Ordering number : ENN7537

P-Channl Silicon MOSFET

2SJ654

DC / DC Converter Applications

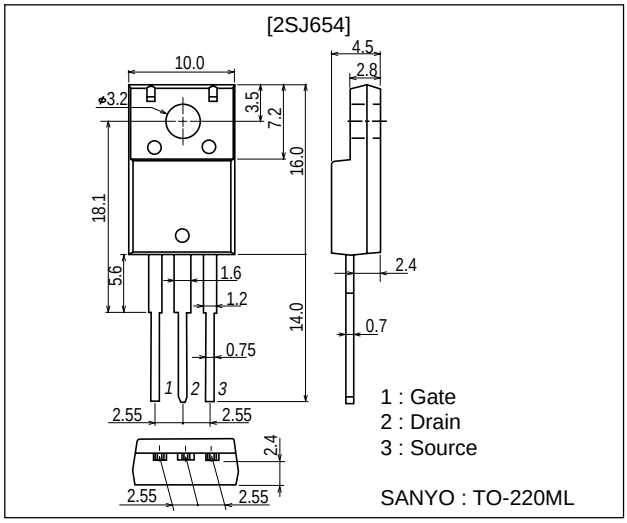
Features

- Low ON-resistance.
- Ultrahigh-speed switching.
- 4V drive.

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		−8	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	−32	A
Allowable Power Dissipation	P_D		2.0	W
		Tc=25°C	20	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=-4A	4	6		S

Marking : J654

Continued on next page.

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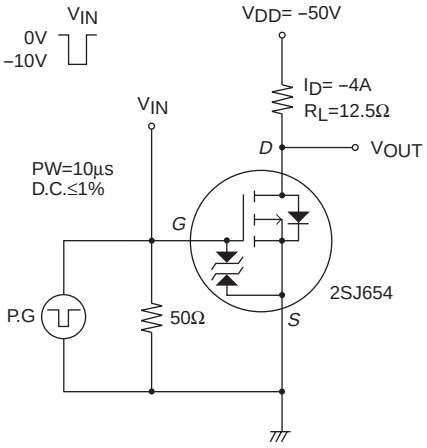
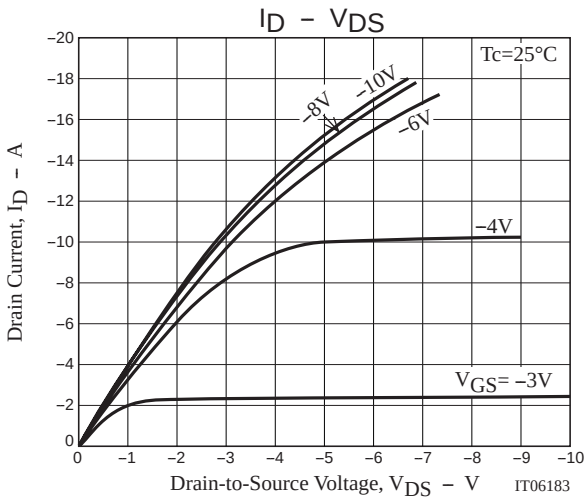
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

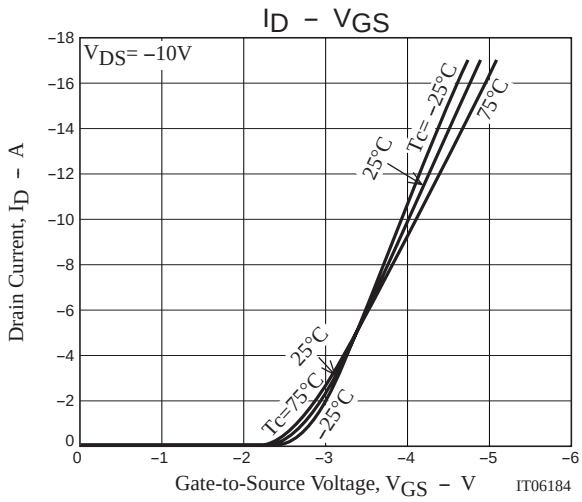
Continued from preceding page.

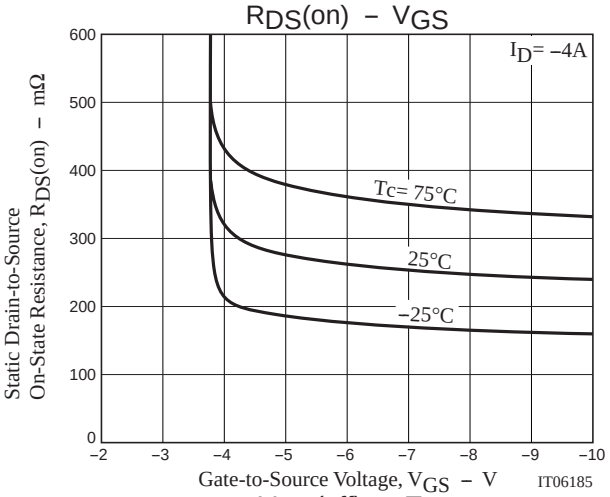
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Static Drain-to-Source On-State Resistance	$R_{DS}(on)1$	I_D=-4A, V_{GS}=-10V		240	315	mΩ
	$R_{DS}(on)2$	I_D=-4A, V_{GS}=-4V		320	450	mΩ
Input Capacitance	Ciss	V_{DS}=-20V, f=1MHz		945		pF
Output Capacitance	Coss	V_{DS}=-20V, f=1MHz		72		pF
Reverse Transfer Capacitance	Crss	V_{DS}=-20V, f=1MHz		60		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit.		12		ns
Rise Time	t_r	See specified Test Circuit.		65		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit.		80		ns
Fall Time	t_f	See specified Test Circuit.		38		ns
Total Gate Charge	Qg	V_{DS}=-50V, V_{GS}=-10V, I_D=-8A		20		nC
Gate-to-Source Charge	Qgs	V_{DS}=-50V, V_{GS}=-10V, I_D=-8A		3.8		nC
Gate-to-Drain“Miller”Charge	Qgd	V_{DS}=-50V, V_{GS}=-10V, I_D=-8A		4.5		nC
Diode Forward Voltage	V_{SD}	I_S=-8A, V_{GS}=0		-0.92	-1.2	V

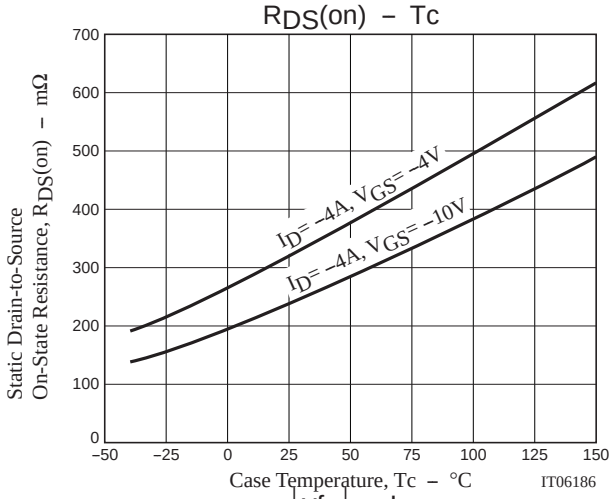
Switching Time Test Circuit

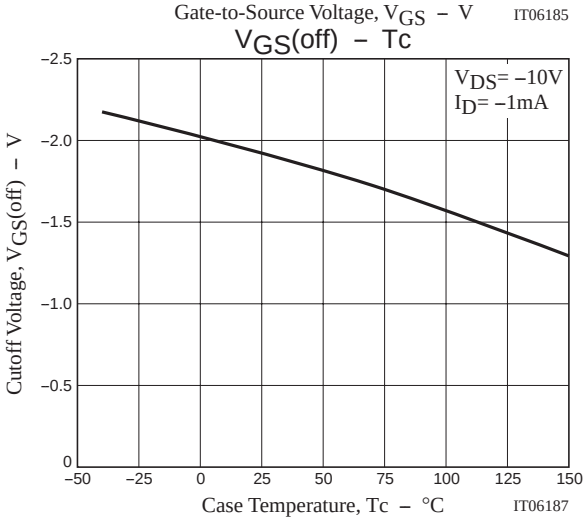


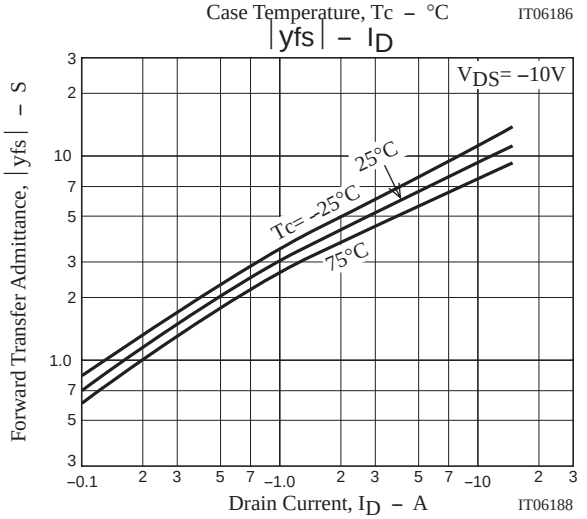


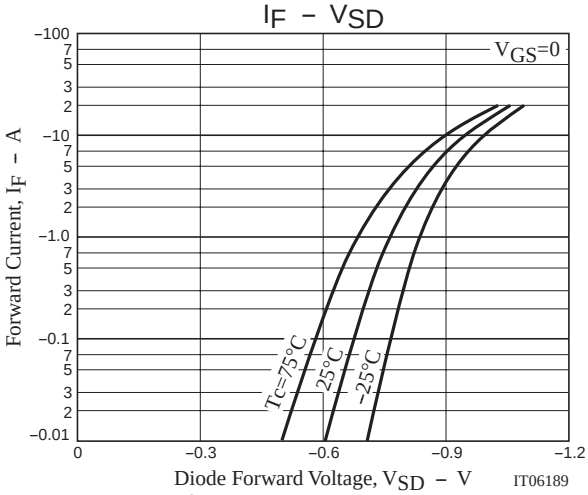


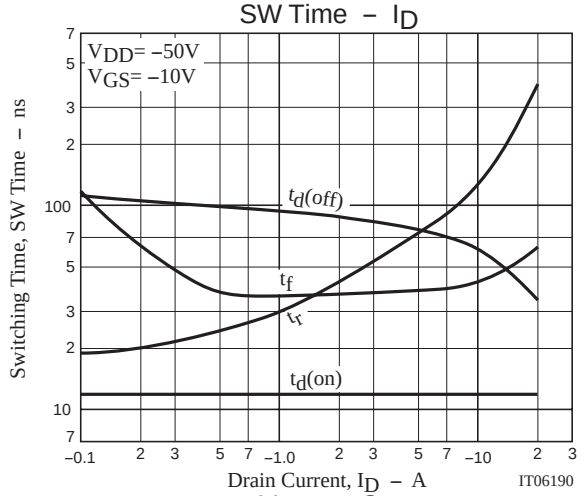

RDS(on) – VGS
ID= –4A
Tc= 75°C
25°C
–25°C
Static Drain-to-Source On-State Resistance, RDS(on) – mΩ
Gate-to-Source Voltage, VGS – V
IT06185

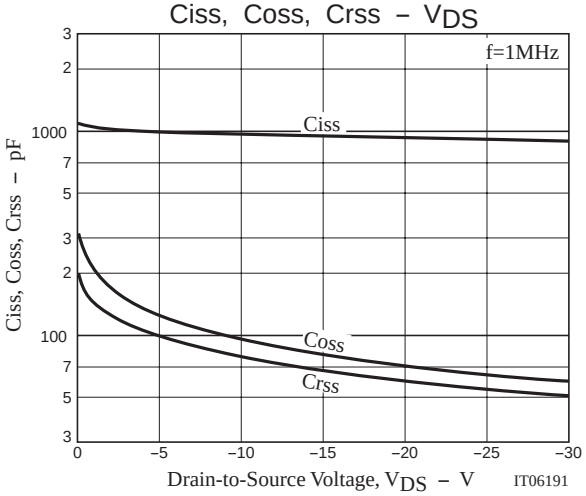

RDS(on) – Tc
ID= –4A, VGS= –4V
ID= –4A, VGS= –10V
Static Drain-to-Source On-State Resistance, RDS(on) – mΩ
Case Temperature, Tc – °C
IT06186

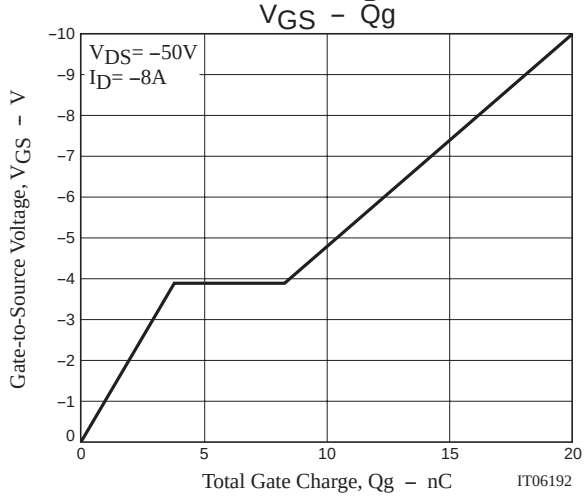

VGS(off) – Tc
VDS= –10V
ID= –1mA
Cutoff Voltage, VGS(off) – V
Case Temperature, Tc – °C
IT06187


|yfs| – ID
VDS= –10V
25°C
Tc= –25°C
75°C
Forward Transfer Admittance, |yfs| – S
Drain Current, ID – A
IT06188


IF – VSD
VGS=0
Tc=75°C
25°C
–25°C
Forward Current, IF – A
Diode Forward Voltage, VSD – V
IT06189


SW Time – ID
VDD= –50V
VGS= –10V
td(off)
tf
tr
td(on)
Switching Time, SW Time – ns
Drain Current, ID – A
IT06190


Ciss, Coss, Crss – VDS
f=1MHz
Ciss
Coss
Crss
Ciss, Coss, Crss – pF
Drain-to-Source Voltage, VDS – V
IT06191


VGS – Qg
VDS= –50V
ID= –8A
Gate-to-Source Voltage, VGS – V
Total Gate Charge, Qg – nC
IT06192