Elektronische Bauelemente

SID05N10

5A , 100V , $R_{DS(ON)}$ 170 mΩ

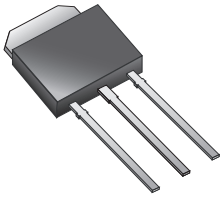
N-Channel Enhancement Mode Power MOSFET

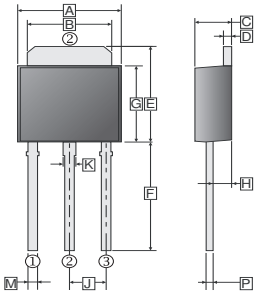
RoHS Compliant Product
A suffix of "-C" specifies halogen-free

DESCRIPTION

The SID05N10 provide the designer with the best combination of fast switching, The TO-251 package is universally preferred for all commercial-industrial surface mount applications. The device is suited for charger, industrial and consumer environment.

TO-251

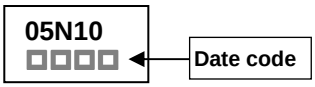


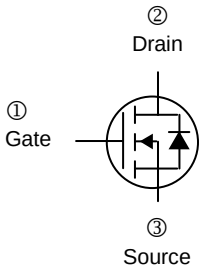


FEATURES

- Low On-resistance
- Fast Switching Speed
- Low-voltage drive (4V)
- Wide SOA (safe operating area)
- Easily designed drive circuits
- Easy to parallel

MARKING:





REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	6.40	6.80	G	5.40	5.80
B	5.20	5.50	H	0.90	1.50
C	2.20	2.40	J	2.30	
D	0.45	0.55	K	0.60	0.90
E	6.80	7.20	M	0.50	0.70
F	7.20	7.80	P	0.45	0.60

ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DS}	100	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_C=25°C	I_D	5	A
	T_C=100°C		3.75	A
Pulsed Drain Current[1]		I_{DM}	20	A
Total Power Dissipation @ T_C = 25°C		P_D	20	W
Thermal Resistance Junction-case		$R_{\theta JC}$	6.25	°C / W
Thermal Resistance Junction-ambient		$R_{\theta JA}$	110	°C / W
Linear Derating Factor			0.16	W / °C
Operating Junction & Storage temperature		T_J, T_{STG}	-55~150	°C

ELECTRICAL CHARACTERISTICS (T_J=25°C unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain-Source Breakdown Voltage	BV_{DSS}	100	-	-	V	V_{GS}=0, I_D=1mA
Gate Threshold Voltage	$V_{GS(th)}$	1	-	2.5	V	V_{DS}=10V, I_D=1mA
Forward Trans-conductance	g_{fs}	-	4	-	S	V_{DS} =10V, I_D =2.5A
Gate-Source Leakage Current	I_{GSS}	-	-	±100	nA	V_{GS}= ±20V
Drain-Source Leakage Current T_J=25°C	I_{DSS}	-	-	10	uA	V_{DS}=100 V, V_{GS}=0
Static Drain-Source On-Resistance[2]	$R_{DS(ON)}$	-	-	170	mΩ	V_{GS}=10 V, I_D=2.5A
		-	-	200		V_{GS}=4V, I_D=2.5A
Turn-on Delay Time[2]	$T_{d(on)}$	-	9	-	nS	V_{DD}=30V I_D=1A V_{GS}=10 V R_G=6Ω R_L=30Ω
Rise Time	T_r	-	9.4	-		
Turn-off Delay Time	$T_{d(off)}$	-	26.8	-		
Fall Time	T_f	-	2.6	-		
Input Capacitance	C_{iss}	-	975	-	pF	V_{GS}=0 V_{DS}=25V f =1 MHz
Output Capacitance	C_{oss}	-	38	-		
Reverse Transfer Capacitance	C_{rss}	-	27	-		
Source-Drain Diode						
Forward On Voltage[2]	V_{SD}	-	-	1.5	V	I_S=5A, V_{GS}=0 ,T_J=25 °C

Notes:
1. Pulse width limited by maximum junction temperature.
2. Pulse width≦300us, duty cycle≦2%

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CHARACTERISTIC CURVES

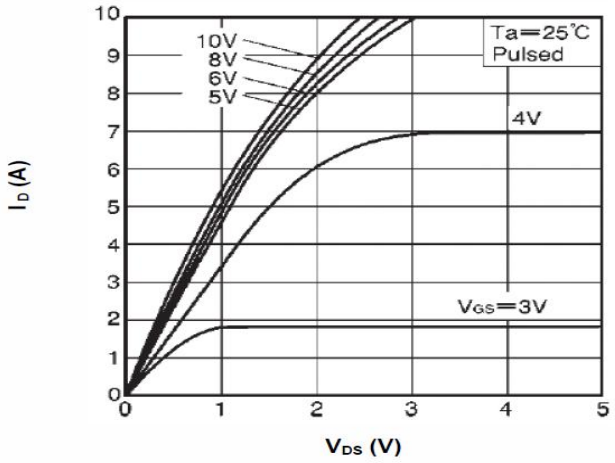


Fig 1. Typical Output Characteristics

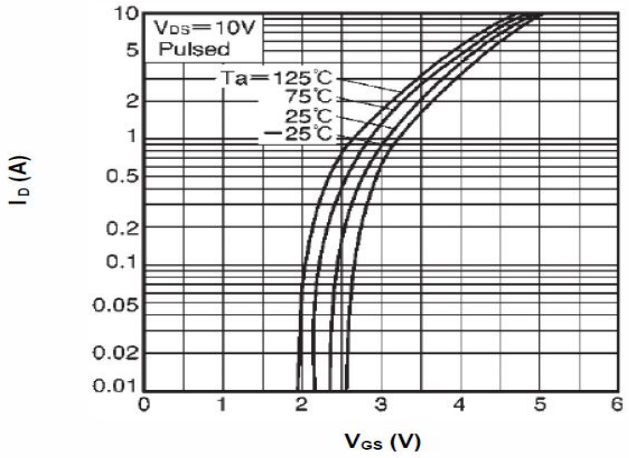


Fig 2. Transfer Characteristics

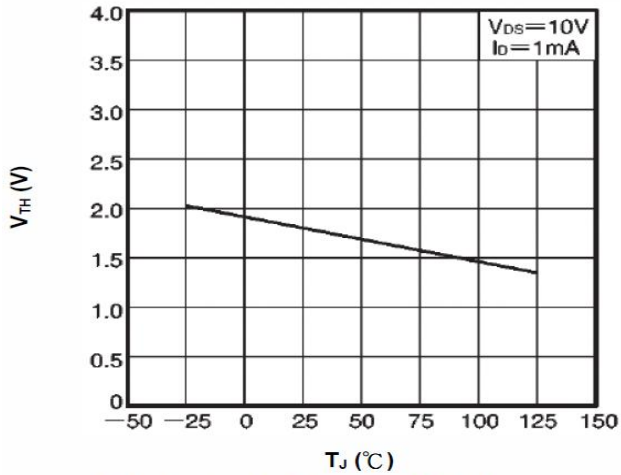


Fig 3. Gate Threshold Voltage vs. Junction Temperature

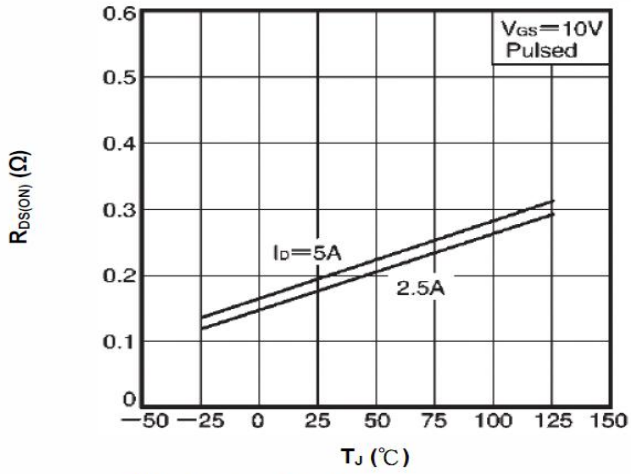


Fig 4. On-Resistance vs. Junction Temperature

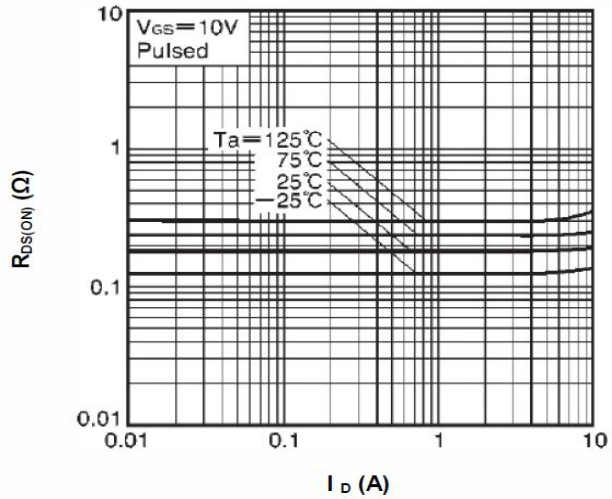


Fig 5. On-Resistance vs. Drain Current (Ⅰ)

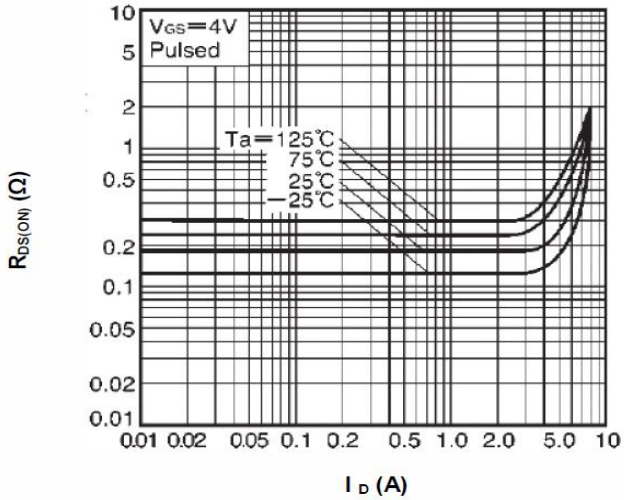


Fig 6. On-Resistance vs. Drain Current (Ⅱ)

CHARACTERISTIC CURVES

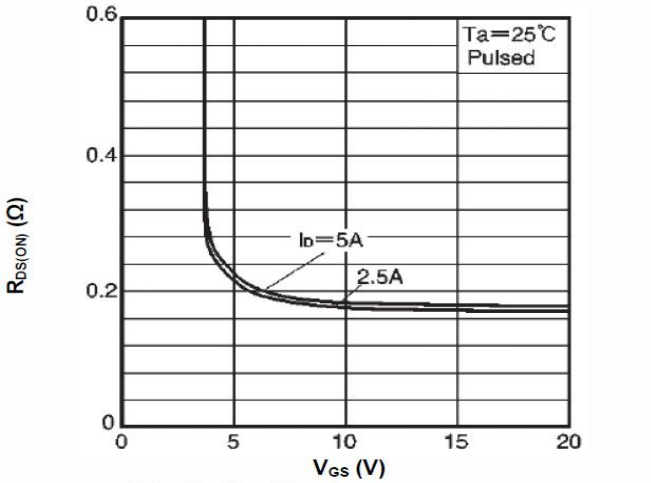


Fig 7. On-Resistance vs. Gate-Source Voltage

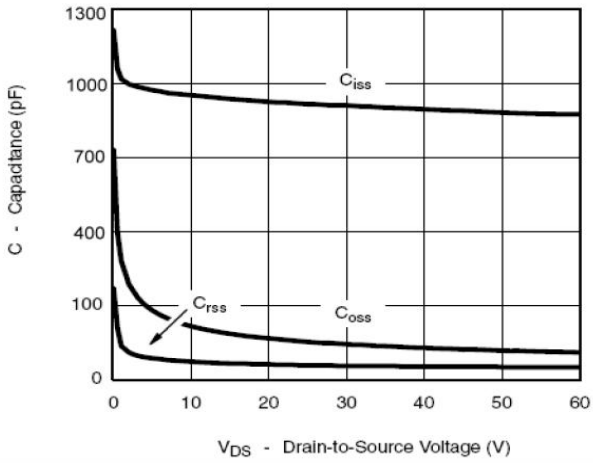


Fig 8. Typical Capacitance Characteristics

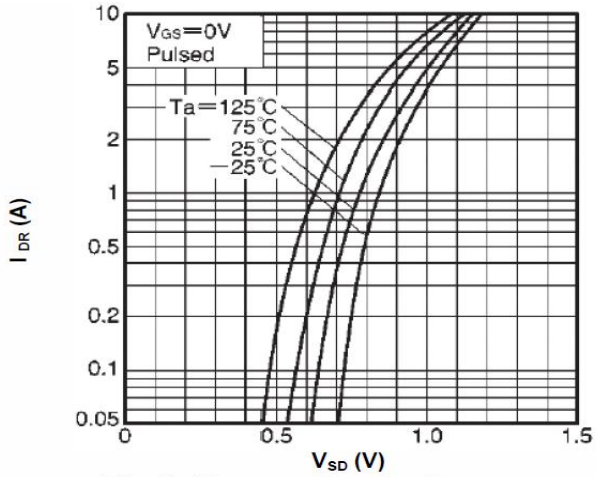


Fig 9. Reverse Drain Current vs. Source-Drain Voltage (Ⅰ)

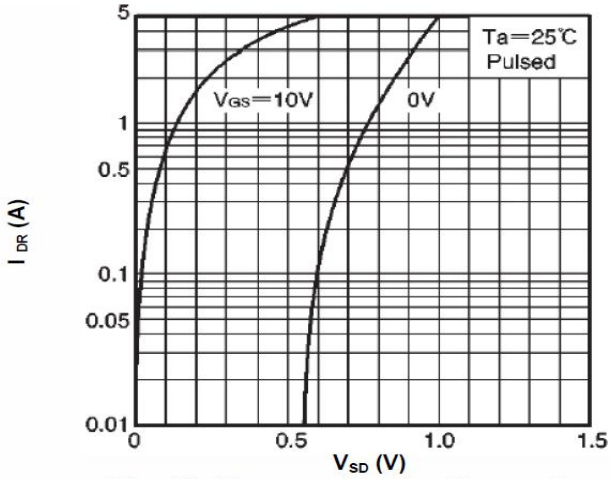


Fig 10. Reverse Drain Current vs. Source-Drain Voltage (Ⅱ)

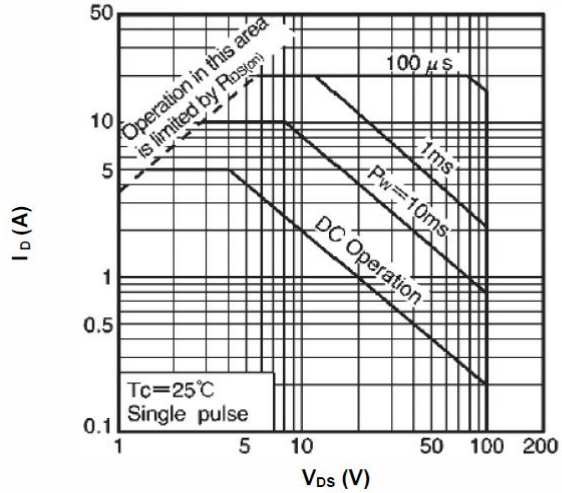


Fig 11. Maximum Safe Operating Area

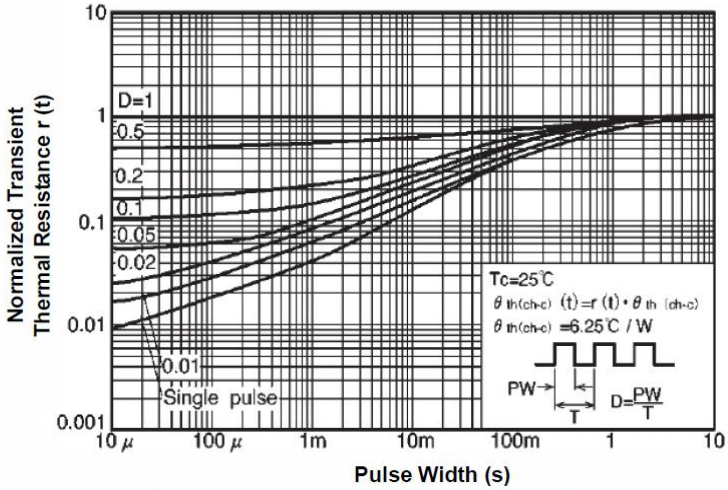


Fig 12. Normalized Transient Thermal Resistance vs. Pulse Width