Ordering number : EN7270B

SANYO Semiconductors
DATA SHEET

P-Channel Silicon MOSFET

2SJ616 — General-Purpose Switching Device Applications

Features

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

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		−30	V
Gate-to-Source Voltage	V_{GSS}		±20	V
Drain Current (DC)	I_D		−6	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	−24	A
Allowable Power Dissipation	P_D	Mounted on a ceramic board (250mm²×0.8mm)	1.5	W
		Tc=25°C	3.5	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}=0V	−30			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=−30V, 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	|yfs|	V_{DS}=−10V, I_D=−3A	2.9	4.2		S
Static Drain-to-Source On-State Resistance	R_{DS}(on)1	I_D=−3A, V_{GS}=−10V		53	69	mΩ
	R_{DS}(on)2	I_D=−1.5A, V_{GS}=−4V		105	147	mΩ

Marking : JW

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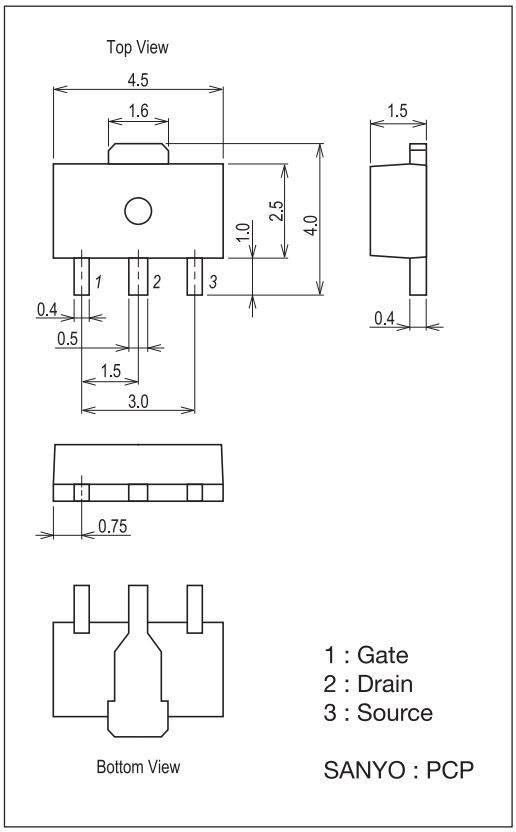
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	V_{DS}=–10V, f=1MHz		510		pF
Output Capacitance	Coss	V_{DS}=–10V, f=1MHz		115		pF
Reverse Transfer Capacitance	Crss	V_{DS}=–10V, f=1MHz		78		pF
Turn-ON Delay Time	t_d(on)	See specified Test Circuit.		11		ns
Rise Time	t_r	See specified Test Circuit.		12		ns
Turn-OFF Delay Time	t_d(off)	See specified Test Circuit.		34		ns
Fall Time	t_f	See specified Test Circuit.		23.5		ns
Total Gate Charge	Qg	V_{DS}=–10V, V_{GS}=–10V, I_D=–6A		11		nC
Gate-to-Source Charge	Qgs	V_{DS}=–10V, V_{GS}=–10V, I_D=–6A		2.4		nC
Gate-to-Drain “Miller” Charge	Qgd	V_{DS}=–10V, V_{GS}=–10V, I_D=–6A		1.7		nC
Diode Forward Voltage	V_{SD}	I_S=–6A, V_{GS}=0V		–0.9	–1.5	V

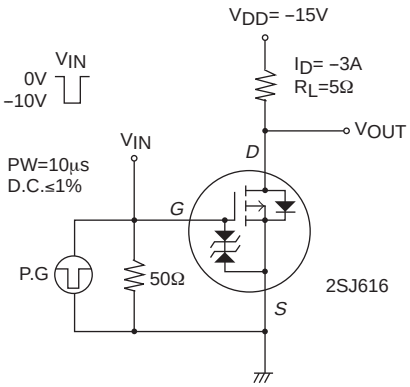
Package Dimensions

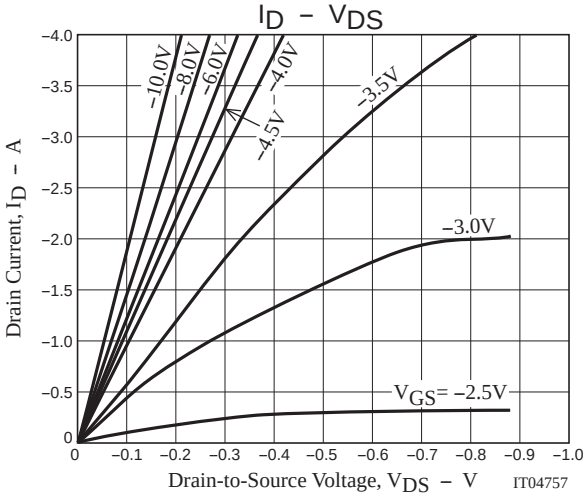
unit : mm (typ)

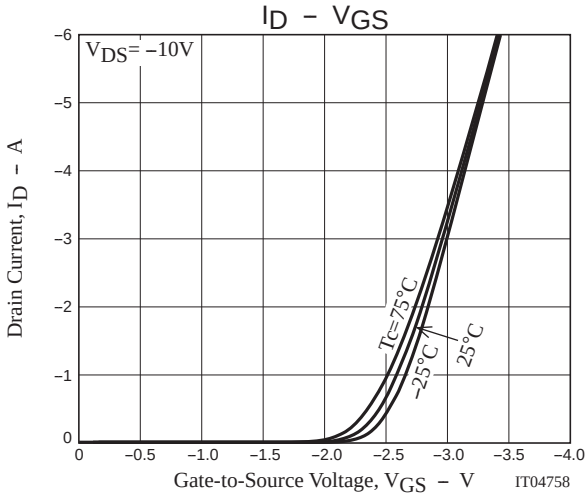
7007B-003

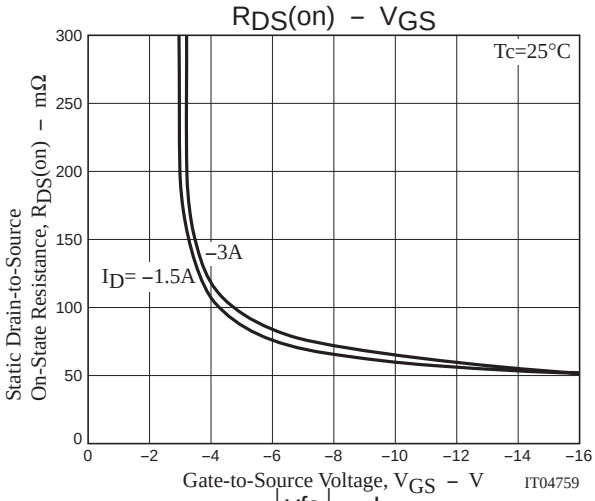


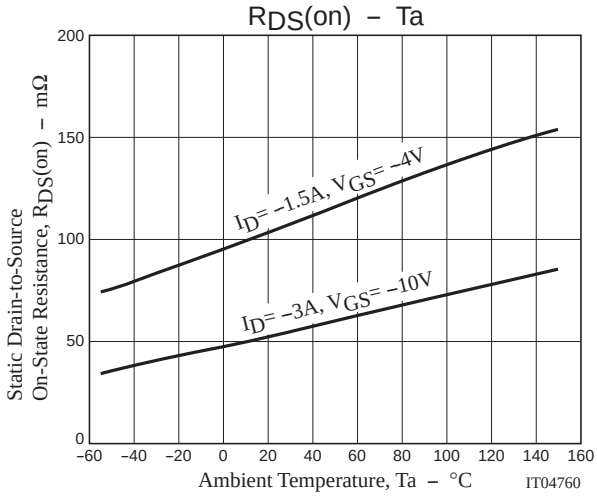
Switching Time Test Circuit

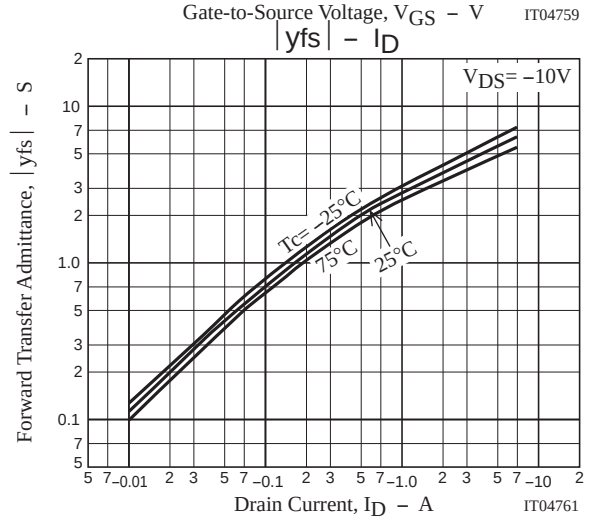


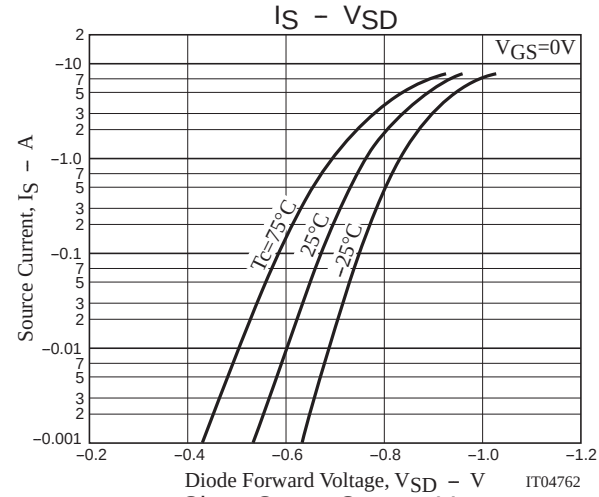


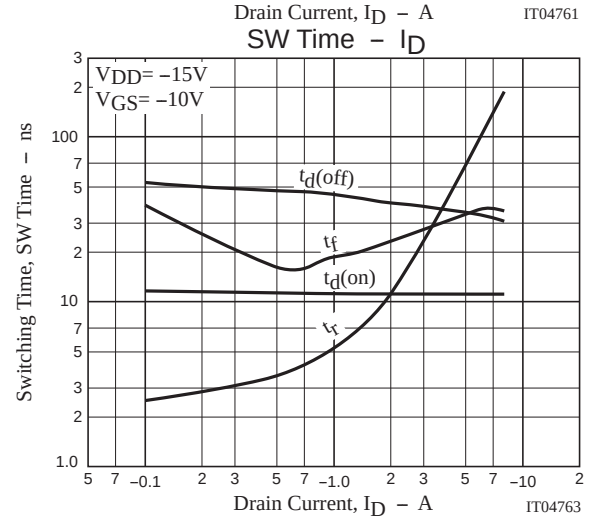


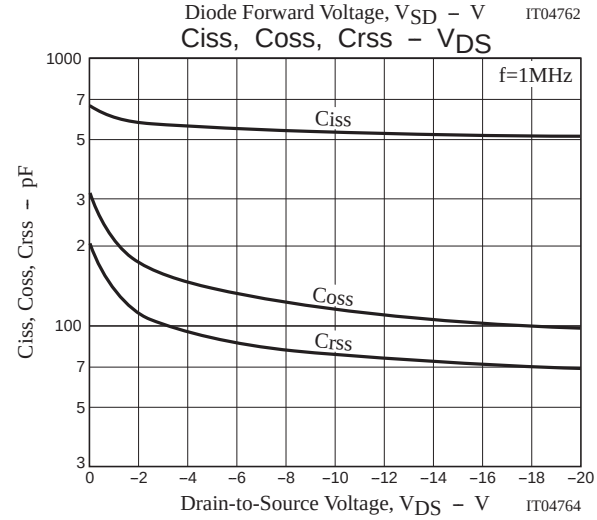

RDS(on) – VGS
Tc=25°C
ID= –1.5A
–3A
Static Drain-to-Source On-State Resistance, RDS(on) – mΩ
Gate-to-Source Voltage, VGS – V
IT04759

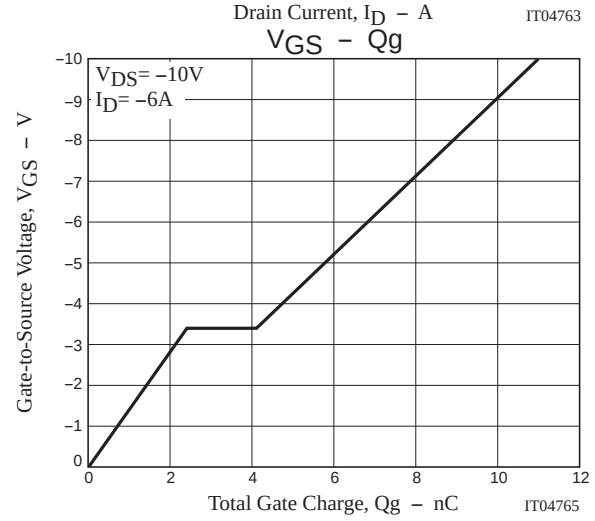

RDS(on) – Ta
ID= –1.5A, VGS= –4V
ID= –3A, VGS= –10V
Static Drain-to-Source On-State Resistance, RDS(on) – mΩ
Ambient Temperature, Ta – °C
IT04760

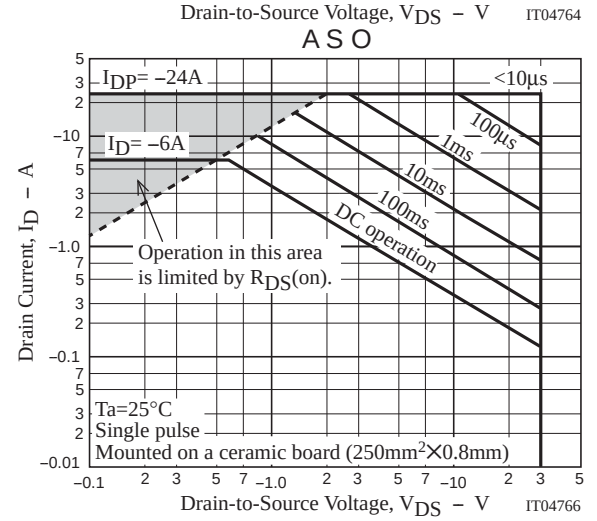

|yfs| – ID
VDS= –10V
Tc= –25°C
75°C
25°C
Forward Transfer Admittance, |yfs| – S
Drain Current, ID – A
IT04761

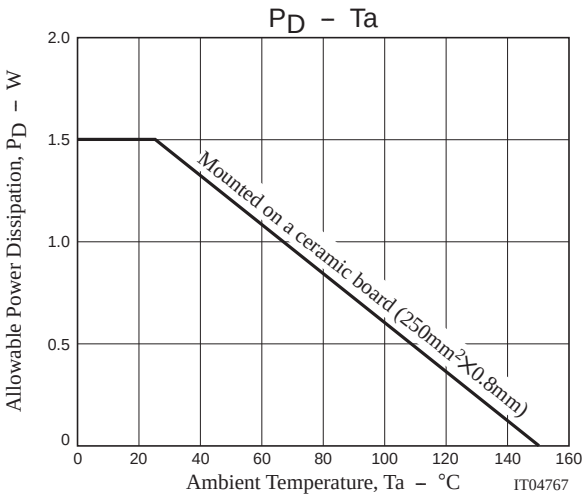

IS – VSD
VGS=0V
Tc=75°C
25°C
–25°C
Source Current, IS – A
Diode Forward Voltage, VSD – V
IT04762

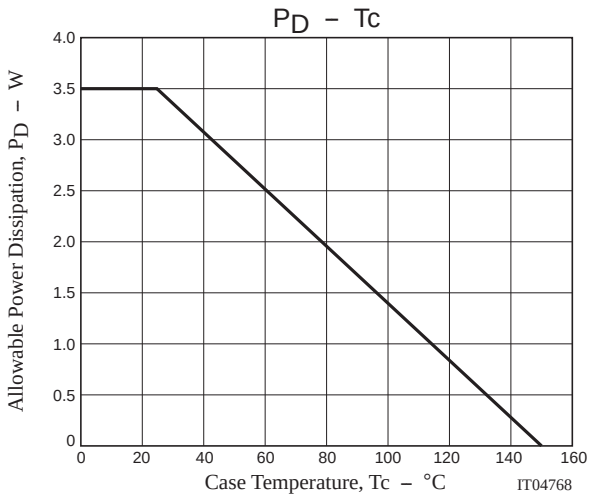

SW Time – ID
VDD= –15V
VGS= –10V
td(off)
tf
td(on)
tr
Switching Time, SW Time – ns
Drain Current, ID – A
IT04763


Ciss, Coss, Crss – VDS
f=1MHz
Ciss
Coss
Crss
Ciss, Coss, Crss – pF
Drain-to-Source Voltage, VDS – V
IT04764


VGS – Qg
VDS= –10V
ID= –6A
Gate-to-Source Voltage, VGS – V
Total Gate Charge, Qg – nC
IT04765


A S O
IDP= –24A
ID= –6A
<10µs
100µs
1ms
10ms
100ms
DC operation
Operation in this area is limited by RDS(on).
Ta=25°C
Single pulse
Mounted on a ceramic board (250mm2×0.8mm)
Drain Current, ID – A
Drain-to-Source Voltage, VDS – V
IT04766





Note on usage : Since the 2SJ616 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.