Ordering number : EN7681B

SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

N-Channel Silicon MOSFET

2SK3703 — General-Purpose Switching Device Applications

Features

- ON-resistance $R_{DS}(on)1$=20mΩ (typ.)
- 4V drive
- Input capacitance Ciss=1780pF (typ.)

Specifications

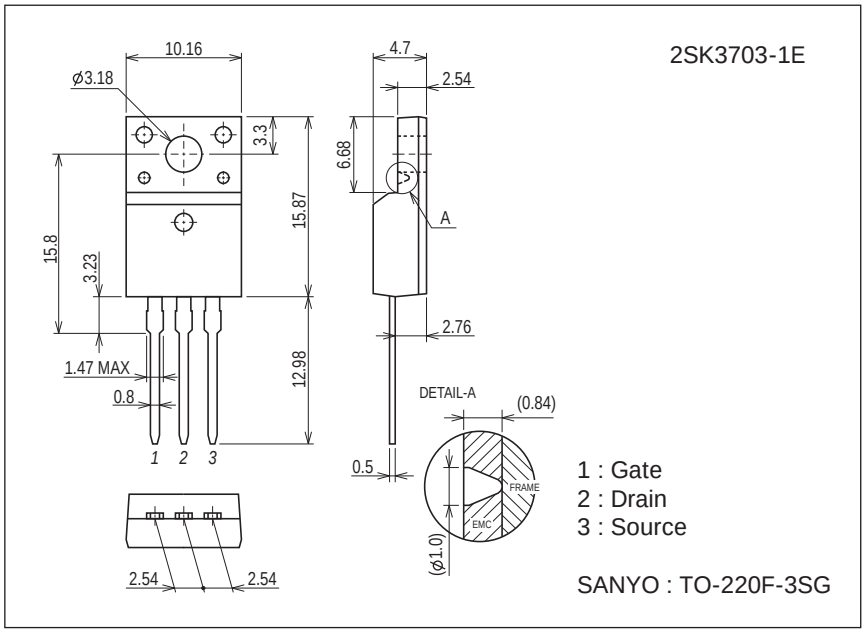
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		60	V
Gate-to-Source Voltage	V_{GSS}		±20	V
Drain Current (DC)	I_D		30	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	120	A
Allowable Power Dissipation	P_D		2.0	W
		Tc=25°C	25	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		−55 to +150	°C
Avalanche Energy (Single Pulse) *1	E_{AS}		135	mJ
Avalanche Current *2	I_{AV}		30	A

Note :*1 V_{DD}=20V, L=200μH, I_{AV}=30A (Fig.1)
*2 L≤200μH, Single pulse

Package Dimensions

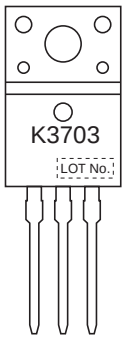
unit : mm (typ)
7529-001



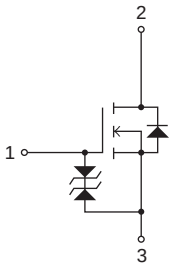
Product & Package Information

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

Marking



Electrical Connection



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	$\|yfs\|$	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	Ciss	V_{DS}=20V, f=1MHz		1780		pF
Output Capacitance	Coss			266		pF
Reverse Transfer Capacitance	Crss			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	Qg	V_{DS}=30V, V_{GS}=10V, I_D=30A		40		nC
Gate-to-Source Charge	Qgs			6.5		nC
Gate-to-Drain “Miller” Charge	Qgd			11.5		nC
Diode Forward Voltage	V_{SD}	I_S=30A, V_{GS}=0V		1.0	1.2	V

Fig.1 Avalanche Resistance Test Circuit

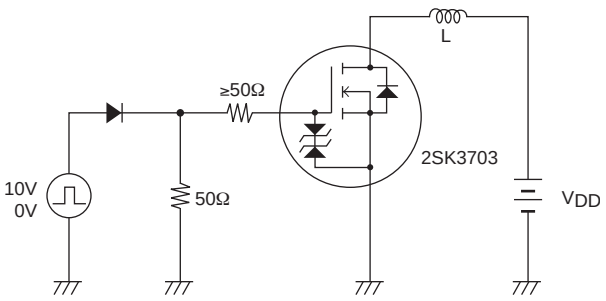
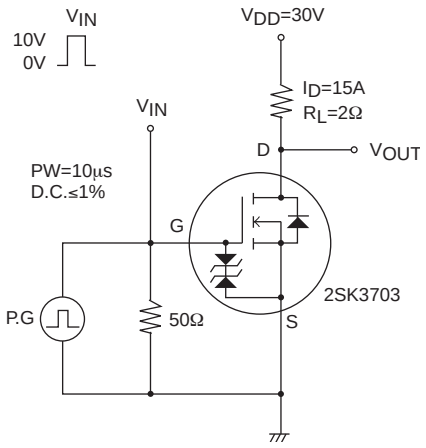
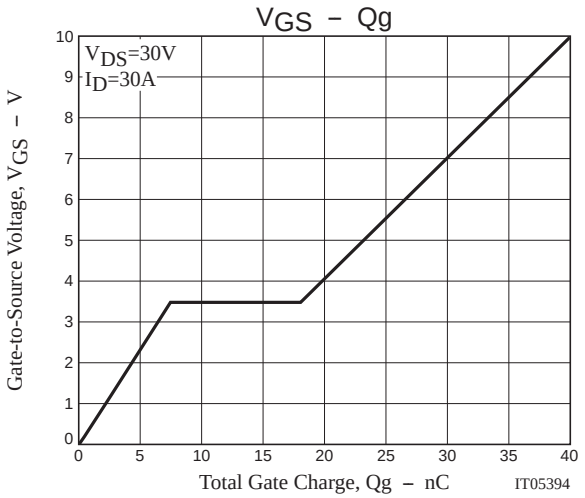


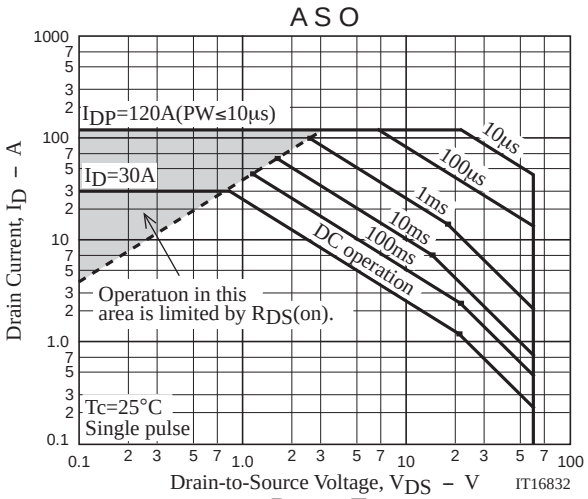
Fig.2 Switching Time Test Circuit

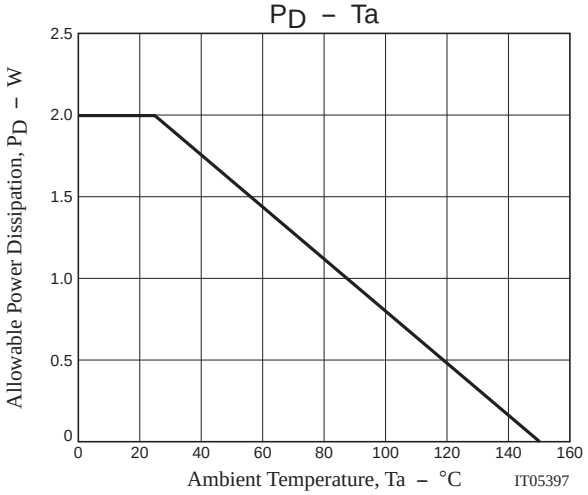


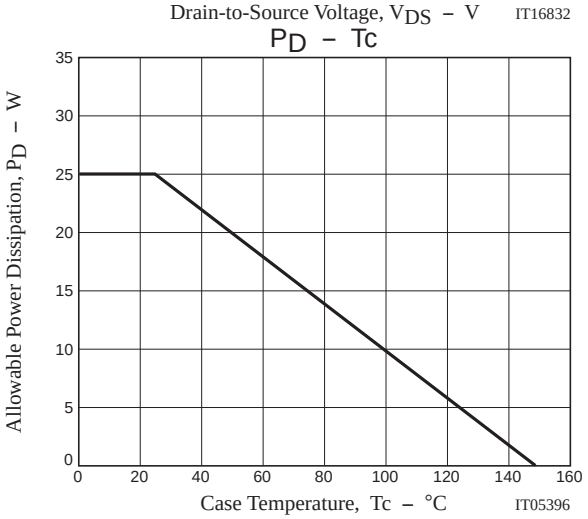
Ordering Information

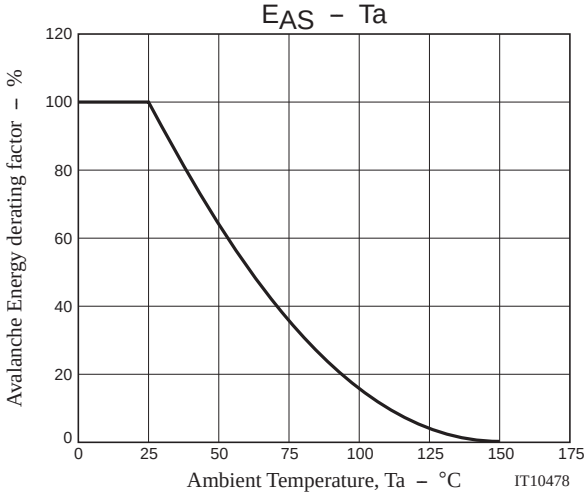
Device	Package	Shipping	memo
2SK3703-1E	TO-220F-3SG	50pcs./magazine	Pb Free


VGS – Qg
VDS=30V
ID=30A
Gate-to-Source Voltage, VGS – V
Total Gate Charge, Qg – nC
IT05394


A S O
IDP=120A(PW≤10μs)
ID=30A
10μs
100μs
1ms
10ms
100ms
DC operation
Operatuon in this
area is limited by RDS(on).
Tc=25°C
Single pulse
Drain Current, ID – A
Drain-to-Source Voltage, VDS – V
IT16832


PD – Ta
Allowable Power Dissipation, PD – W
Ambient Temperature, Ta – °C
IT05397


PD – Tc
Allowable Power Dissipation, PD – W
Case Temperature, Tc – °C
IT05396


EAS – Ta
Avalanche Energy derating factor – %
Ambient Temperature, Ta – °C
IT10478

Magazine Specification

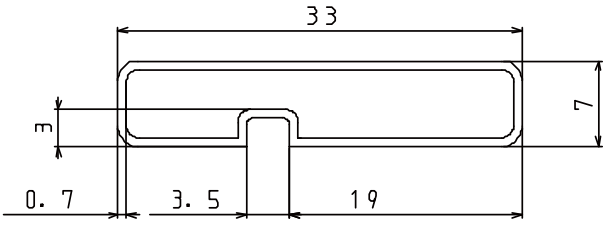
2SK3703-1E

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

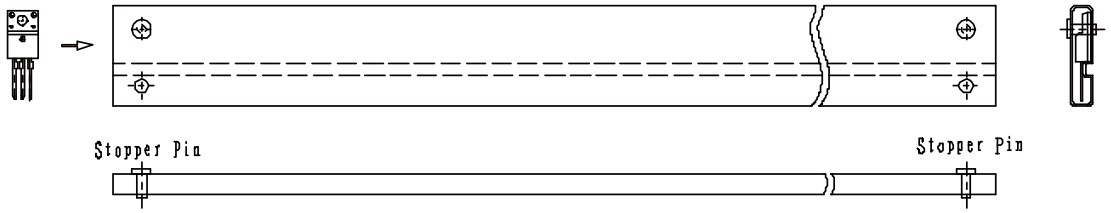
2. Magazine dimensions

(unit:mm)

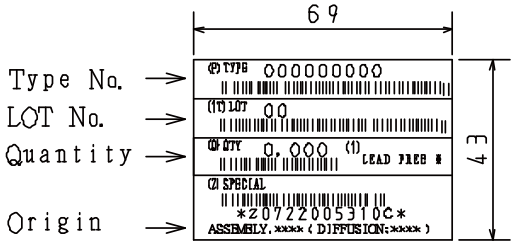


Tolerance=±0.3mm
Thickness=0.7±0.2mm
Length =532.5±2mm
Material =PVC (Antistatic treatment)

3. Storage method to magazine

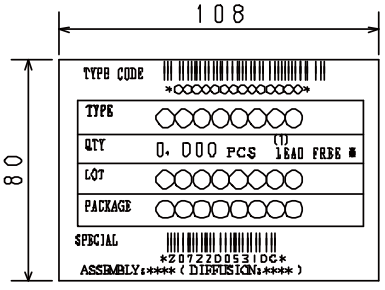


4. Inner box label (unit:mm)



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.

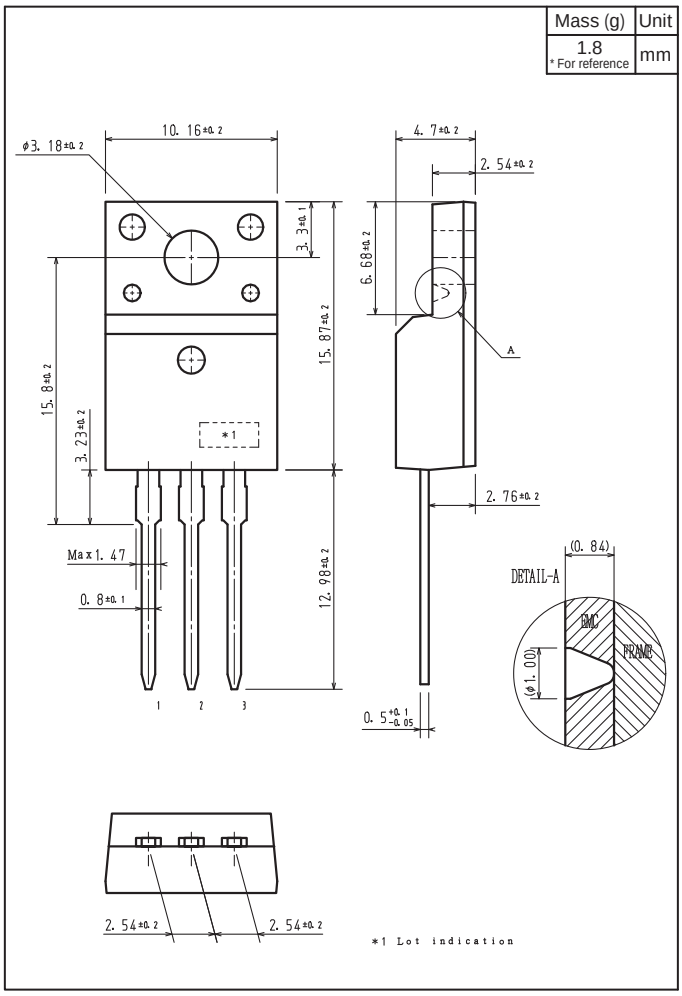


NOTE (1)
The LEAD FREE ※ description shows that the surface treatment of the terminal is lead free.

Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A

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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