



2SK3707

N-Channel Power MOSFET 100V, 20A, 60mΩ, TO-220F-3SG

ON Semiconductor®

<http://onsemi.com>

Features

- ON-resistance $R_{DS(on)1}=45m\Omega$ (typ.)
- Input capacitance $C_{iss}=2150pF$ (typ.)
- 4V drive

Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		100	V
Gate-to-Source Voltage	V_{GSS}		± 20	V
Drain Current (DC)	I_D		20	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu s$, duty cycle $\leq 1\%$	80	A
Allowable Power Dissipation	P_D		2.0	W
		$T_c=25^\circ C$	25	W
Channel Temperature	T_{ch}		150	$^\circ C$
Storage Temperature	T_{stg}		-55 to +150	$^\circ C$
Avalanche Energy (Single Pulse) *1	E_{AS}		125	mJ
Avalanche Current *2	I_{AV}		20	A

Note : *1 $V_{DD}=20V$, $L=500\mu H$, $I_{AV}=20A$ (Fig.1)

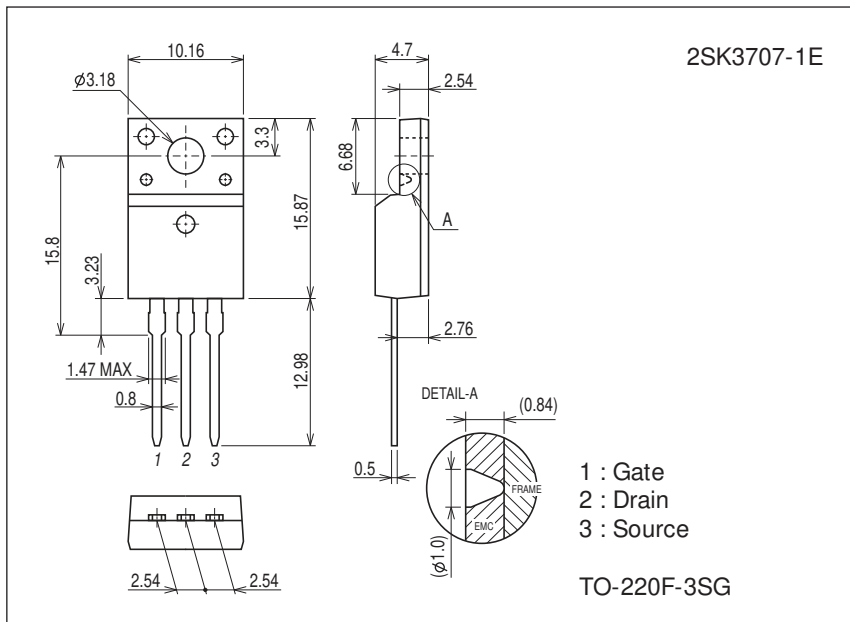
*2 $L \leq 500\mu H$, Single pulse

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

Package Dimensions

unit : mm (typ)

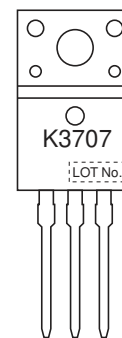
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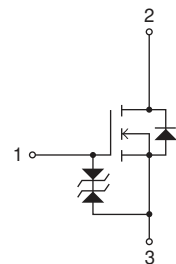
Product & Package Information

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

Marking



Electrical Connection



2SK3707

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	100			V
Zero-Gate Voltage Drain Current	I _{DSS}	V _{DS} =100V, 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 =10A	11	17		S
Static Drain-to-Source On-State Resistance	R _{DS(on)1}	I _D =10A, V _{GS} =10V		45	60	mΩ
	R _{DS(on)2}	I _D =10A, V _{GS} =4V		56	80	mΩ
Input Capacitance	C _{iss}	V _{DS} =20V, f=1MHz		2150		pF
Output Capacitance	C _{oss}			160		pF
Reverse Transfer Capacitance	C _{rss}			110		pF
Turn-ON Delay Time	t _{d(on)}	See Fig.2		19.5		ns
Rise Time	t _r			30		ns
Turn-OFF Delay Time	t _{d(off)}			185		ns
Fall Time	t _f			60		ns
Total Gate Charge	Q _g	V _{DS} =50V, V _{GS} =10V, I _D =20A		44		nC
Gate-to-Source Charge	Q _{gs}			7.8		nC
Gate-to-Drain "Miller" Charge	Q _{gd}			9.8		nC
Diode Forward Voltage	V _{SD}	I _S =20A, V _{GS} =0V		0.95	1.2	V

Fig.1 Avalanche Resistance Test Circuit

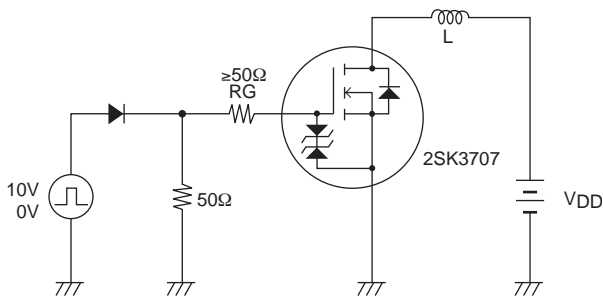
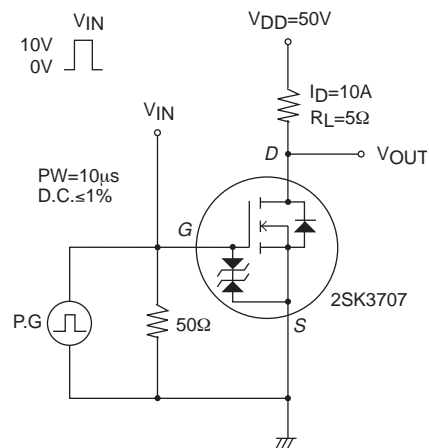
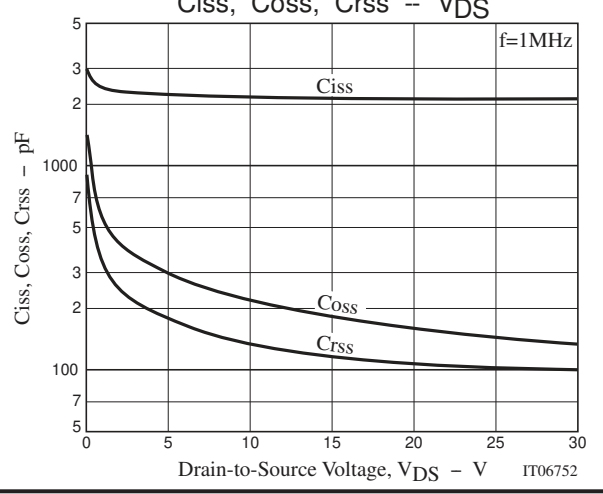
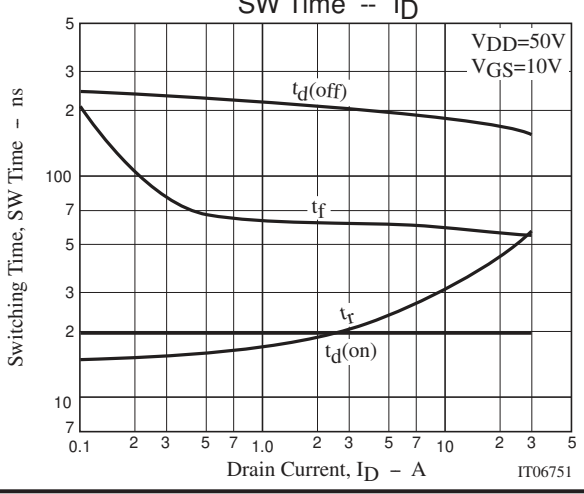
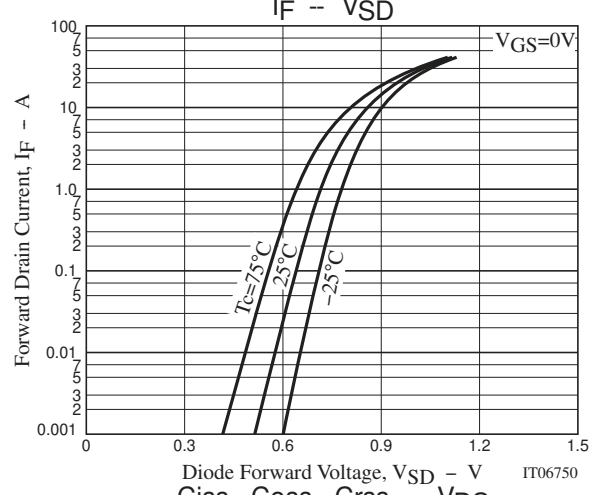
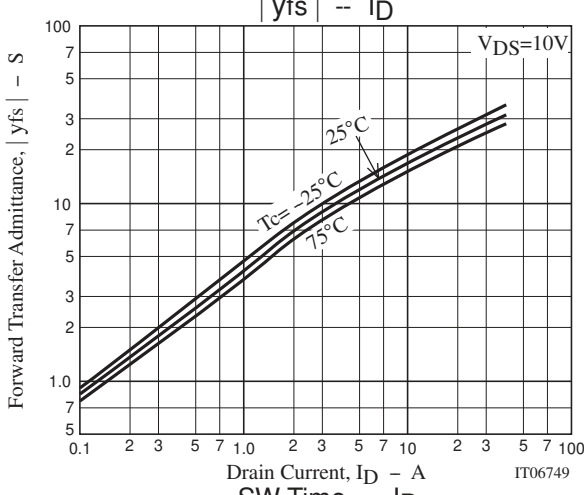
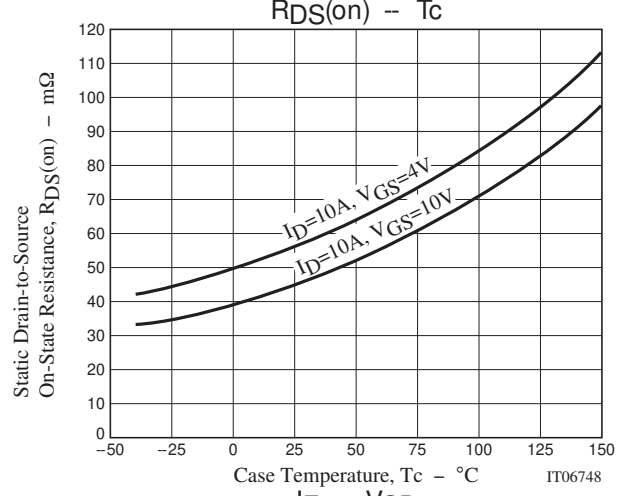
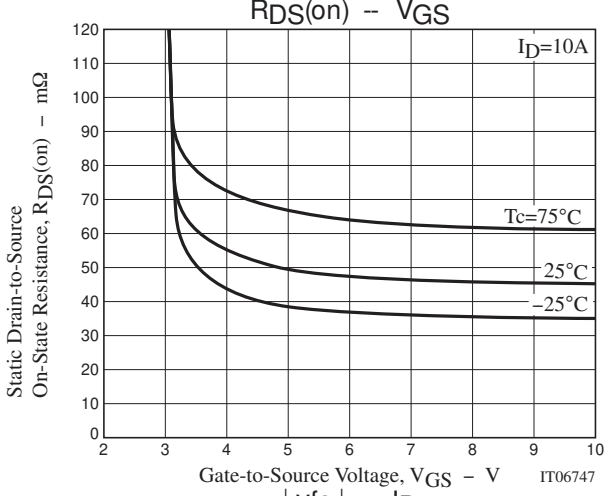
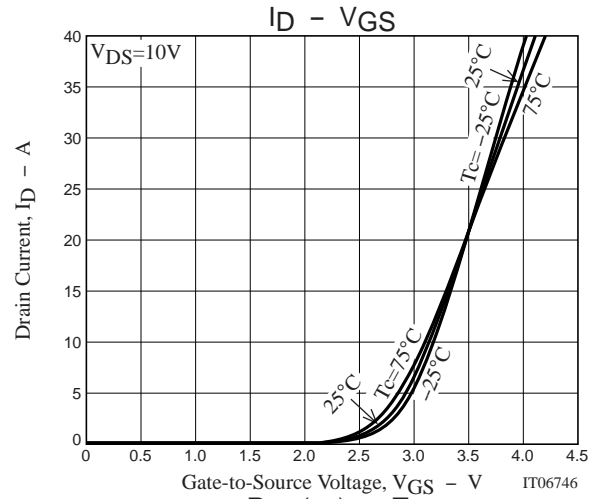
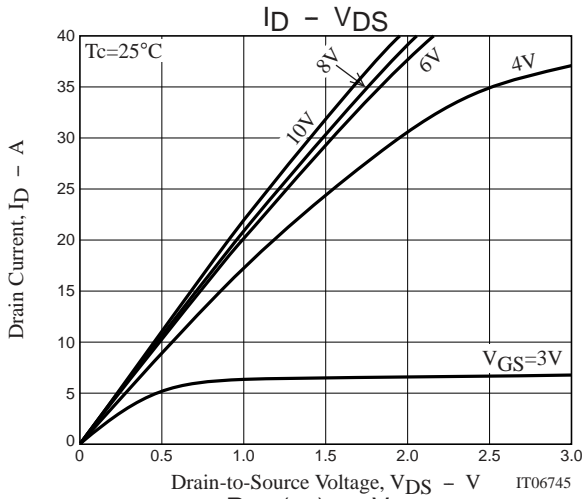


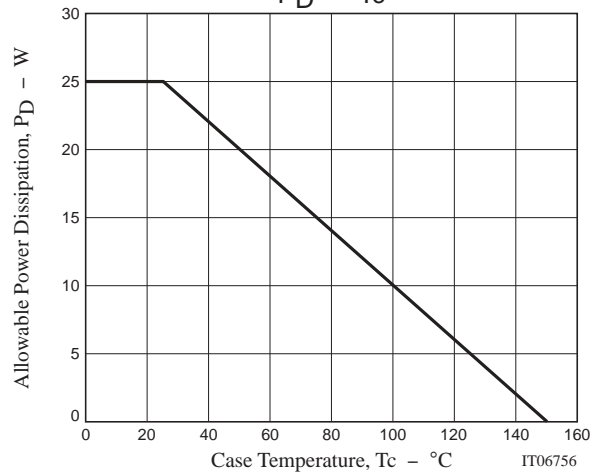
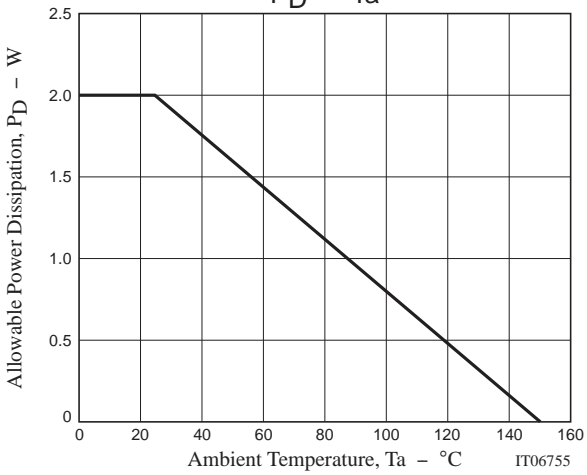
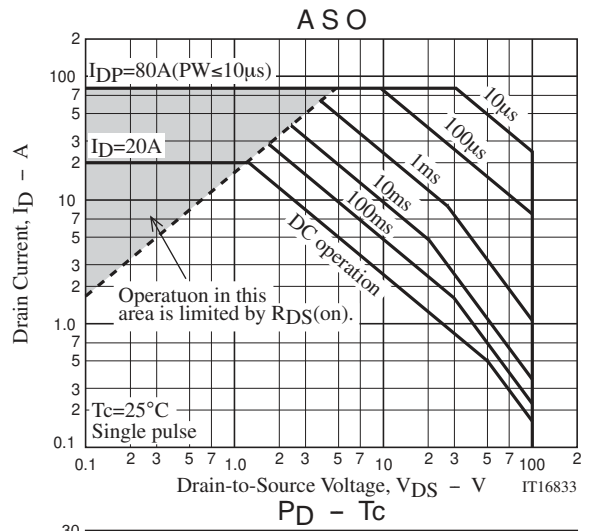
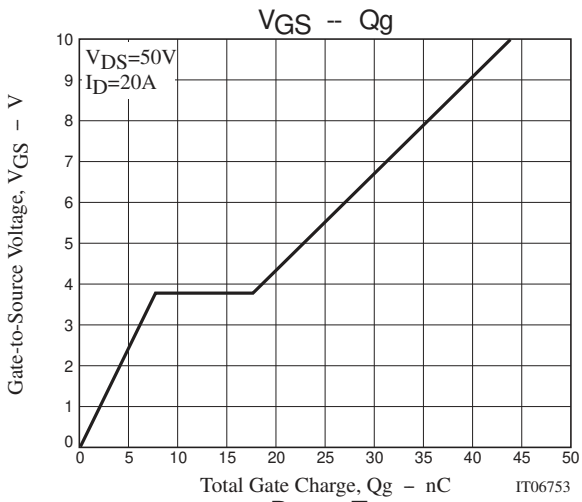
Fig.2 Switching Time Test Circuit



Ordering Information

Device	Package	Shipping	memo
2SK3707-1E	TO-220F-3SG	50pcs./magazine	Pb Free





Magazine Specification

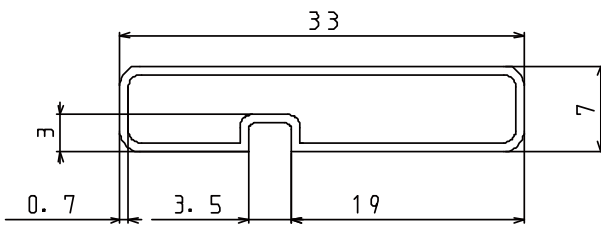
2SK3707-1E

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

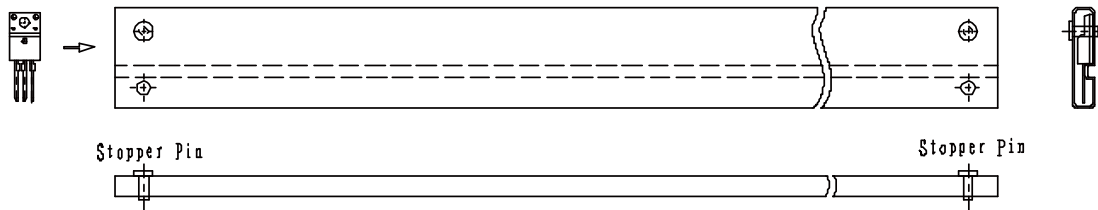
2. Magazine dimensions

(unit:mm)

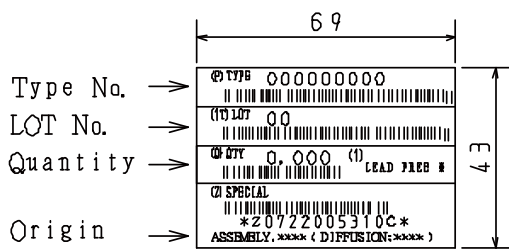


Tolerance=±0.3mm
 Thickness=0.7±0.2mm
 Length =532.5±2mm
 Material =PVC (Antistatic treatment)

3. Storage method to magazine

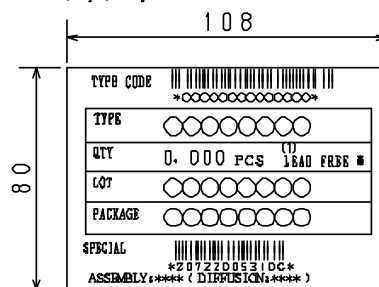


4. Inner box label (unit:mm)



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.



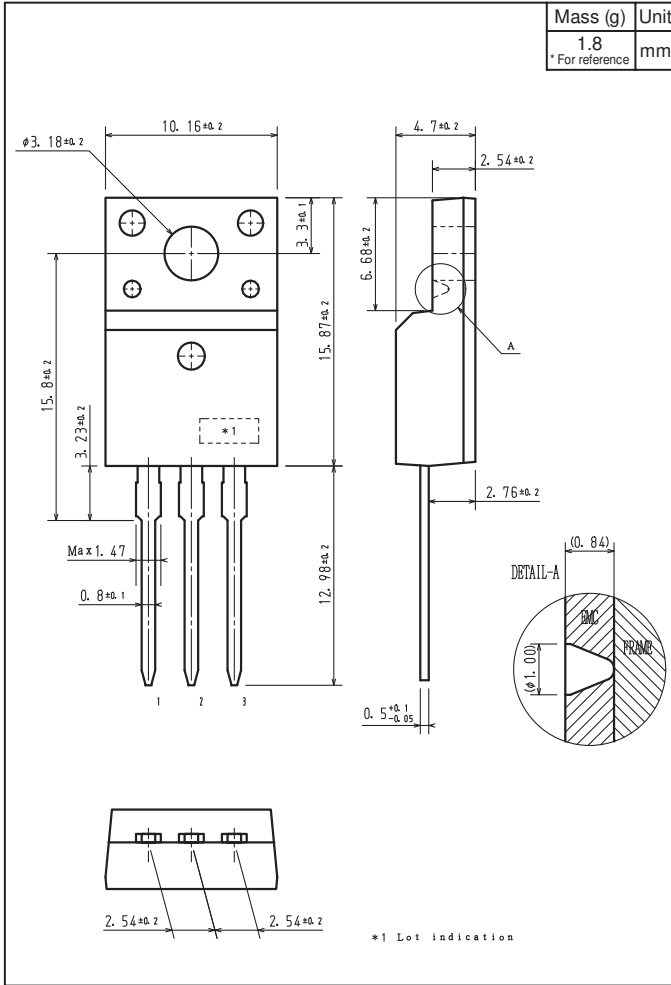
NOTE (1)

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

2SK3707-1E



Note on usage : Since the 2SK3707 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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