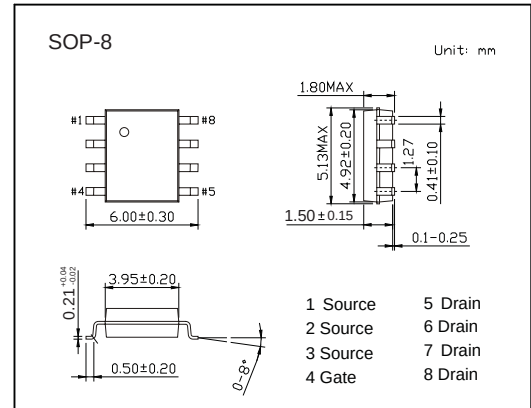
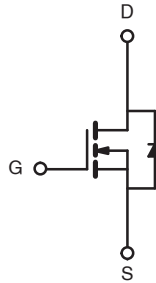


N-Channel MOSFET

RCK7106

■ Features

- $BV_{DSS} = 60\text{ V}$
- $I_D = 12\text{ A}$
- $R_{DS(ON)} \text{ Typ. (at } V_{GS} = 4.5\text{ V)} = 12\text{ m}\Omega$
- Low On-resistance
- High conversion efficiency
- Fast Switching Characteristic



■ Absolute Maximum Ratings ($T_J = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	
Continuous Drain Current	I_D	12	A
		8	
Pulsed Drain Current ^{*1}	I_{DM}	48	
Avalanche Current, Single pulsed ^{*2}	I_{AS}	40	mJ
Avalanche Energy, Single pulsed ^{*2}	E_{AS}	80	
Power Dissipation	P_D	2.0	W
Thermal Resistance, Junction- to-Ambient	$R_{\theta JA}$	72	$^\circ\text{C/W}$
Thermal Resistance, Junction- to-Case	$R_{\theta JC}$	20	
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55 to 150	

Notes:

1. Repetitive rating; pulse width limited by max. junction temperature.
2. Limited by T_{Jmax} , starting $T_J = 25^\circ\text{C}$, $L = 0.1\text{ mH}$, $R_G = 25\Omega$, $I_{AS} = 40\text{ A}$, $V_{GS} = 10\text{ V}$. Part not recommended for use above this value

N-Channel MOSFET

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■ Electrical Characteristics (T_c = 25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV _{DSS}	I _D = 250 μ A, V _{GS} = 0V	60			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 48 V, V _{GS} = 0 V			1	μ A
Gate to Source Leakage Current	I _{GSS}	V _{DS} = 0 V, V _{GS} = $\pm$ 20 V			$\pm$ 100	nA
Gate to Source Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250 μ A	1		2.5	V
Static Drain-Source On-Resistance ^{*3}	R _{DS(on)}	V _{GS} = 10 V, I _D = 8 A		11	14	m Ω
		V _{GS} = 4.5 V, I _D = 4 A		12	16	
Input Capacitance	C _{iss}	V _{GS} = 0 V, V _{DS} = 25 V, f = 1 MHz		2250		pF
Output Capacitance	C _{oss}			220		
Reverse Transfer Capacitance	C _{rss}			162		
Gate Resistance	R _g	V _{GS} = 0 V, f = 1 MHz		1.2		Ω
Total Gate Charge	Q _g	V _{GS} = 10V, V _{DS} = 25 V, I _D = 4 A		58		nC
Gate Source Charge	Q _{gs}			5.9		
Gate Drain Charge	Q _{gd}			14.5		
Turn-On Delay Time	t _{d(on)}	V _{GS} = 10V, V _{DD} = 25 V, R _G = 6.8 Ω , I _D = 4A		20		ns
Turn-On Rise Time	t _r			98		
Turn-Off Delay Time	t _{d(off)}			46		
Turn-Off Fall Time	t _f			91		
Body Diode Reverse Recovery Time	t _{rr}	I _S = 4 A, V _{GS} = 0V, di/dt = 100 A/ μ s		20		nC
Body Diode Reverse Recovery Charge	Q _{rr}			13		
Diode Forward Voltage	V _{SD}	V _{GS} = 0 V, I _S = 8 A			1.2	V

Note 3 : Pulse width $\leq$ 300 μ s; duty cycle $\leq$ 2%.

■ Marking

Marking	K7106 *****
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N-Channel MOSFET

RCK7106

Typical Characteristics

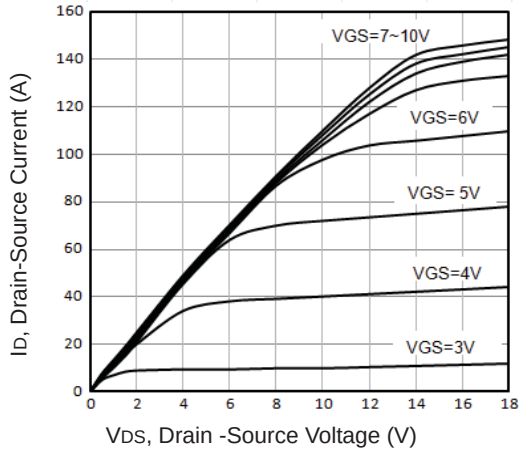


Fig1. Typical Output Characteristics

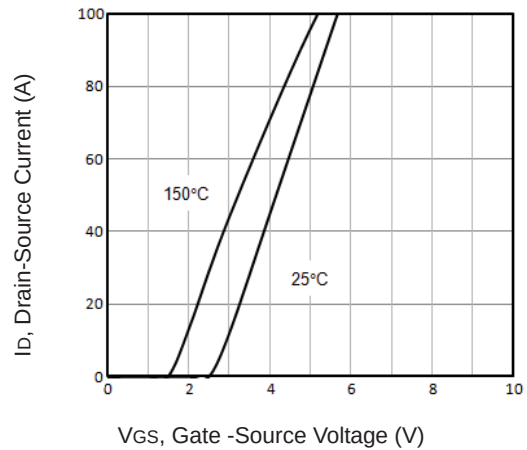


Fig2. Typical Transfer Characteristics

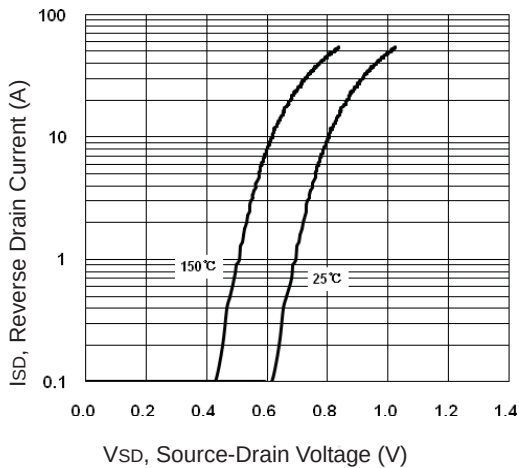


Fig3. Typical Source-Drain Diode Forward

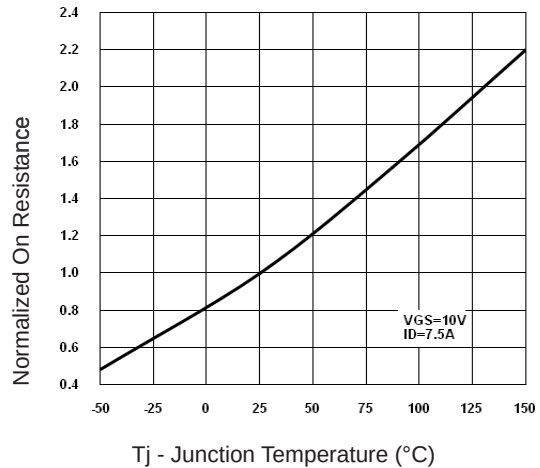


Fig4. Normalized On-Resistance Vs. Temperature

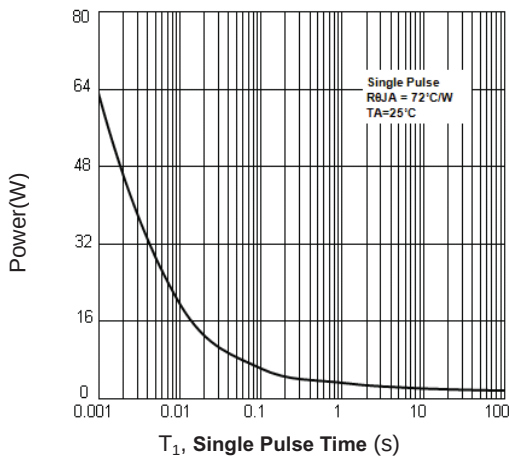


Fig5. Single Pulse Maximum Power Dissipation

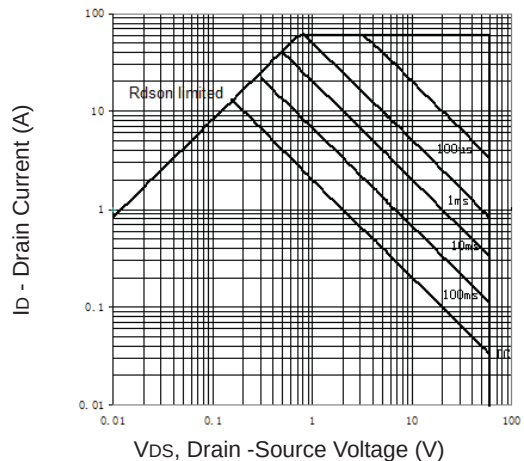
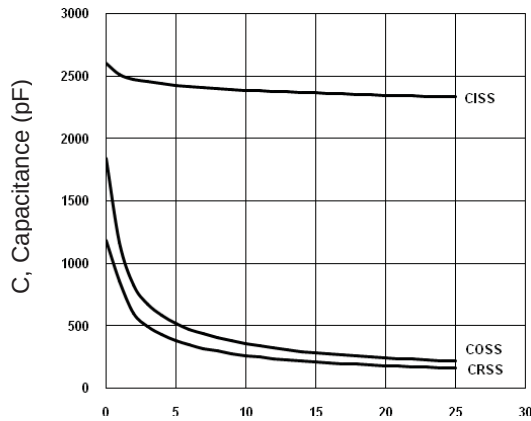


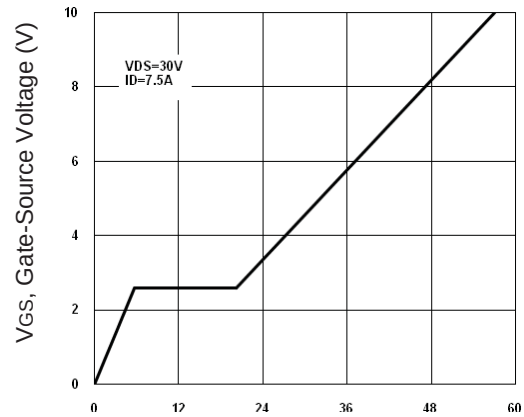
Fig6. Maximum Safe Operating Area

N-Channel MOSFET RCK7106



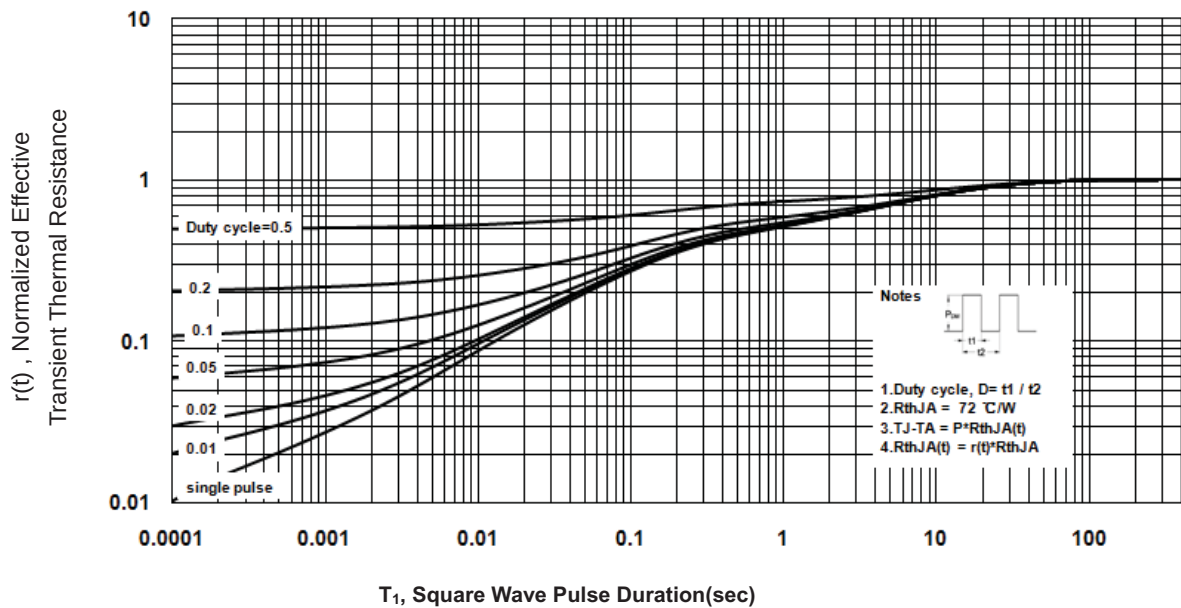
VDS , Drain-Source Voltage (V)

Fig7. Typical Capacitance Vs. Drain-Source Voltage



Qg -Total Gate Charge (nC)

Fig8. Typical Gate Charge Vs. Gate-Source Voltage



T₁, Square Wave Pulse Duration(sec)

Fig9. T₁ ,Transient Thermal Response Curve

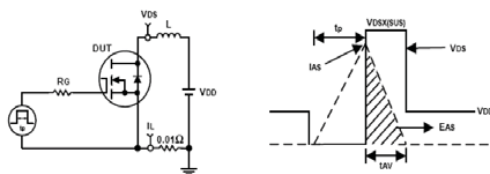


Fig10. Unclamped Inductive Test Circuit and waveforms

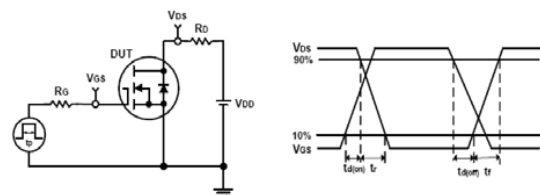


Fig11. Switching Time Test Circuit and waveforms