



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

2SK4087LS — N-Channel Silicon MOSFET — General-Purpose Switching Device Applications

Features

- ON-resistance $R_{DS(on)}=0.47\Omega$ (typ.)
- 10V drive
- Input capacitance $C_{iss}=1200\text{pF}$ (typ.)

Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		600	V
Gate-to-Source Voltage	V_{GSS}		± 30	V
Drain Current (DC)	I_{Dc} *1	Limited only by maximum temperature $T_{ch}=150^\circ\text{C}$	14	A
	I_{Dpack} *2	$T_c=25^\circ\text{C}$ (SANYO's ideal heat dissipation condition)*3	9.2	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu\text{s}$, duty cycle $\leq 1\%$	52	A
Allowable Power Dissipation	PD		2.0	W
		$T_c=25^\circ\text{C}$ (SANYO's ideal heat dissipation condition)*3	40	W
Channel Temperature	T_{ch}		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$
Avalanche Energy (Single Pulse) *4	EAS		106	mJ
Avalanche Current *5	I_{AV}		14	A

*1 Shows chip capability.

*2 Package limited.

*3 SANYO's condition is radiation from backside.

The method is applying silicone grease to the backside of the device and attaching the device to water-cooled radiator made of aluminium.

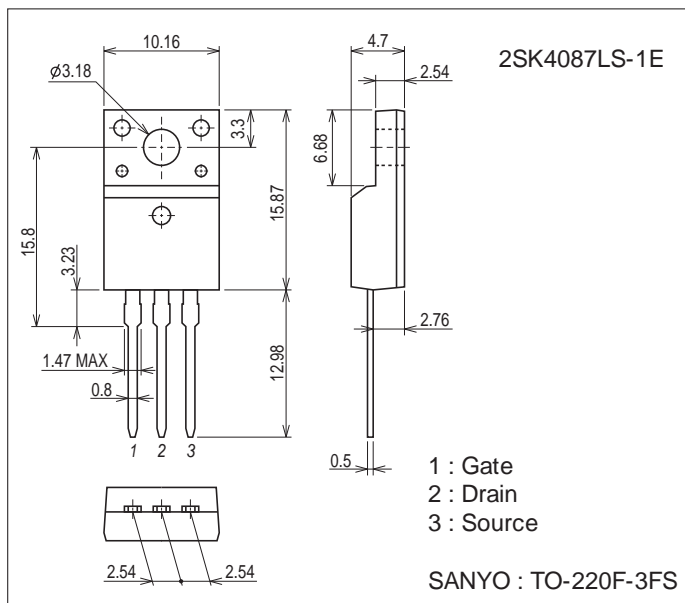
*4 $V_{DD}=50\text{V}$, $L=1\text{mH}$, $I_{AV}=14\text{A}$ (Fig.1)

*5 $L \leq 1\text{mH}$, Single pulse

Package Dimensions

unit : mm (typ)

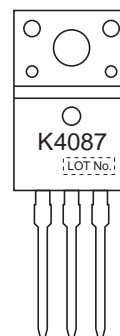
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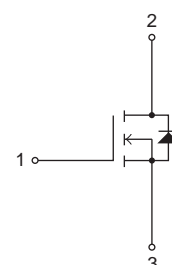
Product & Package Information

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

Marking



Electrical Connection



SANYO Semiconductor Co., Ltd.

<http://www.sanyosemi.com/en/network/>

2SK4087LS

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	V(BR)DSS	ID=10mA, VGS=0V	600			V
Zero-Gate Voltage Drain Current	IDSS	VDS=480V, VGS=0V			100	μA
Gate-to-Source Leakage Current	IGSS	VGS=±30V, VDS=0V			±100	nA
Cutoff Voltage	VGS(off)	VDS=10V, ID=1mA	3		5	V
Forward Transfer Admittance	yfs	VDS=10V, ID=7A	4	8		S
Static Drain-to-Source On-State Resistance	RDS(on)	ID=7A, VGS=10V		0.47	0.61	Ω
Input Capacitance	Ciss	VDS=30V, f=1MHz		1200		pF
Output Capacitance	Coss			220		pF
Reverse Transfer Capacitance	Crss			50		pF
Turn-ON Delay Time	td(on)	See Fig.2		27		ns
Rise Time	tr			72		ns
Turn-OFF Delay Time	td(off)			144		ns
Fall Time	tf			48		ns
Total Gate Charge	Qg			46		nC
Gate-to-Source Charge	Qgs	VDS=200V, VGS=10V, ID=14A		8.6		nC
Gate-to-Drain "Miller" Charge	Qgd			26.4		nC
Diode Forward Voltage	VSD	IS=14A, VGS=0V		0.95	1.3	V

Fig.1 Unclamped Inductive Switching Test Circuit

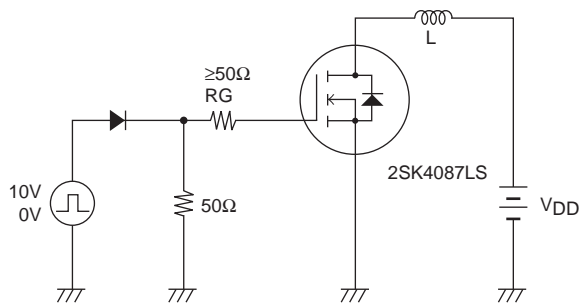
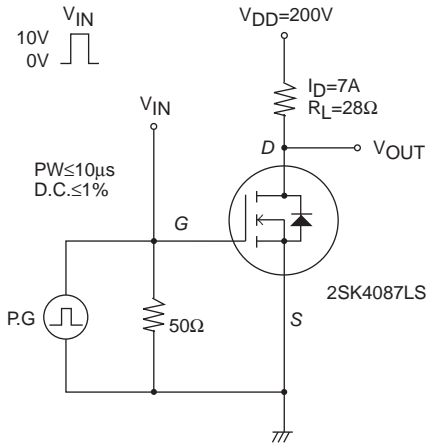
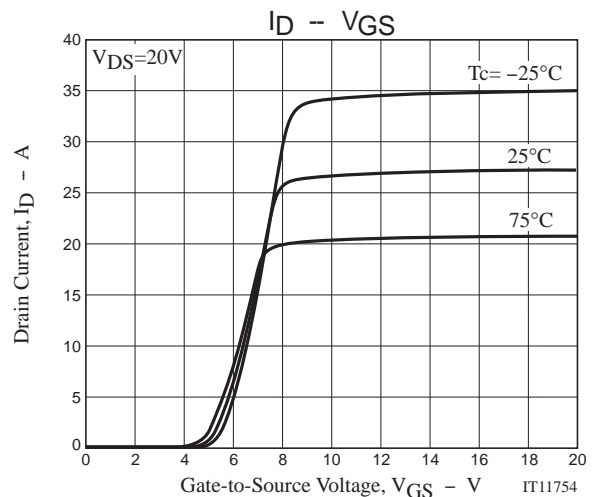
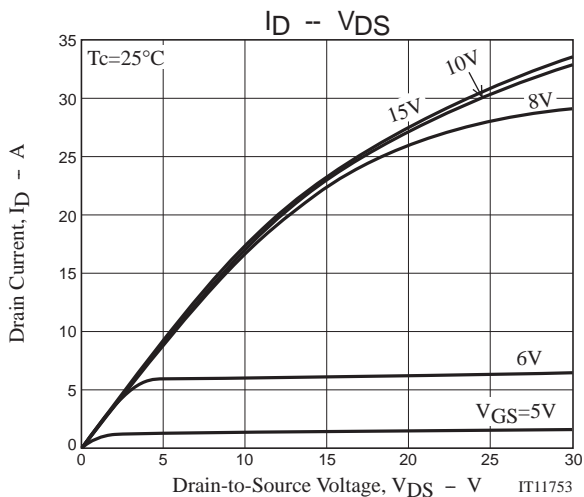


Fig.2 Switching Time Test Circuit

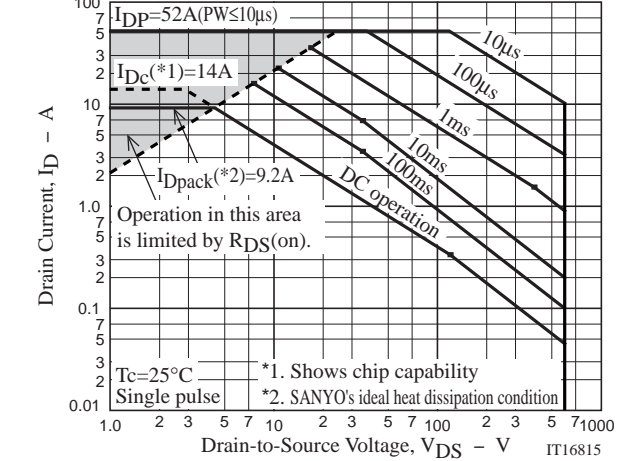
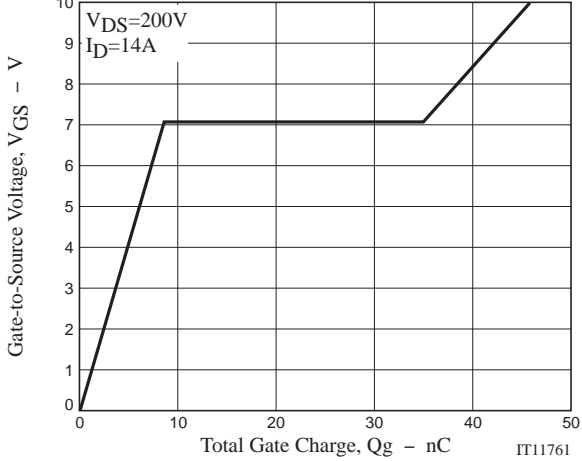
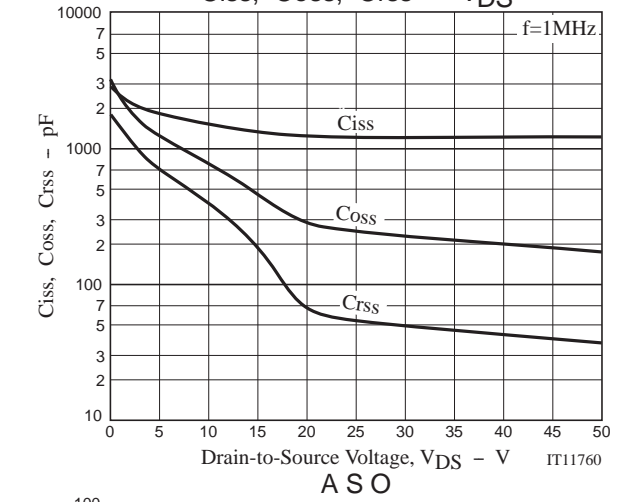
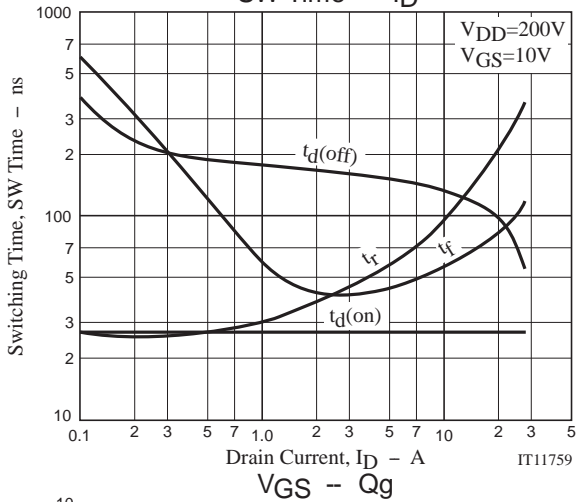
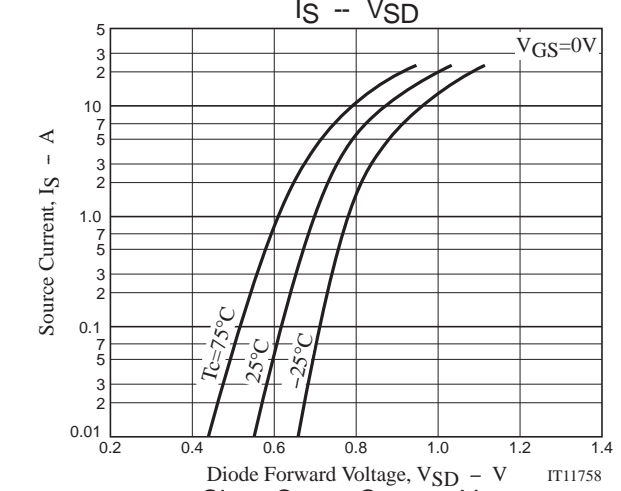
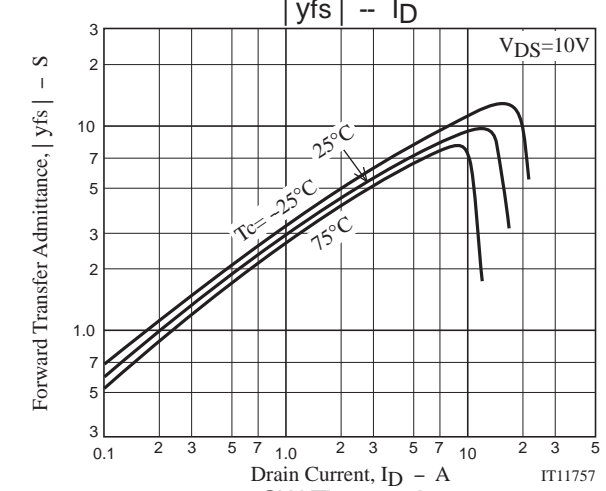
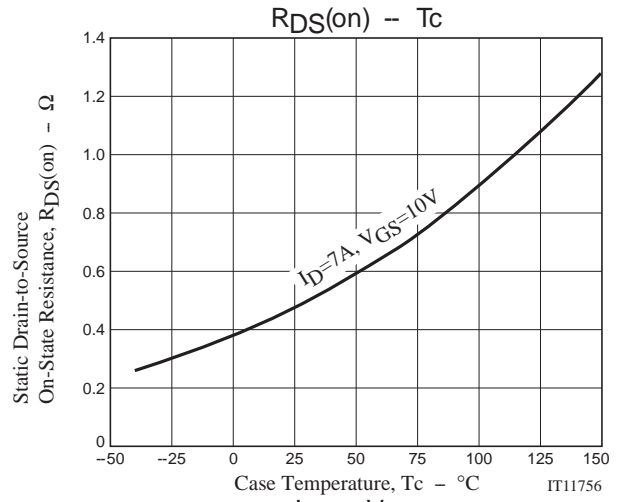
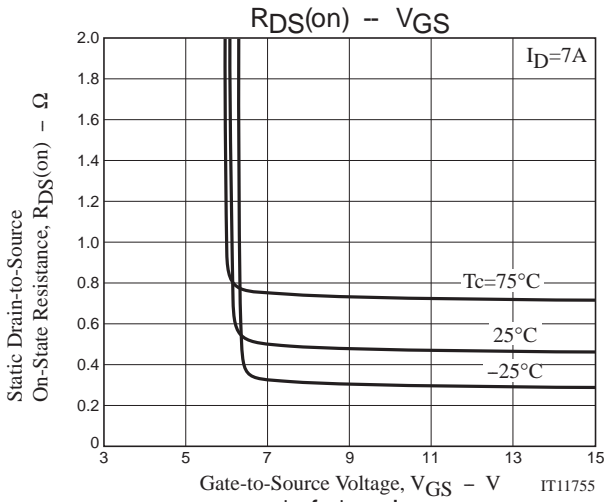


Ordering Information

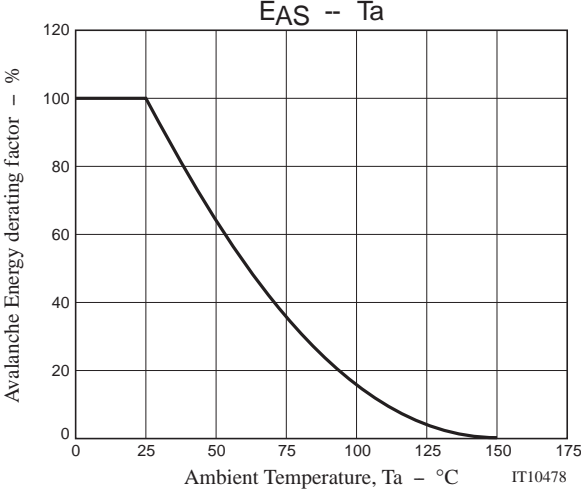
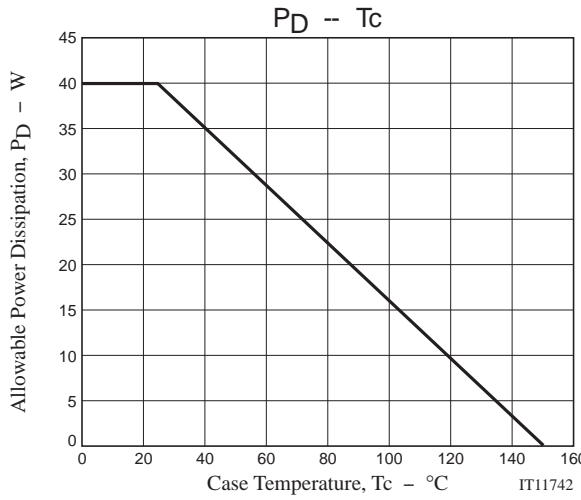
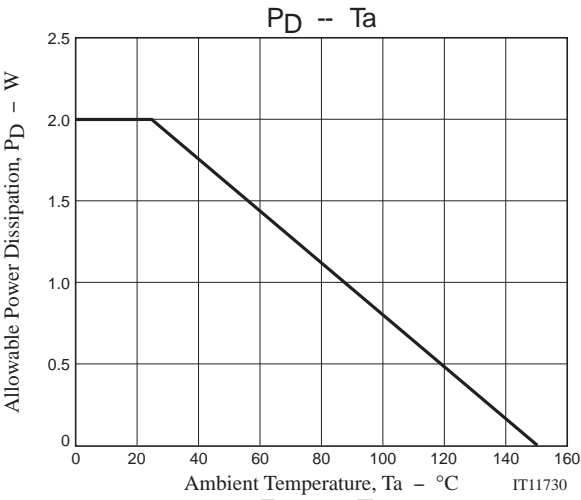
Device	Package	Shipping	memo
2SK4087LS-1E	TO-220F-3FS	50pcs./magazine	Pb Free



2SK4087LS



2SK4087LS



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Magazine Specification

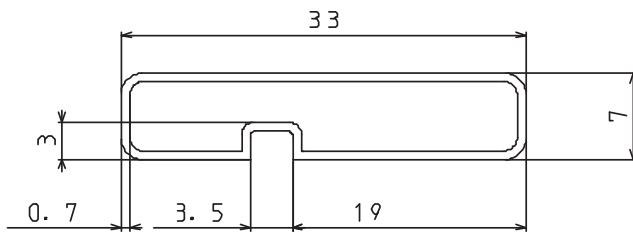
2SK4087LS-1E

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-3FS	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

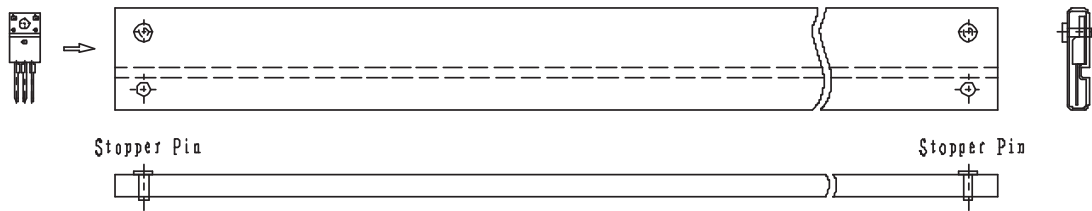
2. Magazine dimensions

(unit:mm)

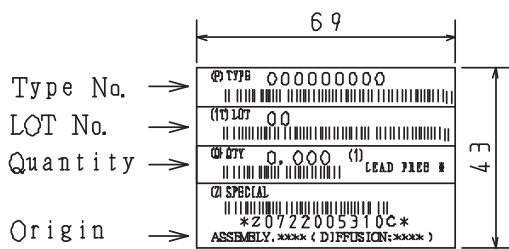


Tolerance=±0.3mm
 Thickness=0.7±0.2mm
 Length =532.5±2mm
 Material =PVC (Antistatic treatment)

3. Storage method to magazine

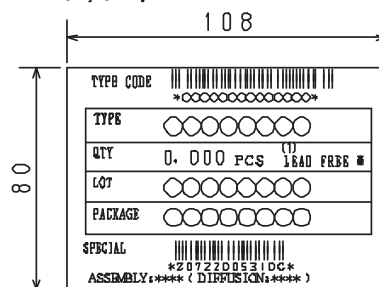


4. Inner box label (unit:mm)



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.



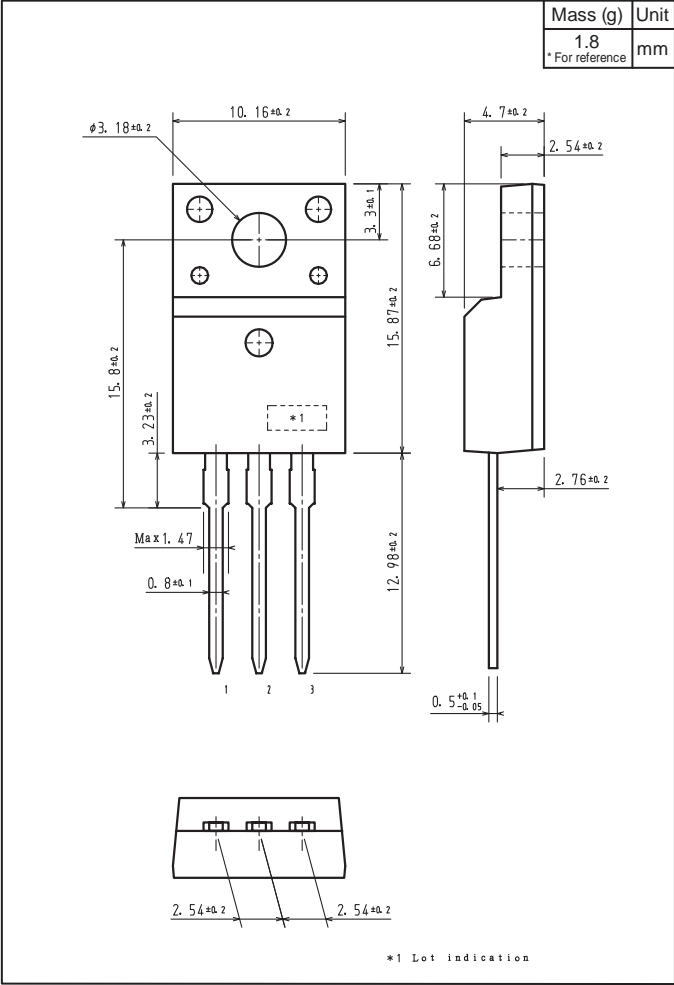
NOTE (1)

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

Label	JEITA Phase
LEAD FREE #	JEITA Phase 3A

2SK4087LS

Outline Drawing
2SK4087LS-1E



Note on usage : Since the 2SK4087LS is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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