



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

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

Features

- ON-resistance $R_{DS(on)} = 20\text{m}\Omega$ (typ.)
- Input capacitance $C_{iss} = 1780\text{pF}$ (typ.)
- 4V drive

Specifications

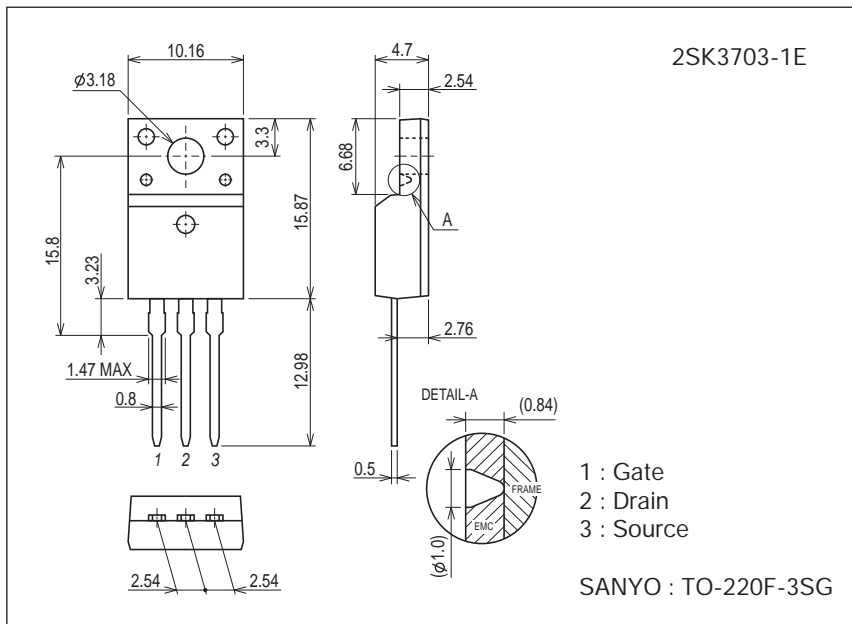
Absolute Maximum Ratings at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DS}		60	V
Gate-to-Source Voltage	V_{GS}		± 20	V
Drain Current (DC)	I_D		30	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu\text{s}$, duty cycles $\leq 1\%$	120	A
Allowable Power Dissipation	P_D		2.0	W
		$T_c = 25^\circ\text{C}$	25	W
Channel Temperature	T_{ch}		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$
Avalanche Energy (Single Pulse) *1	E_{AS}		135	mJ
Avalanche Current *2	I_{AV}		30	A

Note : *1 $V_{DD} = 20\text{V}$, $L = 200\mu\text{H}$, $I_{AV} = 30\text{A}$ (Fig.1)
 *2 $L \leq 200\mu\text{H}$, Single pulse

Package Dimensions

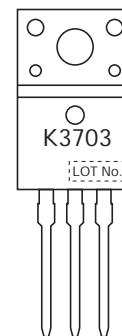
unit : mm (typ)
 7529-001



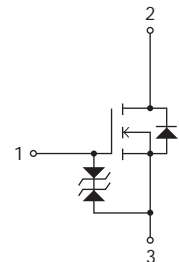
Product & Package Information

- Package : TO-220F-3SG
- JEITA, JEDEC : SC-67
- Minimum Packing Quantity : 50 pcs./magazine

Marking



Electrical Connection



2SK3703

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	V(BR)DSS	I _D =1mA, V _{GS} =0V	60			V
Zero-Gate Voltage Drain Current	I _{DSS}	V _{DS} =60V, V _{GS} =0V			1	μA
Gate-to-Source Leakage Current	I _{GSS}	V _{GS} =±16V, V _{DS} =0V			±10	μA
Cutoff Voltage	V _{GS(off)}	V _{DS} =10V, I _D =1mA	1.2		2.6	V
Forward Transfer Admittance	y _{fs}	V _{DS} =10V, I _D =15A	13	22		S
Static Drain-to-Source On-State Resistance	R _{DS(on)1}	I _D =15A, V _{GS} =10V		20	26	mΩ
	R _{DS(on)2}	I _D =15A, V _{GS} =4V		28	40	mΩ
Input Capacitance	C _{iss}	V _{DS} =20V, f=1MHz		1780		pF
Output Capacitance	C _{oss}			266		pF
Reverse Transfer Capacitance	C _{rss}			197		pF
Turn-ON Delay Time	t _{d(on)}	See Fig.2		16.5		ns
Rise Time	t _r			110		ns
Turn-OFF Delay Time	t _{d(off)}			166		ns
Fall Time	t _f			144		ns
Total Gate Charge	Q _g				40	
Gate-to-Source Charge	Q _{gs}	V _{DS} =30V, V _{GS} =10V, I _D =30A		6.5		nC
Gate-to-Drain "Miller" Charge	Q _{gd}			11.5		nC
Diode Forward Voltage	V _{SD}		I _S =30A, V _{GS} =0V		1.0	1.2

Fig.1 Avalanche Resistance Test Circuit

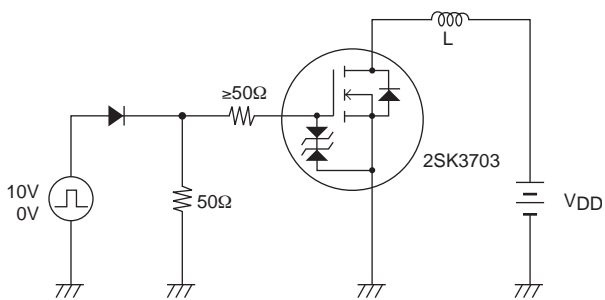
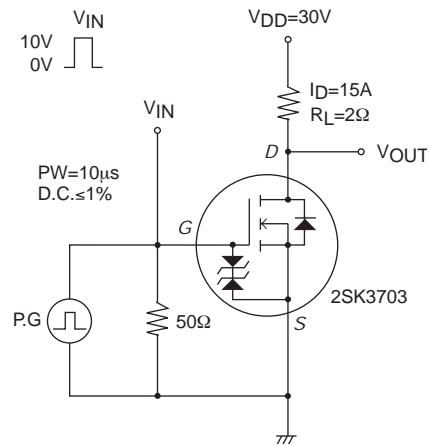
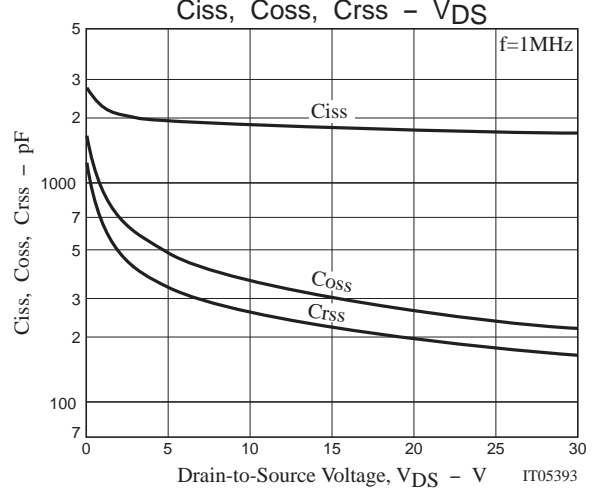
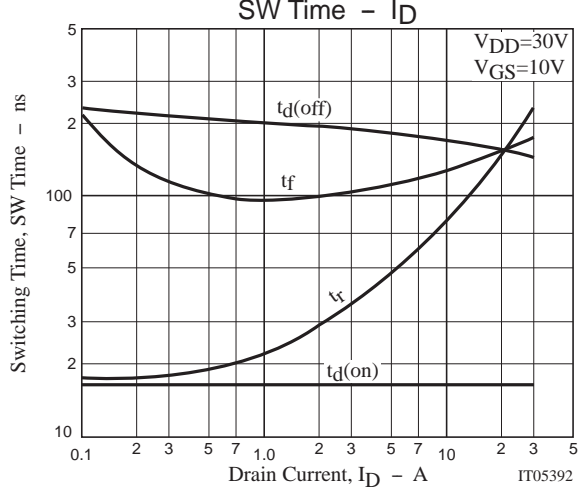
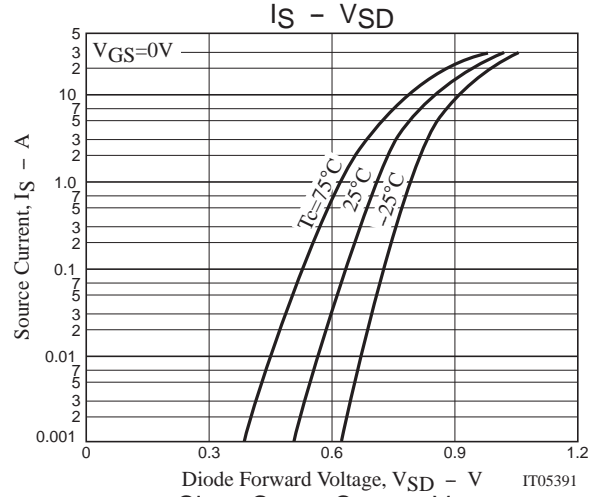
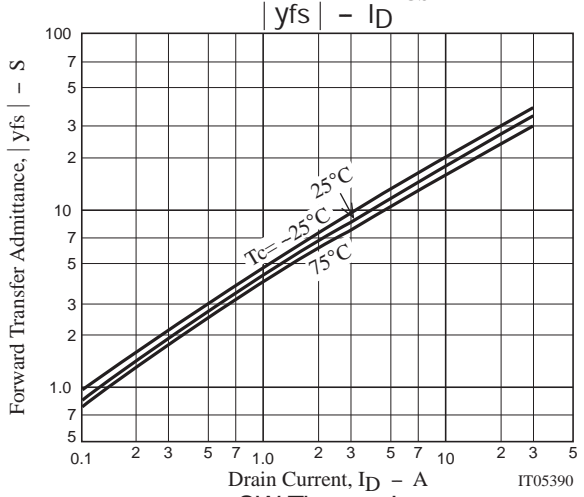
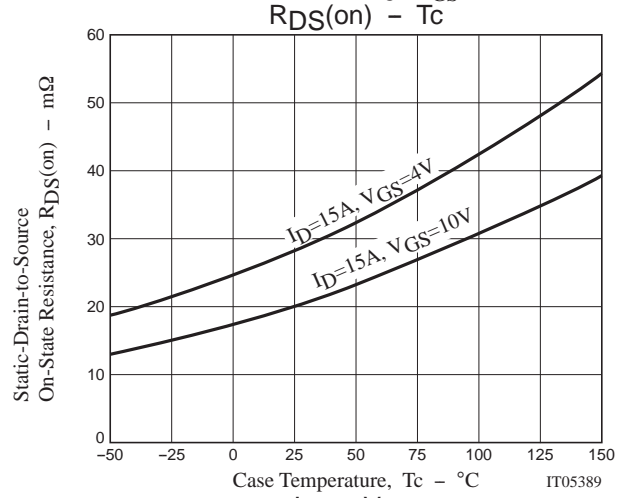
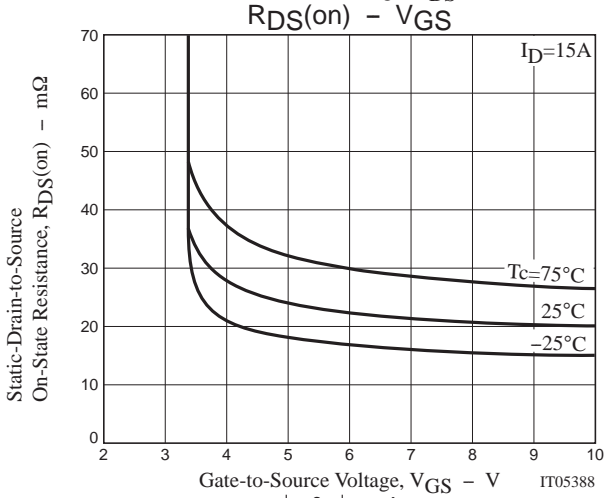
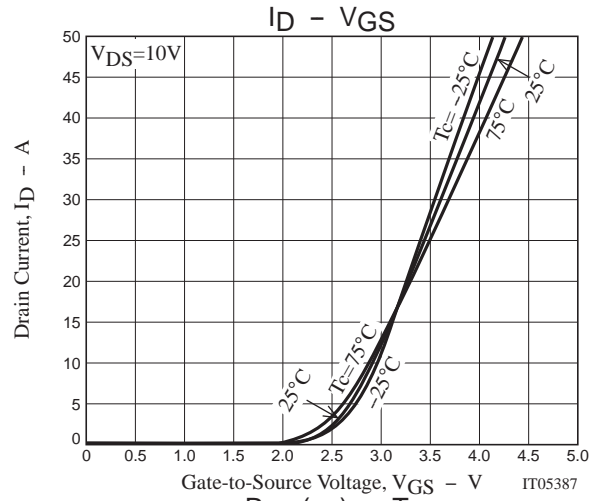
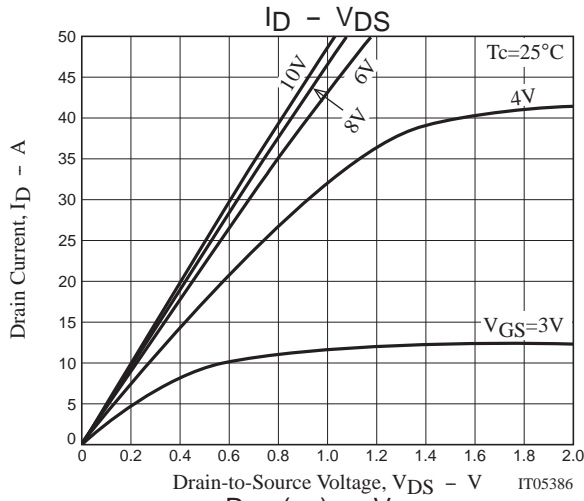


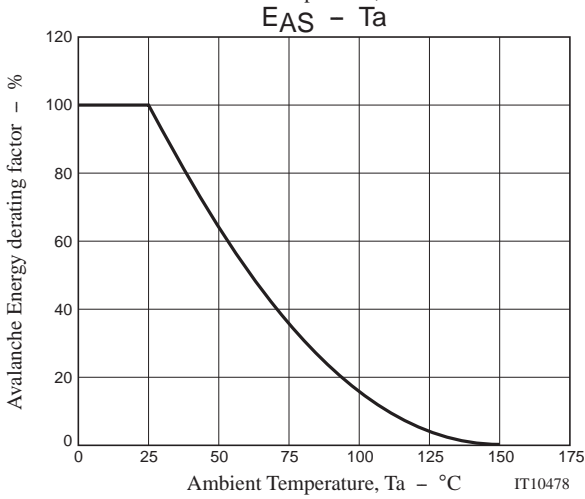
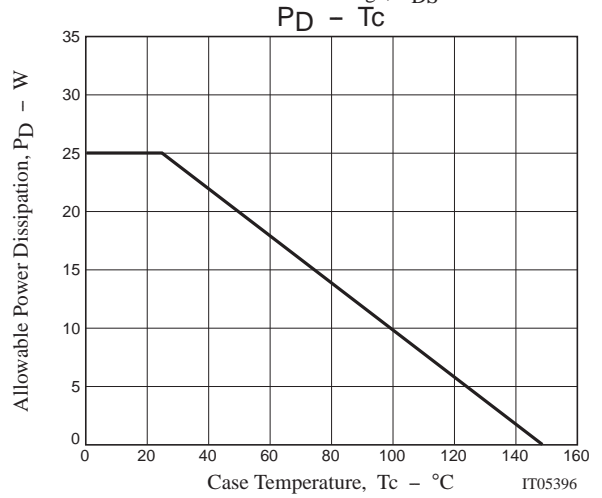
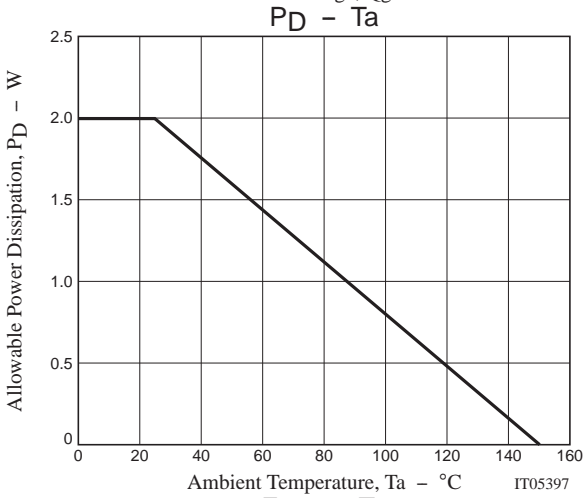
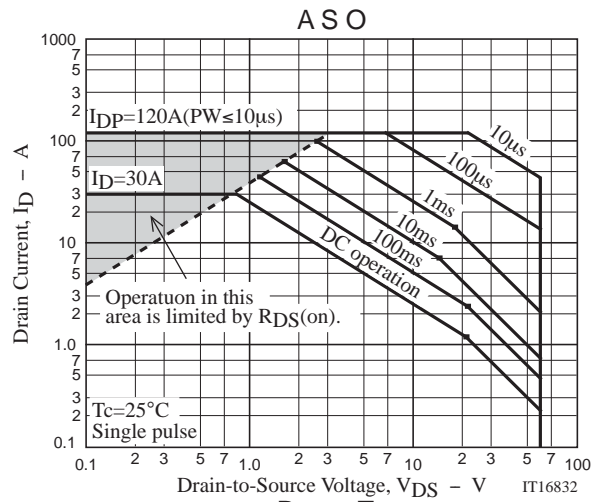
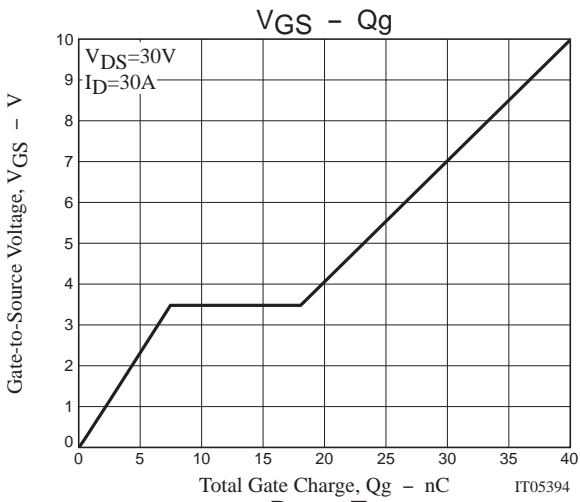
Fig.2 Switching Time Test Circuit



Ordering Information

Device	Package	Shipping	memo
2SK3703-1E	TO-220F-3SG	50pcs./magazine	Pb Free





Magazine Specification

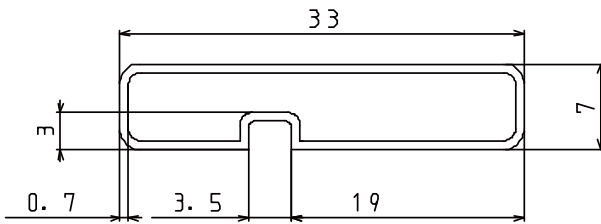
2SK3703-1E

1. Packing Format

Package Name	Magazine Name	Maximum Number of devices contained (pcs)			Packing format	
		Magazine	Inner box	Outer box	Inner BOX	Outer BOX
TO-220F-3SG	TO-220F	50	1,000	4,000	SPD-0V0001 20 magazines contained Dimensions:mm (external) 568×150×55	SPT-081029 4 inner boxes contained Dimensions:mm (external) 590×225×178

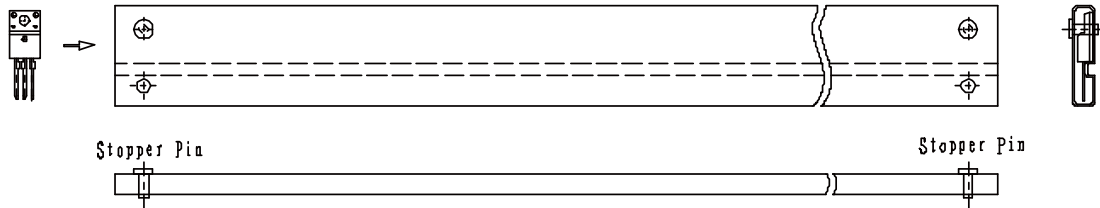
2. Magazine dimensions

(unit:mm)

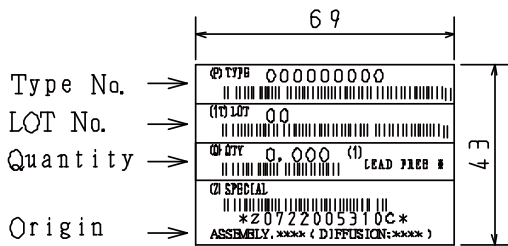


Tolerance=±0.3mm
 Thickness=0.7±0.2mm
 Length =532.5±2mm
 Material =PVC (Antistatic treatment)

3. Storage method to magazine

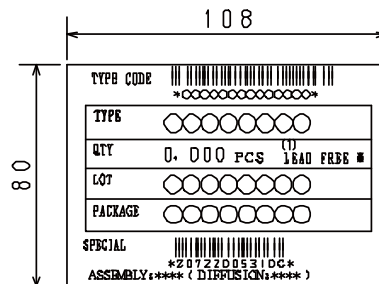


4. Inner box label (unit:mm)



5. Outer box label (unit:mm)

It is a label at the time of factory shipments.
 The form of a label may change in physical
 distribution process.



NOTE (1)

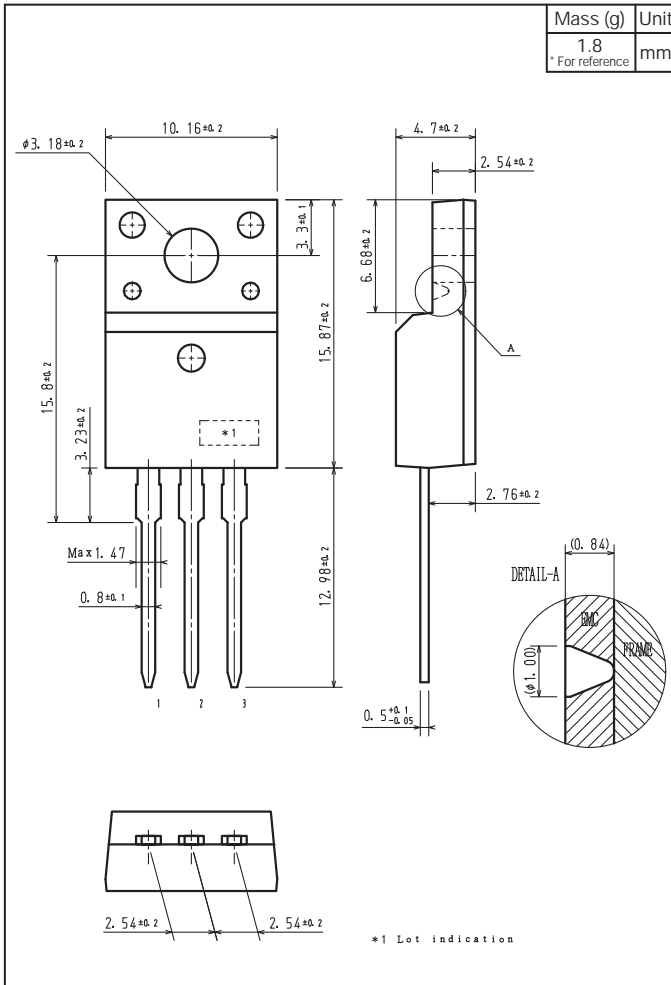
The LEAD FREE * description shows that the surface treatment of the terminal is lead free.

Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A

2SK3703

Outline Drawing

2SK3703-1E



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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