

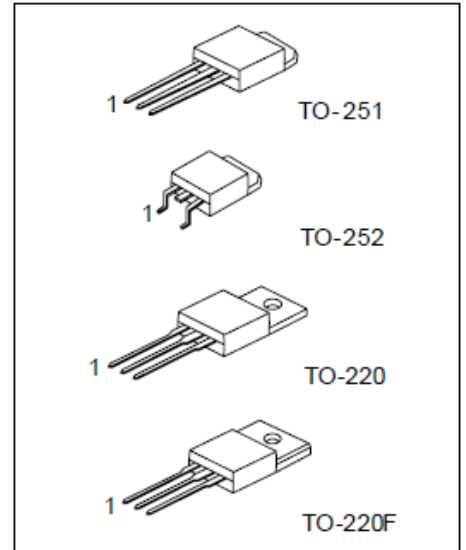
25Amps, 60 Volts N-CHANNEL MOSFET

■ DESCRIPTION

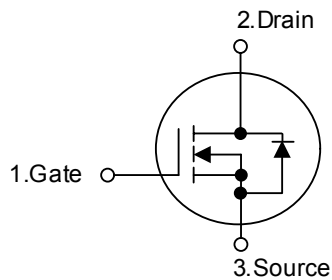
The YR 25N06 is a low voltage MOSFET and is designed to have better characteristics, such as fast switching time, low gate charge, low on-state resistance and have a high rugged avalanche characteristics. This power MOSFET is usually used at high speed switching applications in power supplies, PWM motor controls, high efficient DC to DC converters and bridge circuits.

■ FEATURES

- * $R_{DS(ON)} = 55m\ \Omega @ V_{GS} = 10\ V$
- * Ultra low gate charge (typical 15 nC)
- * Low reverse transfer Capacitance ($C_{RSS} =$ typical 40 pF)
- * Fast switching capability
- * Avalanche energy Specified
- * Improved dv/dt capability, high ruggedness



■ SYMBOL



ABSOLUTE MAXIMUM RATINGS ($T_C = 25\text{ }^{\circ}\text{C}$ Unless Otherwise Noted)

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current	T_C	I_D	25	A
	$T_C = 70\text{ }^{\circ}\text{C}$		20	
Pulsed Drain Current ¹		I_{DM}	80	
Power Dissipation	$T_C = 25\text{ }^{\circ}\text{C}$	P_D	50	W
	$T_C = 70\text{ }^{\circ}\text{C}$		32	
Operating Junction & Storage Temperature Range		T_j, T_{stg}	-55 to 150	$^{\circ}\text{C}$
Lead Temperature (¹ / ₁₆ " from case for 10 sec.)		T_L	275	

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Case	$R_{\theta JC}$		2.5	$^{\circ}\text{C} / \text{W}$
Junction-to-Ambient	$R_{\theta JA}$		55	$^{\circ}\text{C} / \text{W}$

¹Pulse width limited by maximum junction temperature.

ELECTRICAL CHARACTERISTICS ($T_C = 25\text{ }^{\circ}\text{C}$, Unless Otherwise Noted)

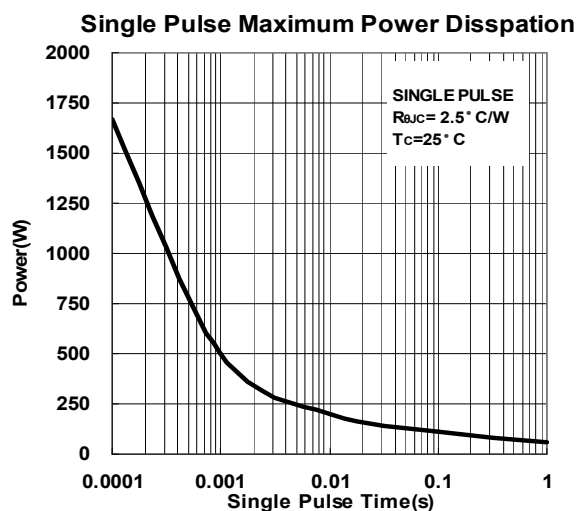
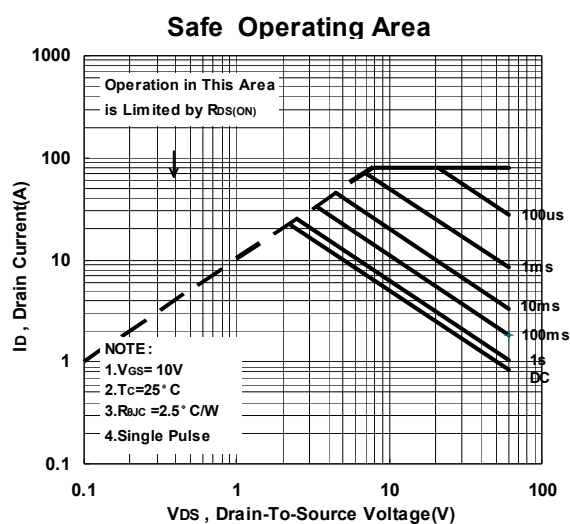
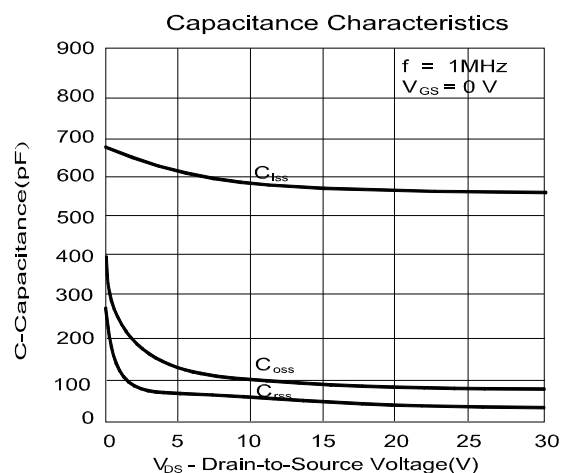
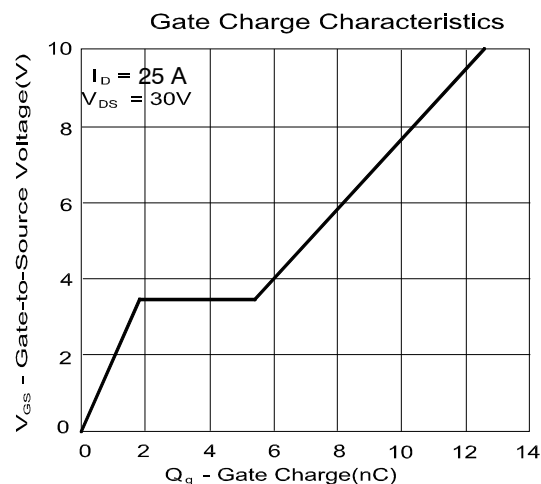
PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	60			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1	1.5	2.5	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$			± 250	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 48V, V_{GS} = 0V$			1	μA
		$V_{DS} = 40V, V_{GS} = 0V, T_J = 55\text{ }^{\circ}C$			10	
On-State Drain Current ¹	$I_{D(ON)}$	$V_{DS} = 5V, V_{GS} = 10V$	22			A
Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = 4.5V, I_D = 13\text{ A}$		59	75	$m\Omega$
		$V_{GS} = 10V, I_D = 13\text{ A}$		42	55	

Forward Transconductance ¹	g_{fs}	$V_{DS} = 10V, I_D = 13 A$		14		S
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DYNAMIC							
Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = 25V, f = 1MHz			587		pF
Output Capacitance	C _{oss}				80		
Reverse Transfer Capacitance	C _{rss}				46		
Total Gate Charge ²	Q _g	V _{DS} = 0.5V _{(BR)DSS} , V _{GS} = 10V, I _D = 13 A			12.5		nC
Gate-Source Charge ²	Q _{gs}				1.8		
Gate-Drain Charge ²	Q _{gd}				3.7		
Turn-On Delay Time ²	t _{d(on)}	V _{DD} = 30V I _D ≅ 1A, V _{GS} = 10V, R _{GEN} = 6 Ω			11		nS
Rise Time ²	t _r				8		
Turn-Off Delay Time ²	t _{d(off)}				19		
Fall Time ²	t _f				6		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T _c = 25 °C)							
Continuous Current	I _S				25		A
Forward Voltage ¹	V _{SD}	I _F = 1A, V _{GS} = 0V			1		V

¹Pulse test : Pulse Width $\leq 300 \mu sec$, Duty Cycle $\leq 2\%$.

²Independent of operating temperature.



Transient Thermal Response Curve

