

10V Drive Nch MOSFET

R5207AND

Structure

Silicon N-channel MOSFET

Features

- 1) Low on-resistance.
- 2) High-speed switching.
- 3) Wide SOA.
- 4) Drive circuits can be simple.
- 5) Parallel use is easy.

Application

Switching

Packaging specifications

	Package	Taping
Type	Code	TL
	Basic ordering unit (pieces)	2500
R5207AND		0

● Absolute maximum ratings (Ta = 25°C)

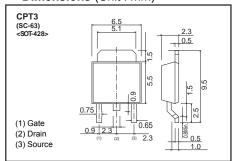
Parame	Symbol Limits		Unit	
Drain-source voltage		V_{DSS}	525	V
Gate-source voltage		V_{GSS}	±30	V
Drain current	Continuous	I _D *3	±7	Α
	Pulsed	I _{DP} *1	±28	Α
Source current	Continuous	I _S *3	7	Α
(Body Diode)	Pulsed	I _{SP} *1	28	Α
Avalanche current		I _{AS} *2	3.5	Α
Avalanche energy		E _{AS} *2 3.2		mJ
Power dissipation		P _D *4 40		W
Channel temperature		T_ch	150	°C
Range of storage temperature		T_{stg}	-55 to +150	°C

^{*1} Pw \leq 10 μ s, Duty cycle \leq 1%

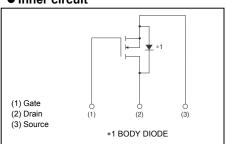
• Thermal resistance

Parameter	Symbol	Limits	Unit
Channel to Case	R _{th (ch-c)}	3.13	°C/W

• Dimensions (Unit : mm)



Inner circuit



^{*2} L = 500 μ H, V_{DD}=50V, R_G=25 Ω , T_{ch}=25 $^{\circ}$ C

^{*3} Limited only by maximum temperature allowed.

^{*4} T_C=25°C

● Electrical characteristics (Ta = 25°C)

Parameter	Symbol	Min.	Тур.	Max.	Unit	Conditions
Gate-source leakage	I_{GSS}		-	±100	nA	$V_{GS}=\pm30V$, $V_{DS}=0V$
Drain-source breakdown voltage	$V_{(BR)DSS}$	525	1	1	>	I _D =1mA, V _{GS} =0V
Zero gate voltage drain current	I _{DSS}	1	1	100	μA	V _{DS} =525V, V _{GS} =0V
Gate threshold voltage	V _{GS (th)}	2.5	-	4.5	V	V _{DS} =10V, I _D =1mA
Static drain-source on-state resistance	R _{DS (on)}	-	0.78	1.0	Ω	I _D =3.5A, V _{GS} =10V
Forward transfer admittance	I Y _{fs} I*	2.5	1	1	S	V _{DS} =10V, I _D =3.5A
Input capacitance	C _{iss}	1	500	1	pF	V _{DS} =25V
Output capacitance	C _{oss}	-	300	-	pF	V _{GS} =0V
Reverse transfer capacitance	C _{rss}	1	23	1	pF	f=1MHz
Turn-on delay time	t _{d(on)} *	i	20	-	ns	V _{DD} ≒ 250V, I _D =3.5A
Rise time	t _r *	-	22	-	ns	V _{GS} =10V
Turn-off delay time	t _{d(off)} *	1	50	-	ns	R_L =71.4 Ω
Fall time	t _f *	-	25	-	ns	R_G =10 Ω
Total gate charge	Q _g *	1	13	-	nC	V _{DD} ≒250V
Gate-source charge	Q _{gs} *	ı	3.5	-	nC	I _D =7A
Gate-drain charge	Q _{gd} *	-	5.5	-	nC	V _{GS} =10V

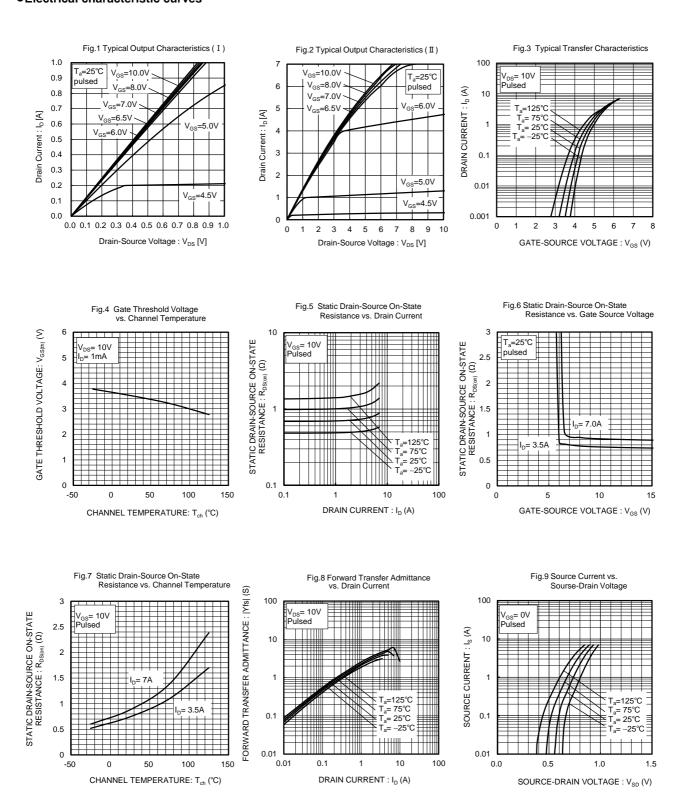
^{*}Pulsed

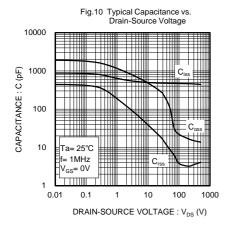
●Body diode characteristics (Source-Drain)

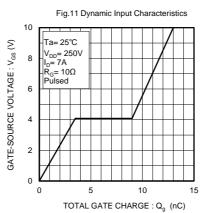
Parameter	Symbol	Min.	Тур.	Max.	Unit	Conditions
Forward Voltage	V _{SD} *	-	-	1.5	V	I _S =7A, V _{GS} =0V

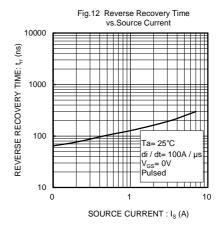
^{*}Pulsed

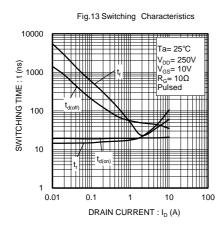
•Electrical characteristic curves











Measurement circuits

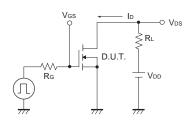


Fig.1-1 Switching Time Measurement Circuit

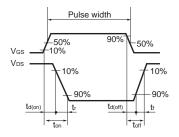


Fig.1-2 Switching Waveforms

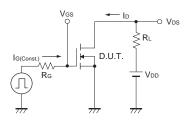


Fig.2-1 Gate Charge Measurement Circuit

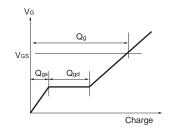


Fig.2-2 Gate Charge Waveform

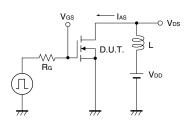


Fig.3-1 Avalanche Measurement Circuit

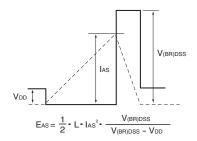


Fig.3-2 Avalanche Waveform

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