guarantee.

# **Specifications**

#### Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	VDSS		60	V
Gate-to-Source Voltage	VGSS		±20	V
Drain Current (DC)	ID		30	Α
Drain Current (Pulse)	IDP	PW≤10μs, duty cycle≤1%	120	Α
Allowable Power Dissipation	D-		2.0	W
	PD	Tc=25°C	25	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		-55 to +150	°C
Avalanche Energy (Single Pulse) *1	EAS		135	mJ
Avalanche Current *2	IAV		30	Α

Note: \*1 V<sub>DD</sub>=20V, L=200μH, I<sub>AV</sub>=30A

#### Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			- Unit
			min	typ	max	Offic
Drain-to-Source Breakdown Voltage	V(BR)DSS	I <sub>D</sub> =1mA, V <sub>GS</sub> =0V	60			V
Zero-Gate Voltage Drain Current	IDSS	VDS=60V, VGS=0V			1	μΑ
Gate-to-Source Leakage Current	IGSS	V <sub>GS</sub> = ±16V, V <sub>DS</sub> =0V			±10	μΑ
Cutoff Voltage	Vgs(off)	V <sub>DS</sub> =10V, I <sub>D</sub> =1mA	1.2		2.6	V
Forward Transfer Admittance	yfs	VDS=10V, ID=15A	13	22		S
Static Drain-to-Source On-State Resistance	R <sub>DS</sub> (on)1	I <sub>D</sub> =15A, V <sub>G</sub> S=10V		20	26	mΩ
	R <sub>DS</sub> (on)2	I <sub>D</sub> =15A, V <sub>G</sub> S=4V		28	40	mΩ

Marking: K3703 Continued on next page.

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<sup>\*2</sup> L≤200µH, Single pulse

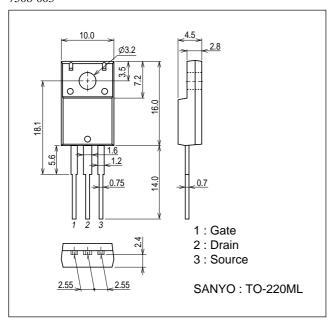
# 2SK3703

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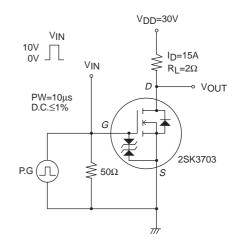
Parameter	Symbol	Conditions		Ratings		
	Symbol		min	typ	max	Unit
Input Capacitance	Ciss	VDS=20V, f=1MHz		1780		pF
Output Capacitance	Coss	V <sub>DS</sub> =20V, f=1MHz		266		pF
Reverse Transfer Capacitance	Crss	V <sub>DS</sub> =20V, f=1MHz		197		pF
Turn-ON Delay Time	t <sub>d</sub> (on)	See specified Test Circuit.		16.5		ns
Rise Time	t <sub>r</sub>	See specified Test Circuit.		110		ns
Turn-OFF Delay Time	t <sub>d</sub> (off)	See specified Test Circuit.		166		ns
Fall Time	tf	See specified Test Circuit.		144		ns
Total Gate Charge	Qg	V <sub>DS</sub> =30V, V <sub>GS</sub> =10V, I <sub>D</sub> =30A		40		nC
Gate-to-Source Charge	Qgs	VDS=30V, VGS=10V, ID=30A		6.5		nC
Gate-to-Drain "Miller" Charge	Qgd	V <sub>DS</sub> =30V, V <sub>GS</sub> =10V, I <sub>D</sub> =30A		11.5		nC
Diode Forward Voltage	V <sub>SD</sub>	IS=30A, VGS=0V		1.0	1.2	V

# **Package Dimensions**

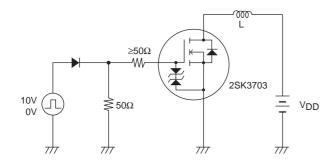
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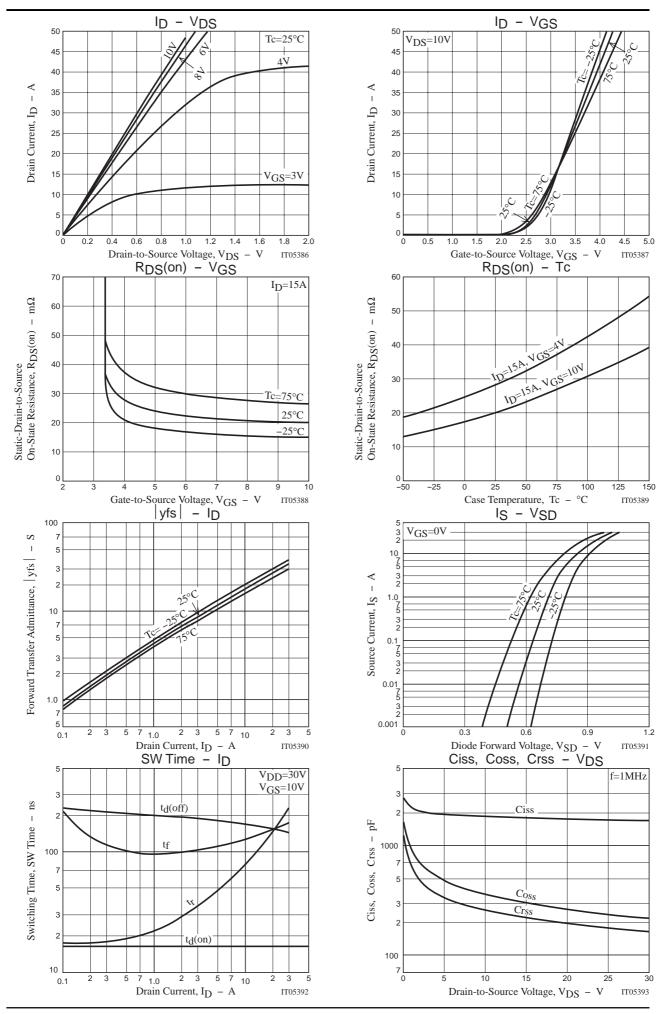


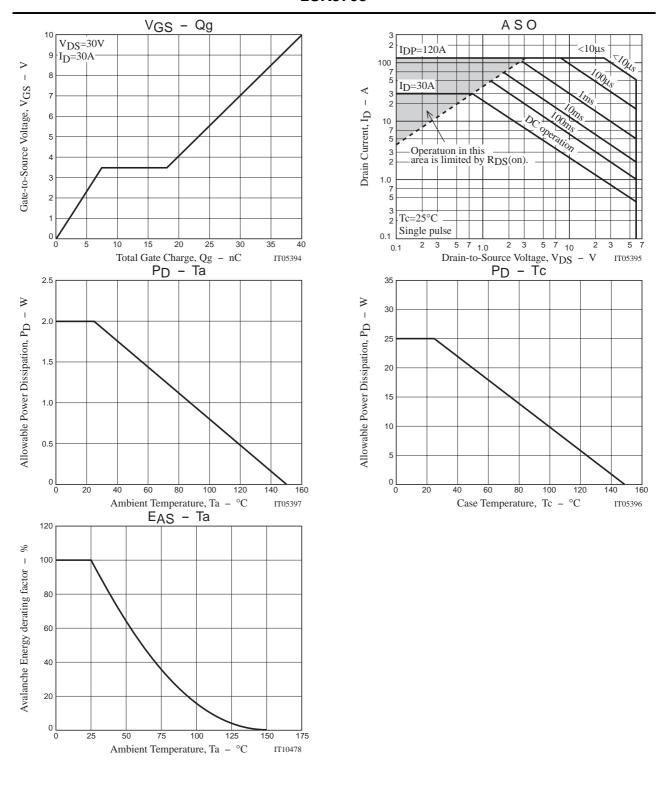
# **Switching Time Test Circuit**



# **Avalanche Resistance Test Circuit**







Note on usage: Since the 2SK3703 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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