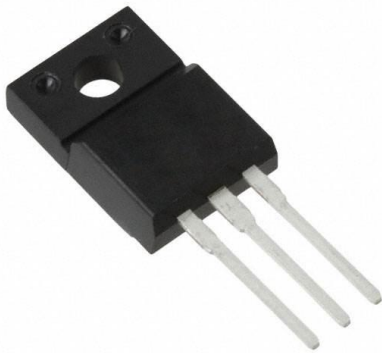


2SK3704 Datasheet

www.digi-electronics.com



<https://www.DiGi-Electronics.com>

DiGi Electronics Part Number	2SK3704-DG
Manufacturer	onsemi
Manufacturer Product Number	2SK3704
Description	MOSFET N-CH 60V 45A TO220ML
Detailed Description	N-Channel 60 V 45A (Ta) 2W (Ta), 30W (Tc) Through Hole TO-220ML



Tel: +00 852-30501935

RFQ Email: Info@DiGi-Electronics.com

DiGi is a global authorized distributor of electronic components.

Purchase and inquiry

Manufacturer Product Number:

25K3704

Series:

-

FET Type:

N-Channel

Drain to Source Voltage (Vdss):

60 V

Drive Voltage (Max Rds On, Min Rds On):

4V, 10V

Vgs(th) (Max) @ Id:

-

Vgs (Max):

±20V

FET Feature:

-

Operating Temperature:

150°C (TJ)

Supplier Device Package:

TO-220ML

Base Product Number:

25K3704

Manufacturer:

onsemi

Product Status:

Obsolete

Technology:

MOSFET (Metal Oxide)

Current - Continuous Drain (Id) @ 25°C:

45A (Ta)

Rds On (Max) @ Id, Vgs:

14mOhm @ 23A, 10V

Gate Charge (Qg) (Max) @ Vgs:

67 nC @ 10 V

Input Capacitance (Ciss) (Max) @ Vds:

3500 pF @ 20 V

Power Dissipation (Max):

2W (Ta), 30W (Tc)

Mounting Type:

Through Hole

Package / Case:

TO-220-3 Full Pack

Environmental & Export classification

Moisture Sensitivity Level (MSL):

1 (Unlimited)

ECCN:

EAR99

REACH Status:

REACH Unaffected

HTSUS:

8541.29.0095

Ordering number : ENN7806A



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

2SK3704 — N-Channel Silicon MOSFET

General-Purpose Switching Device Applications

Features

- Low ON-resistance.
- Ultrahigh-speed switching.
- 4V drive.
- Motor drive, DC / DC Converter.

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		45	A
Drain Current (Pulse)	I _{DP}	PW≤10μs, duty cycle≤1%	180	A
Allowable Power Dissipation	P _D		2.0	W
		T _c =25°C	30	W
Channel Temperature	T _{ch}		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C
Avalanche Energy (Single Pulse) *1	E _{AS}		303	mJ
Avalanche Current *2	I _{AV}		45	A

*1 V_{DD}=20V, L=200μH, I_{AV}=45A

*2 L≤200μH, single pulse

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} =0	60			V
Zero-Gate Voltage Drain Current	I _{DSS}	V _{DS} =60V, V _{GS} =0			1	μA
Gate-to-Source Leakage Current	I _{GSS}	V _{GS} =±16V, V _{DS} =0			±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 =23A	22	32		S
Static Drain-to-Source On-State Resistance	R _{DS(on)1}	I _D =23A, V _{GS} =10V		10.5	14	mΩ
	R _{DS(on)2}	I _D =23A, V _{GS} =4V		15	21	mΩ

Marking : K3704

Continued on next page.

- Any and all SANYO products described or contained herein do not have specifications that can handle applications that require extremely high levels of reliability, such as life-support systems, aircraft's control systems, or other applications whose failure can be reasonably expected to result in serious physical and/or material damage. Consult with your SANYO representative nearest you before using any SANYO products described or contained herein in such applications.
- SANYO assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all SANYO products described or contained herein.

SANYO Electric Co., Ltd. Semiconductor Company

TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

2SK3704

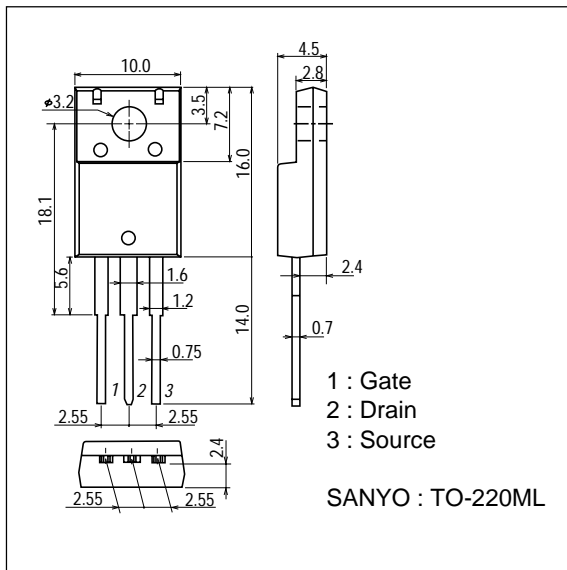
Continued from preceding page.

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	C_{iss}	$V_{DS}=20V, f=1MHz$		3500		pF
Output Capacitance	C_{oss}	$V_{DS}=20V, f=1MHz$		500		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=20V, f=1MHz$		350		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit.		26		ns
Rise Time	t_r	See specified Test Circuit.		175		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit.		265		ns
Fall Time	t_f	See specified Test Circuit.		210		ns
Total Gate Charge	Q_g	$V_{DS}=30V, V_{GS}=10V, I_D=45A$		67		nC
Gate-to-Source Charge	Q_{gs}	$V_{DS}=30V, V_{GS}=10V, I_D=45A$		10.6		nC
Gate-to-Drain "Miller" Charge	Q_{gd}	$V_{DS}=30V, V_{GS}=10V, I_D=45A$		10		nC
Diode Forward Voltage	V_{SD}	$I_S=45A, V_{GS}=0$		1.0	1.2	V

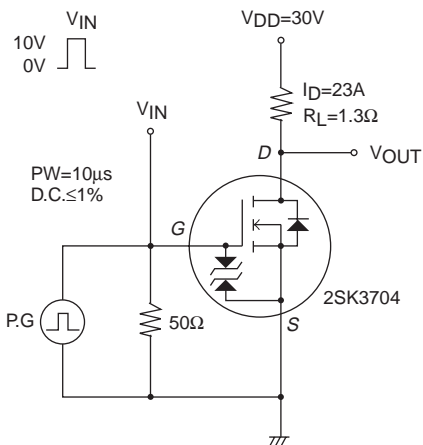
Package Dimensions

unit : mm

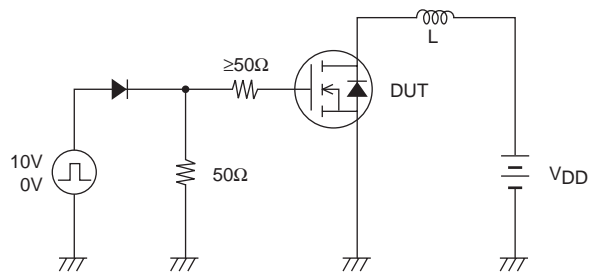
2063A



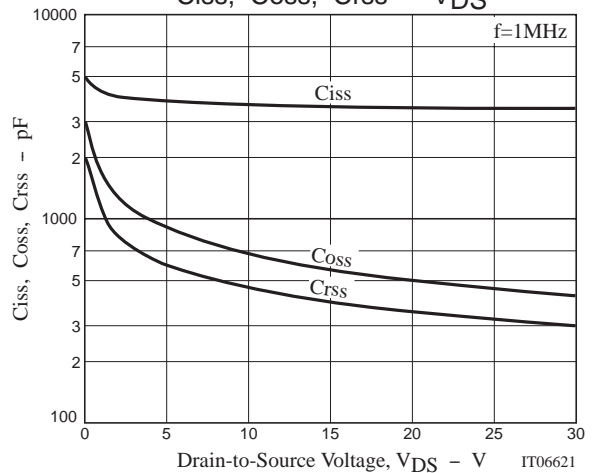
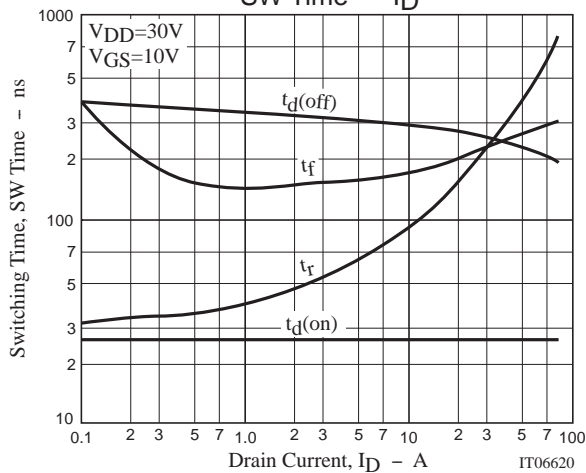
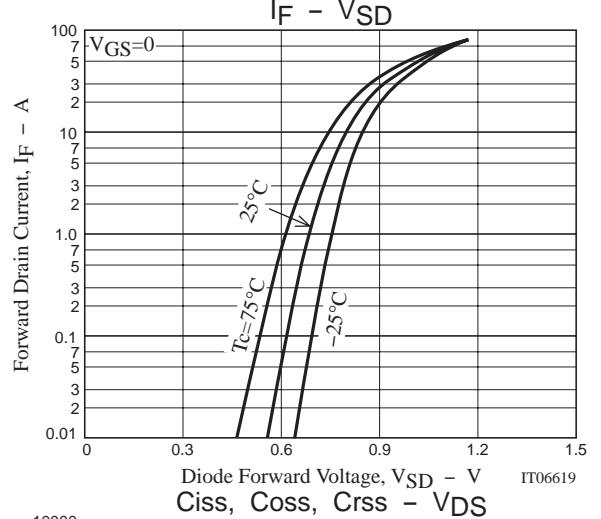
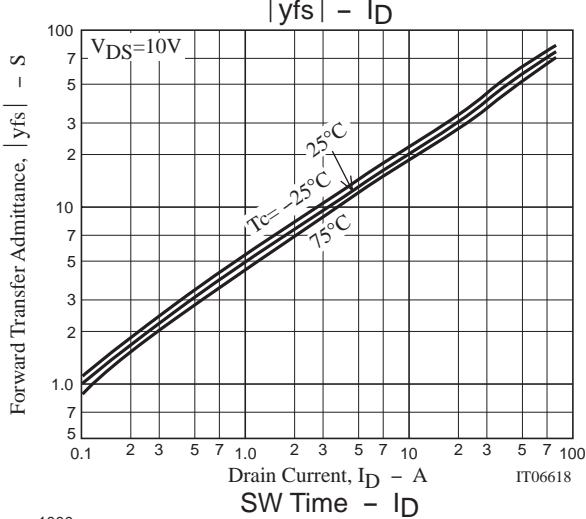
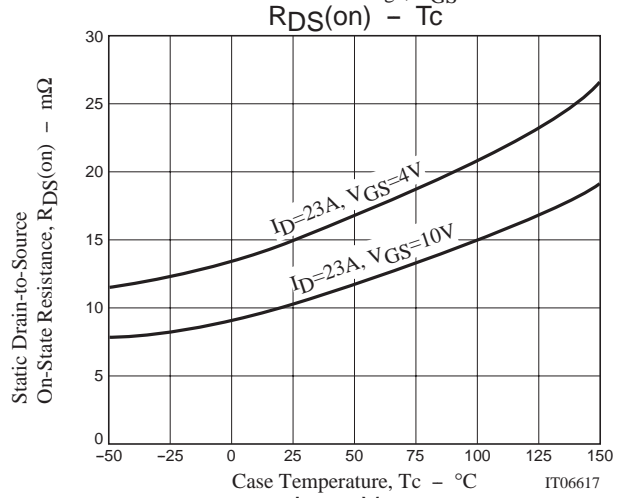
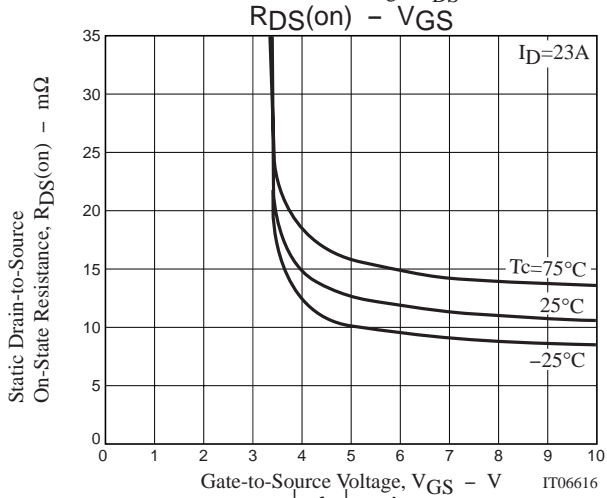
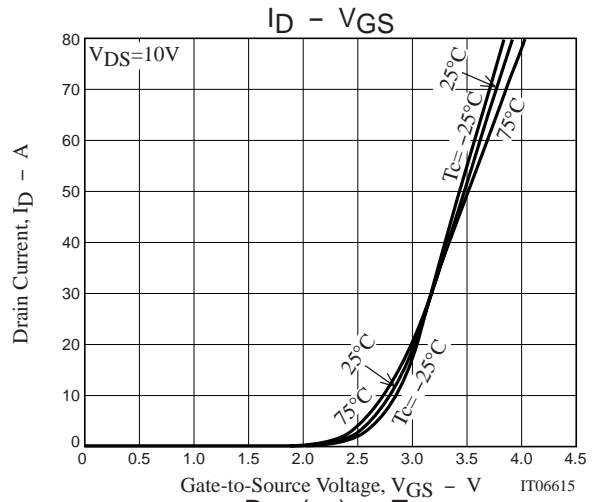
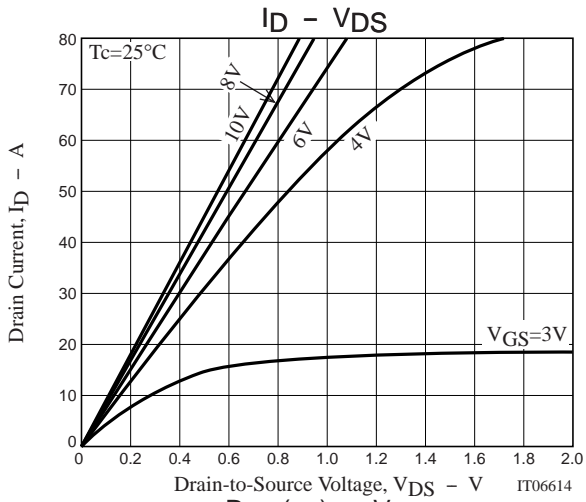
Switching Time Test Circuit



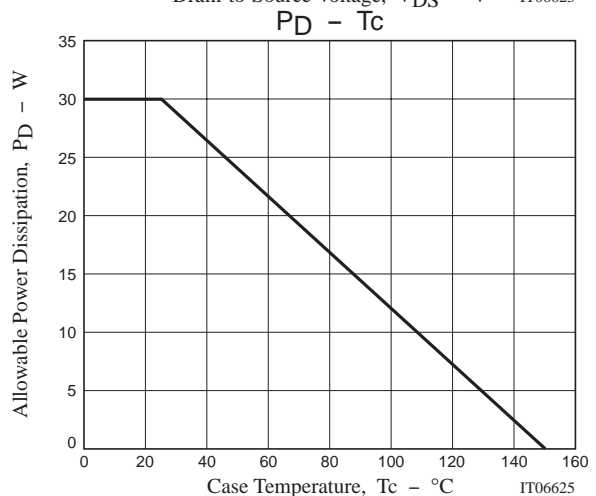
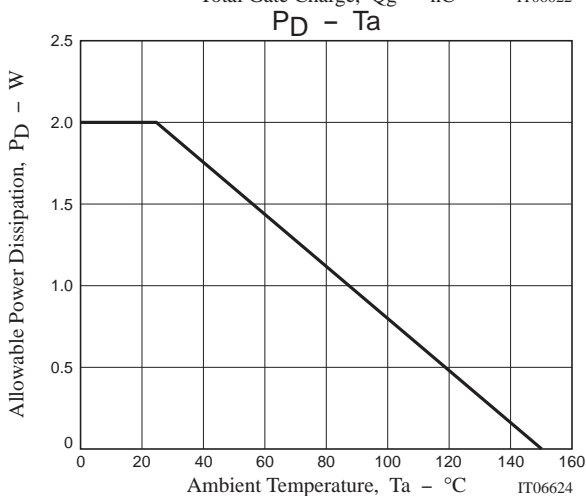
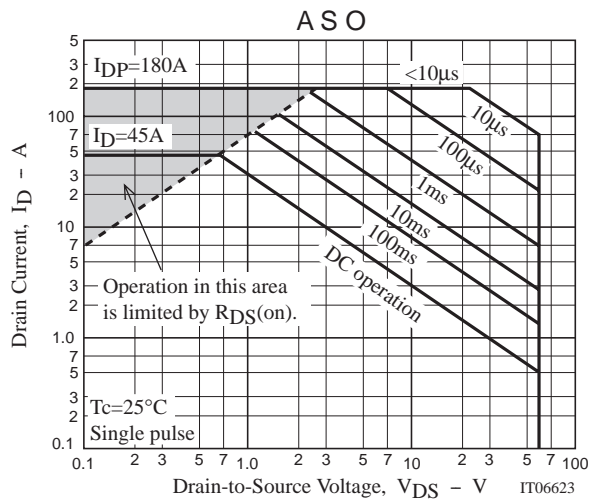
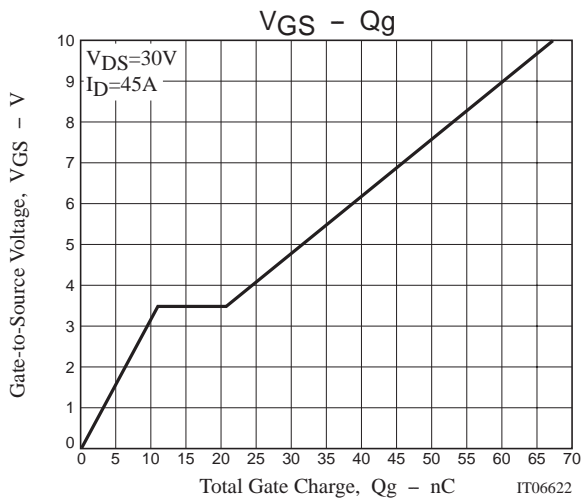
Unclamped Inductive Test Circuit



2SK3704



2SK3704



Note on usage : Since the 2SK3704 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

- Specifications of any and all SANYO products described or contained herein stipulate the performance, characteristics, and functions of the described products in the independent state, and are not guarantees of the performance, characteristics, and functions of the described products as mounted in the customer's products or equipment. To verify symptoms and states that cannot be evaluated in an independent device, the customer should always evaluate and test devices mounted in the customer's products or equipment.
- SANYO Electric Co., Ltd. strives to supply high-quality high-reliability products. However, any and all semiconductor products fail with some probability. It is possible that these probabilistic failures could give rise to accidents or events that could endanger human lives, that could give rise to smoke or fire, or that could cause damage to other property. When designing equipment, adopt safety measures so that these kinds of accidents or events cannot occur. Such measures include but are not limited to protective circuits and error prevention circuits for safe design, redundant design, and structural design.
- In the event that any or all SANYO products(including technical data, services) described or contained herein are controlled under any of applicable local export control laws and regulations, such products must not be exported without obtaining the export license from the authorities concerned in accordance with the above law.
- No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, or any information storage or retrieval system, or otherwise, without the prior written permission of SANYO Electric Co., Ltd.
- Any and all information described or contained herein are subject to change without notice due to product/technology improvement, etc. When designing equipment, refer to the "Delivery Specification" for the SANYO product that you intend to use.
- Information (including circuit diagrams and circuit parameters) herein is for example only ; it is not guaranteed for volume production. SANYO believes information herein is accurate and reliable, but no guarantees are made or implied regarding its use or any infringements of intellectual property rights or other rights of third parties.

This catalog provides information as of November, 2004. Specifications and information herein are subject to change without notice.

OUR CERTIFICATE

DiGi provide top-quality products and perfect service for customer worldwide through standardization, technological innovation and continuous improvement. DiGi through third-party certification, we stricly control the quality of products and services. Welcome your RFQ to

Email: Info@DiGi-Electronics.com



Tel: +00 852-30501935

RFQ Email: Info@DiGi-Electronics.com

DiGi is a global authorized distributor of electronic components.