



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

P-Channel Silicon MOSFET

2SJ652 — General-Purpose Switching Device Applications

Features

- ON-resistance $R_{DS(on)1}=28.5\text{m}\Omega(\text{typ.})$
- Input capacitance $C_{iss}=4360\text{pF}(\text{typ.})$
- 4V drive

Specifications

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

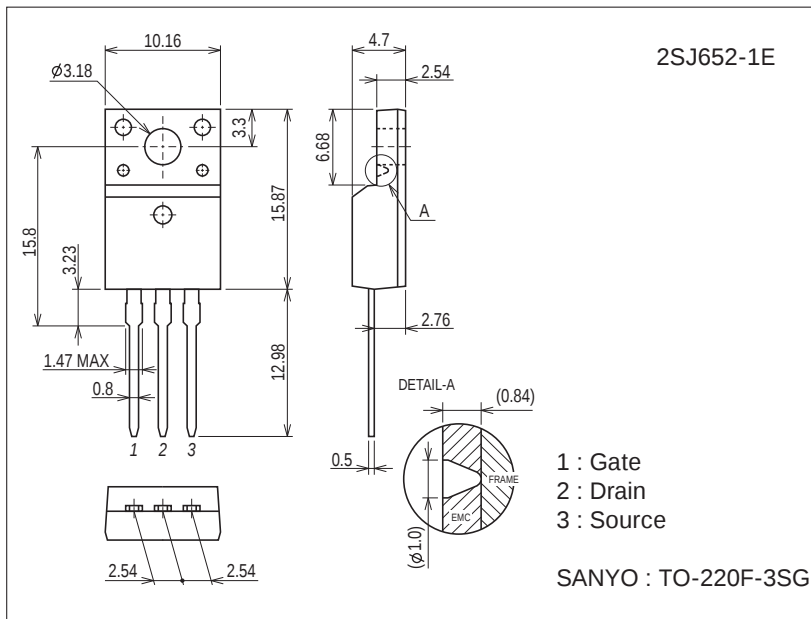
Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DS}		-60	V
Gate-to-Source Voltage	V_{GS}		± 20	V
Drain Current (DC)	I_D		-28	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu\text{s}$, duty cycle $\leq 1\%$	-112	A
Allowable Power Dissipation	P_D		2.0	W
		$T_c=25^\circ\text{C}$	30	W
Channel Temperature	T_{ch}		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$
Avalanche Energy (Single Pulse) *1	E_{AS}		343	mJ
Avalanche Current *2	I_{AV}		-28	A

Note : *1 $V_{DD}=-30\text{V}$, $L=500\mu\text{H}$, $I_{AV}=-28\text{A}$ (Fig.1)*2 $L \leq 500\mu\text{H}$, single pulse

Package Dimensions

unit : mm (typ)

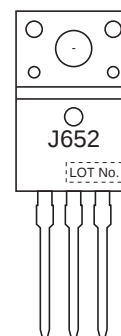
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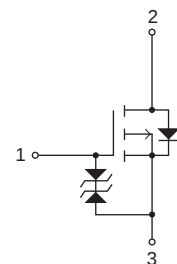
Product & Package Information

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

Marking



Electrical Connection



2SJ652

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}	$V_{GS} = \pm 16V, V_{DS} = 0V$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS} = -10V, I_D = -1mA$	-1.2		-2.6	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS} = -10V, I_D = -14A$	18	26		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D = -14A, V_{GS} = -10V$		28.5	38	$m\Omega$
	$R_{DS(on)2}$	$I_D = -14A, V_{GS} = -4V$		39	55.5	$m\Omega$
Input Capacitance	C_{iss}	$V_{DS} = -20V, f = 1MHz$		4360		pF
Output Capacitance	C_{oss}			470		pF
Reverse Transfer Capacitance	C_{rss}			335		pF
Turn-ON Delay Time	$t_{d(on)}$	See Fig.2		33		ns
Rise Time	t_r			210		ns
Turn-OFF Delay Time	$t_{d(off)}$			310		ns
Fall Time	t_f			180		ns
Total Gate Charge	Q_g	$V_{DS} = -30V, V_{GS} = -10V, I_D = -28A$		80		nC
Gate-to-Source Charge	Q_{gs}			15		nC
Gate-to-Drain "Miller" Charge	Q_{gd}			12		nC
Diode Forward Voltage	V_{SD}	$I_S = -28A, V_{GS} = 0V$		-0.96	-1.2	V

Fig.1 Avalanche Resistance Test Circuit

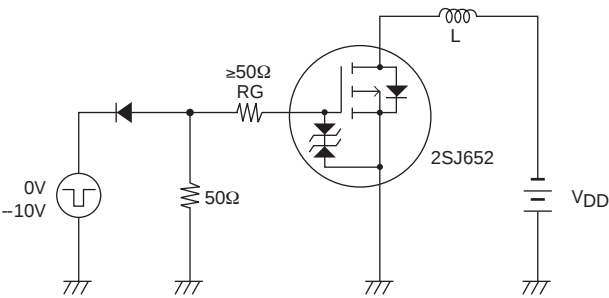
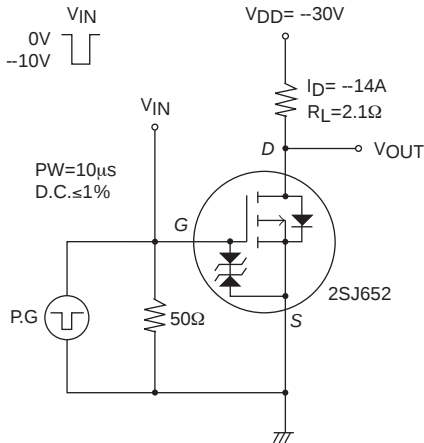
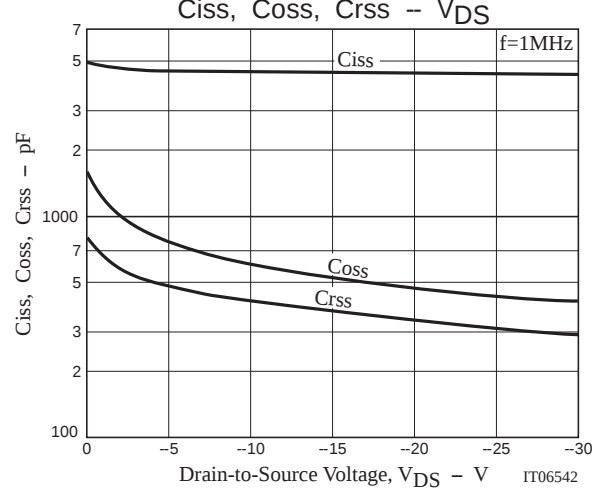
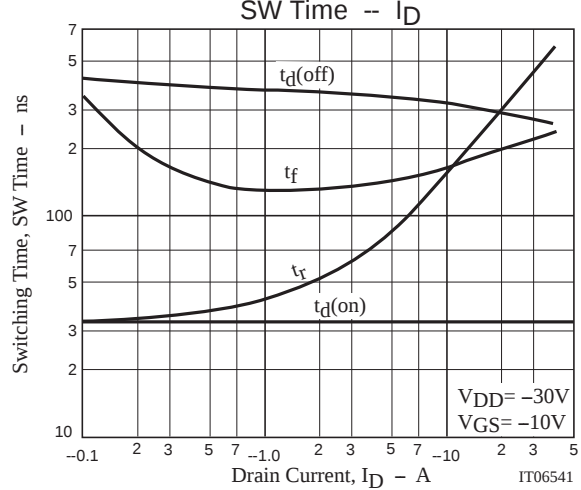
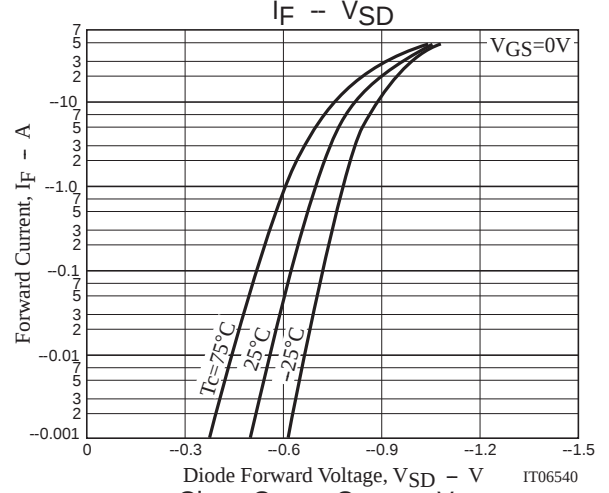
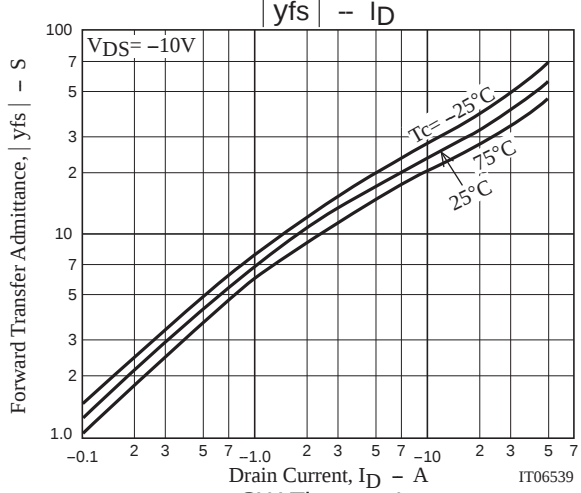
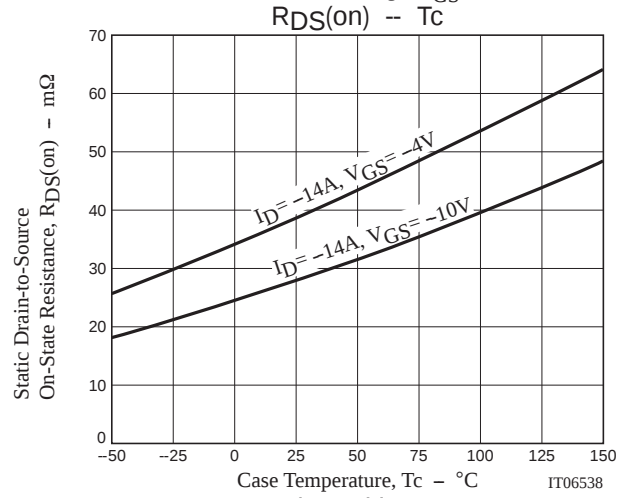
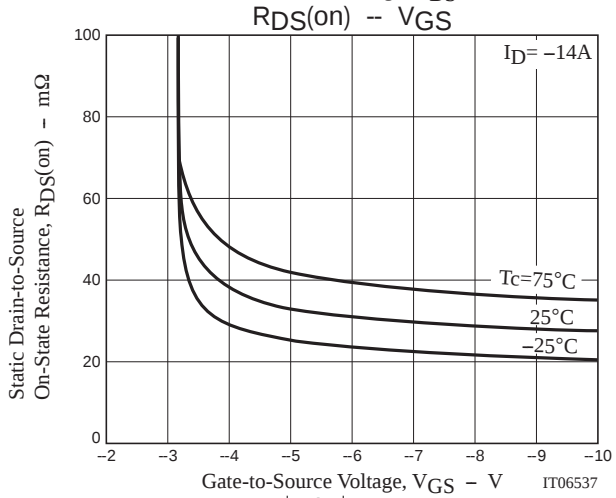
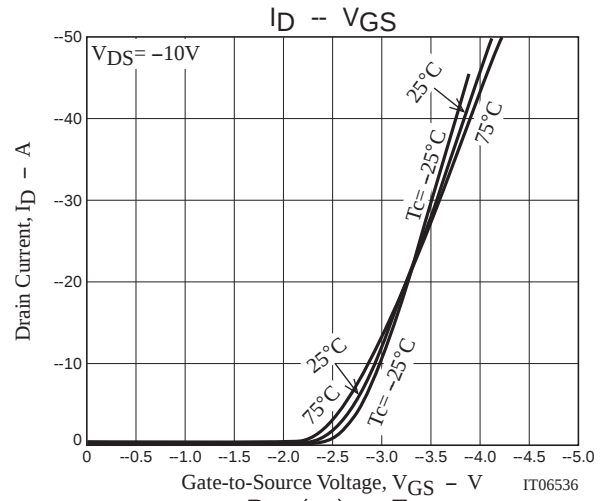
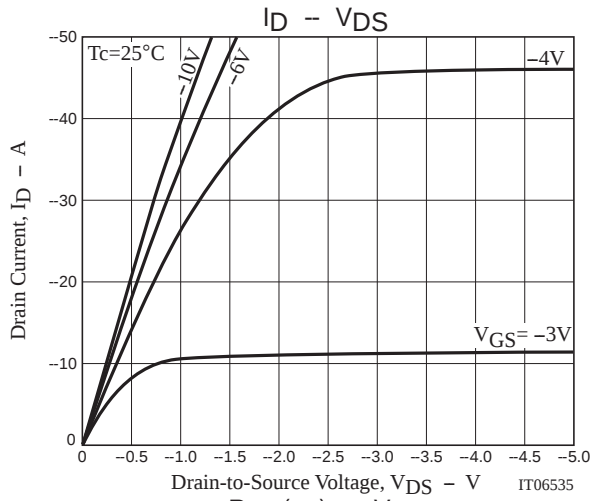


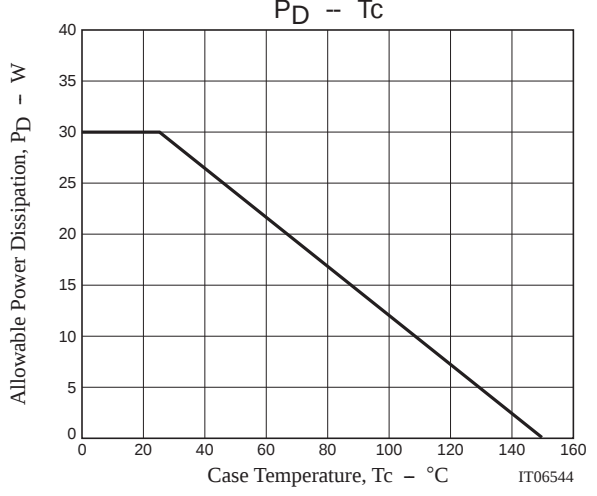
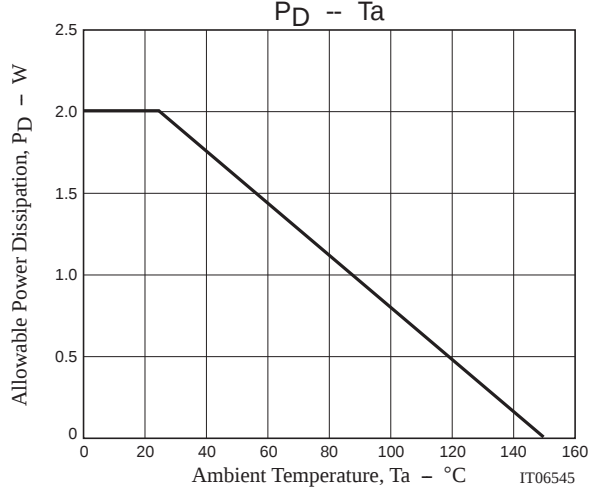
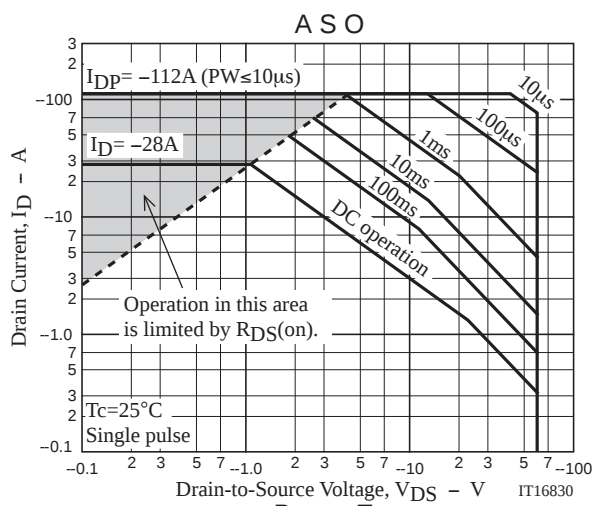
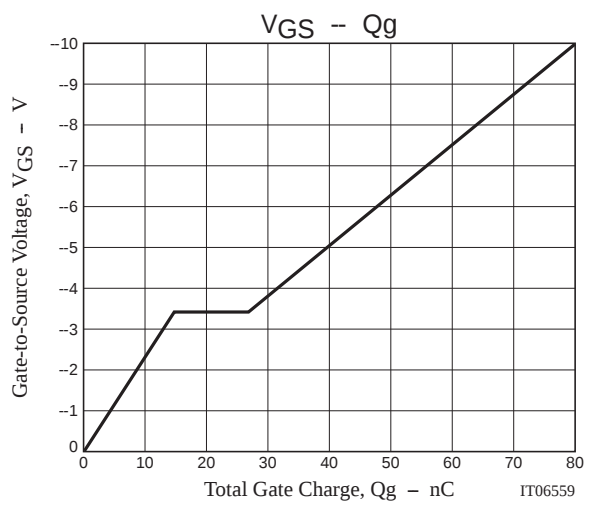
Fig.2 Switching Time Test Circuit



Ordering Information

Device	Package	Shipping	memo
2SJ652-1E	TO-220F-3SG	50pcs./magazine	Pb Free





Magazine Specification

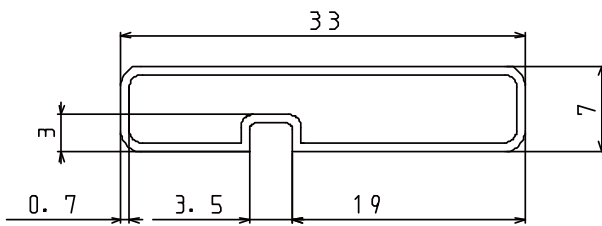
2SJ652-1E

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

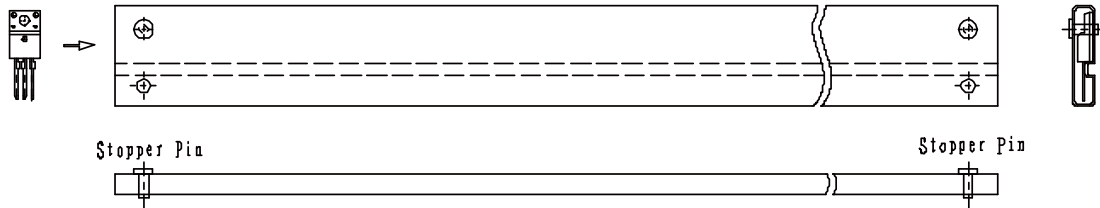
2. Magazine dimensions

(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)

Type No.	→	TYPE 0000000000
LOT No.	→	LOT 00
Quantity	→	QTY 0,000 (1) LEAD FREE #
Origin	→	SPECIAL *20722005310C* ASSEMBLY:**** (DIFFUSION:****)

NOTE (1)

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

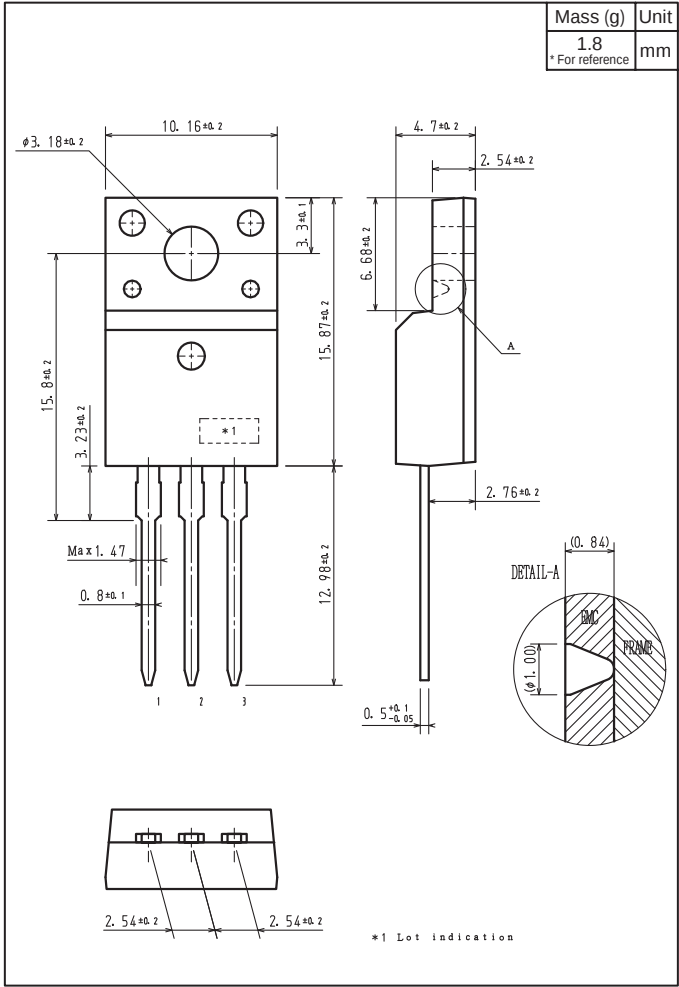
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A

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.

TYPE CODE	TYPE CODE
TYPE	TYPE
QTY	QTY 0,000 PCS (1) LEAD FREE #
LOT	LOT
PACKAGE	PACKAGE
SPECIAL	SPECIAL *20722005310C* ASSEMBLY:**** (DIFFUSION:****)

Outline Drawing
2SJ652-1E



Note on usage : Since the 2SJ652 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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