Ordering number : ENN7684

P-Channl Silicon MOSFET

2SJ656

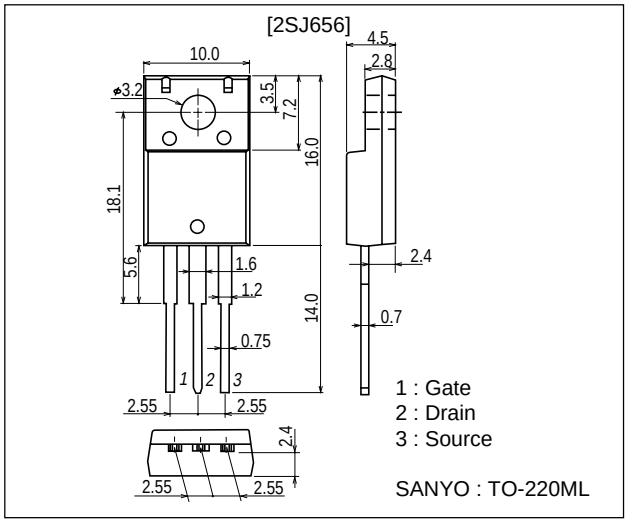
General-Purpose Switching Device

Features

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

Package Dimensions

unit : mm
2063A



Specifications

Absolute Maximum Ratings at Ta=25°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		−18	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	−72	A
Allowable Power Dissipation	P_D		2.0	W
		Tc=25°C	30	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		−55 to +150	°C

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	−100			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=−100V, 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	|yfs|	V_{DS}=−10V, I_D=−9A	14	20		S

Marking : J656

Continued on next page.

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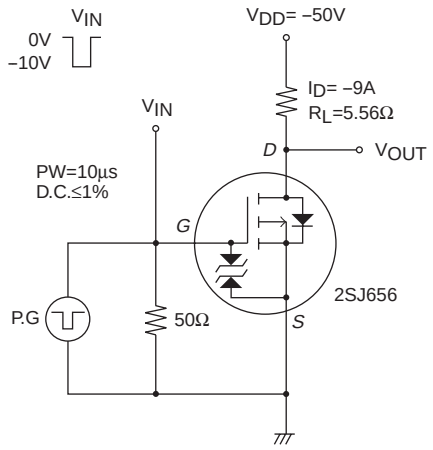
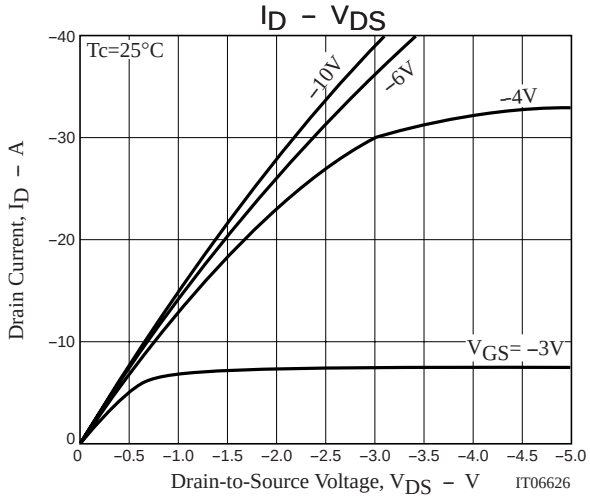
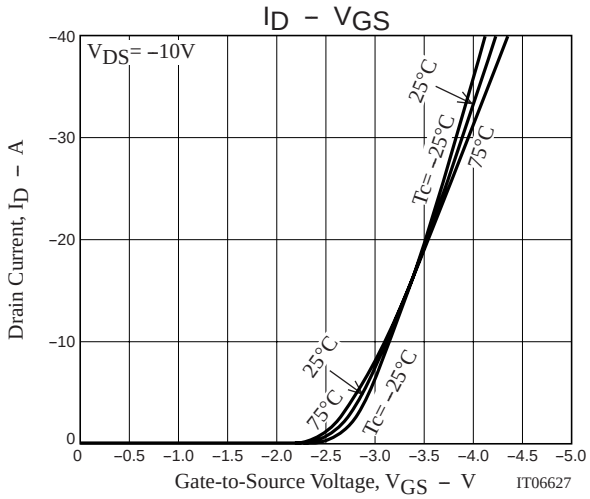
Continued from preceding page.

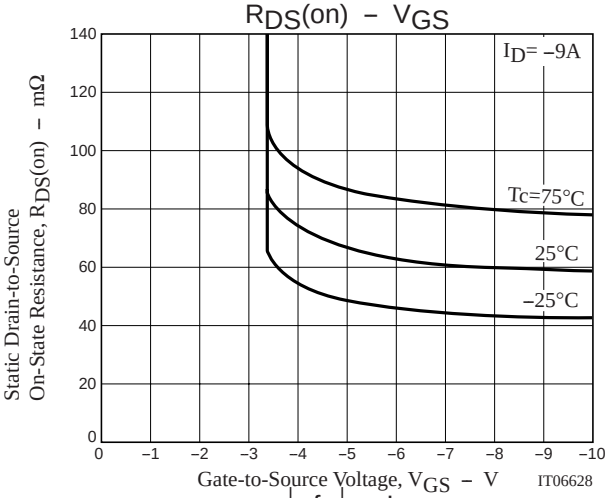
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Static Drain-to-Source On-State Resistance	$R_{DS}(on)1$	I_D=-9A, V_{GS}=-10V		58	75.5	mΩ
	$R_{DS}(on)2$	I_D=-9A, V_{GS}=-4V		74	104	mΩ
Input Capacitance	Ciss	V_{DS}=-20V, f=1MHz		4200		pF
Output Capacitance	Coss	V_{DS}=-20V, f=1MHz		280		pF
Reverse Transfer Capacitance	Crss	V_{DS}=-20V, f=1MHz		220		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit.		30		ns
Rise Time	t_r	See specified Test Circuit.		110		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit.		340		ns
Fall Time	t_f	See specified Test Circuit.		128		ns
Total Gate Charge	Qg	V_{DS}=-50V, V_{GS}=-10V, I_D=-18A		74		nC
Gate-to-Source Charge	Qgs	V_{DS}=-50V, V_{GS}=-10V, I_D=-18A		12.8		nC
Gate-to-Drain“Miller”Charge	Qgd	V_{DS}=-50V, V_{GS}=-10V, I_D=-18A		14.7		nC
Diode Forward Voltage	V_{SD}	I_S=-18A, V_{GS}=0		-0.93	-1.2	V

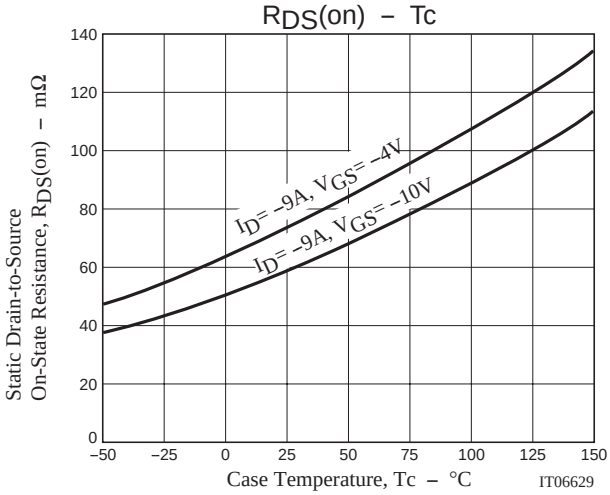
Switching Time Test Circuit

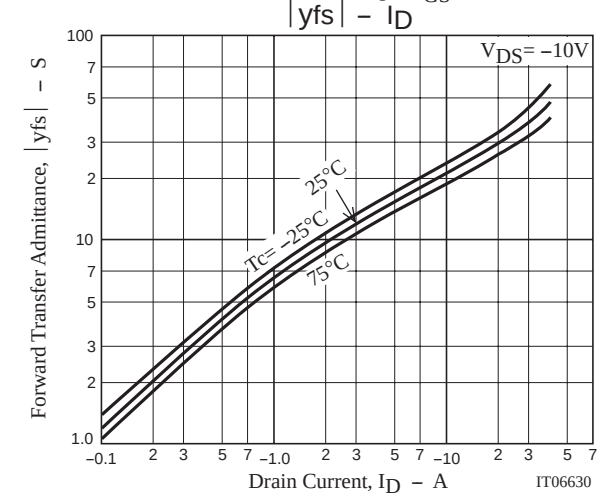


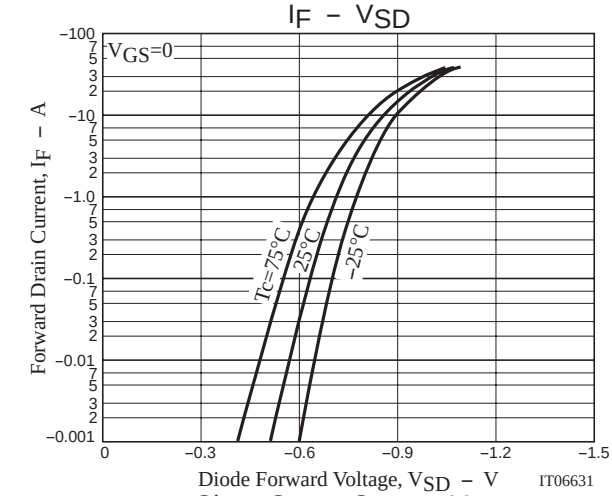


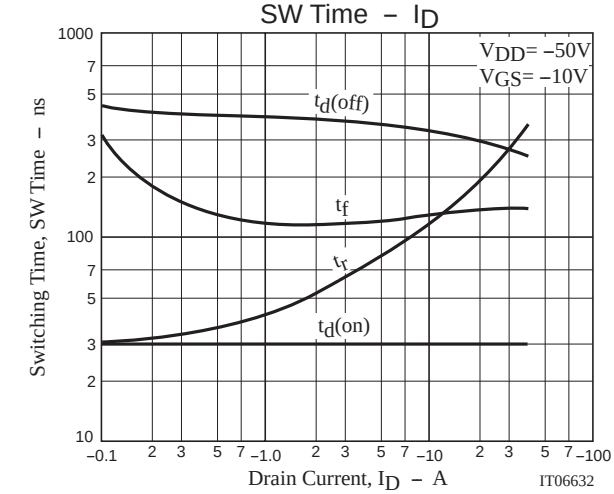


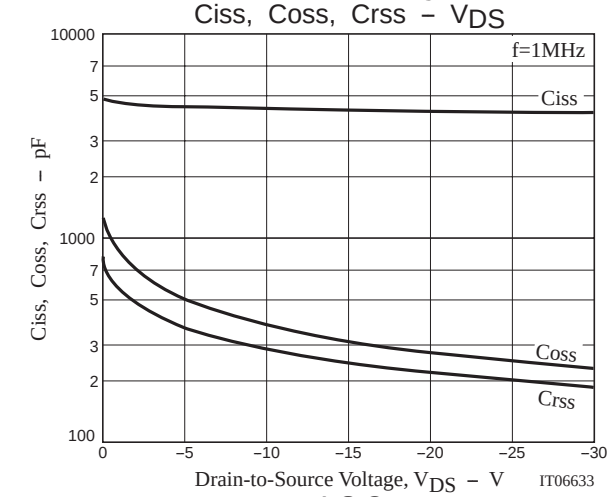

RDS(on) – VGS
ID= –9A
Tc=75°C
25°C
–25°C
Static Drain-to-Source On-State Resistance, RDS(on) – mΩ
Gate-to-Source Voltage, VGS – V
IT06628

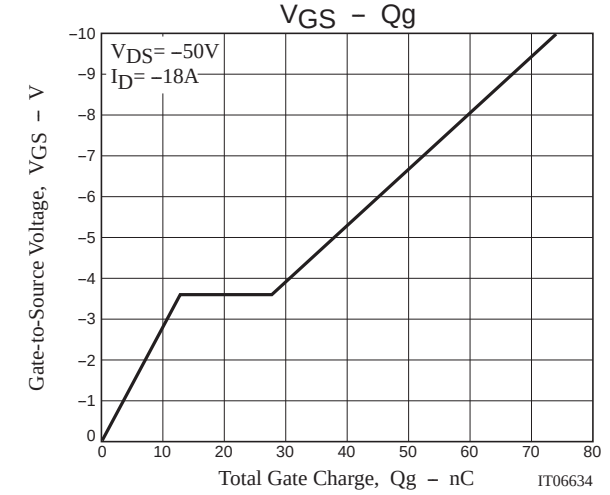

RDS(on) – Tc
ID= –9A, VGS= –4V
ID= –9A, VGS= –10V
Static Drain-to-Source On-State Resistance, RDS(on) – mΩ
Case Temperature, Tc – °C
IT06629

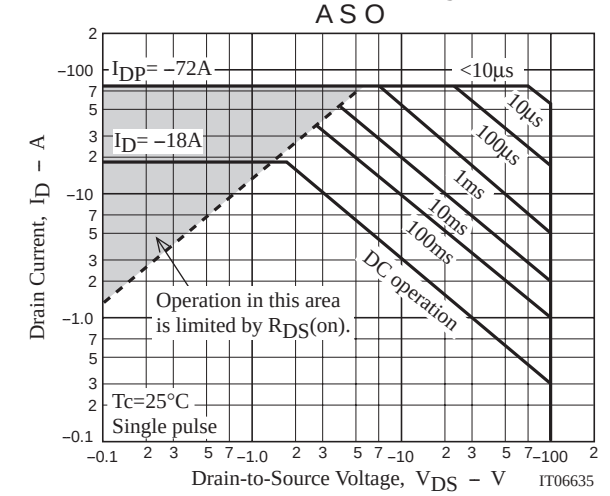

|yfs| – ID
VDS= –10V
25°C
Tc= –25°C
75°C
Forward Transfer Admittance, |yfs| – S
Drain Current, ID – A
IT06630


IF – VSD
VGS=0
Tc=75°C
25°C
–25°C
Forward Drain Current, IF – A
Diode Forward Voltage, VSD – V
IT06631


SW Time – ID
VDD= –50V
VGS= –10V
td(off)
tf
tr
td(on)
Switching Time, SW Time – ns
Drain Current, ID – A
IT06632


Ciss, Coss, Crss – VDS
f=1MHz
Ciss
Coss
Crss
Ciss, Coss, Crss – pF
Drain-to-Source Voltage, VDS – V
IT06633


VGS – Qg
VDS= –50V
ID= –18A
Gate-to-Source Voltage, VGS – V
Total Gate Charge, Qg – nC
IT06634


A S O
IDP= –72A
ID= –18A
<10µs
10µs
100µs
1ms
10ms
100ms
DC operation
Operation in this area is limited by RDS(on).
Tc=25°C
Single pulse
Drain Current, ID – A
Drain-to-Source Voltage, VDS – V
IT06635