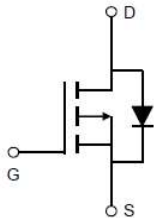
RECTRON SEMICONDUCTOR
TECHNICAL SPECIFICATION

RM3P100YV

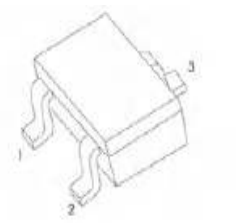
P-Channel Enhancement Mosfet

Features

- -100V,-3A
  $R_{DS(ON)}$ <370mΩ @V_{GS}=-10V TYP:285mΩ
  $R_{DS(ON)}$ <405mΩ @V_{GS}=-4.5V TYP:305 mΩ
- Low Gate Charge
- 100% UIS Tested, 100% DVDS Tested
- High Power and current handing capability
- Lead free product is acquired
- P/N suffix V means AEC-Q101 qualified, e.g:RM3P100YV



Schematic diagram



SOT23-3L

Applications

- PWM Applications
- Load Switch
- Power Management
- Halogen-free

Package Marking and Ordering Information

Device Marking	Device	Package	Packaging Code	Reel Size	Quantity(Pcs)	Carton(Pcs)
3P10A	RM3P100YV	SOT23-3L	-T	7inch	3000	120000

ABSOLUTE MAXIMUM RATINGS (T_J=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-100	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current (T_a=25℃)	I_D	-3	A
Continuous Drain Current (T_a=100℃)	I_D	-1.8	A
Pulsed Drain Current (1)	I_{DM}	-12.0	A
Drain Power Dissipation	P_D	1.25	W
Avalanche energy (2)	E_{AS}	12.5	mJ
Thermal Resistance- Junction to Ambient	$R_{\theta JA}$	100	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55~ +150	℃

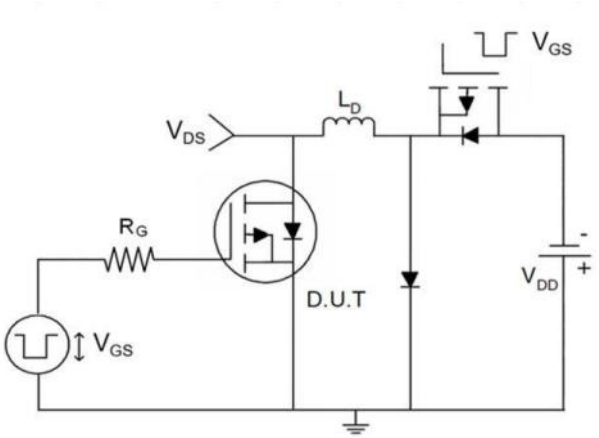
MOSFET ELECTRICAL CHARACTERISTICS(T_J=25℃ unless otherwise noted)

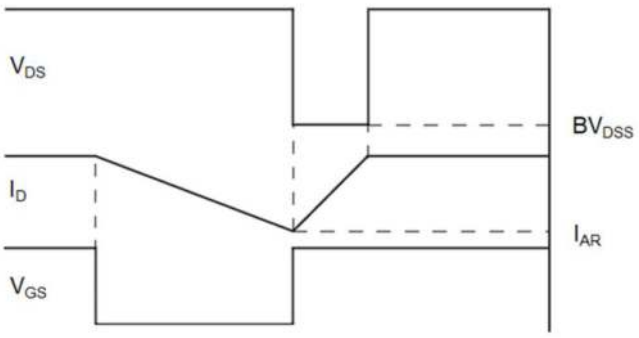
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =-250μA	-100	-	-	V
Zero gate voltage drain current	I_{DSS}	V_{DS} =-100V, V_{GS} = 0V	-	-	-1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±20V, V_{DS} = 0V	-	-	±100	nA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =-250μA	-1.0	-	-2.5	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} =-10V, I_D =-3A	-	285	370	mΩ
		V_{GS} =-4.5V, I_D =-3A	-	305	405	mΩ
Dynamic characteristics						
Input Capacitance	C_{iss}	V_{DS} =-50V, V_{GS} =0V, f =1.0MHz	-	1199	-	pF
Output Capacitance	C_{oss}		-	34	-	
Reverse Transfer Capacitance	C_{rss}		-	28.2	-	
Gate resistance	R_G	V_{DS} =0V, V_{GS} =0V, f =1.0MHz	-	5.2	-	Ω
Switching characteristics						
Turn-on delay time	$t_{d(on)}$	V_{DD}=-50V, I_D=-3A, R_G=3Ω, V_G=-10V, R_L=16.6Ω	-	13.5	-	ns
Turn-on rise time	t_r		-	3.8	-	
Turn-off delay time	$t_{d(off)}$		-	42	-	
Turn-off fall time	t_f		-	6.4	-	
Total Gate Charge	Qg	V_{DS}=-50V, I_D=-3A, V_{GS}=-10V	-	19.6	-	nC
Gate-Source Charge	Qgs		-	6	-	
Gate-Drain Charge	Qgd		-	4.2	-	
Source-Drain Diode characteristics						
Diode Forward voltage	V_{SD}	T_c=25℃, V_{GS} =0V, I_S=-3A	-	-	-1.2	V
Diode Forward current	I_S	T_c =25℃	-	-	-3	A
Body Diode Reverse Recovery Time	trr	T_c=25℃， IF=-3A,di/dt=100A/us		42.9		ns
Body Diode Reverse Recovery Charge	Qrr	T_c=25℃， IF=-3A,di/dt=100A/us		83.7		uc

Notes:

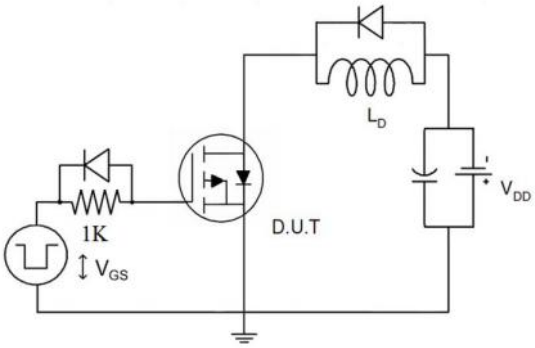
1.Repetitive Rating: Pulse width limited by maximum junction temperature.
2.E_{AS} condition: T_J=25℃,V_{DD}=-50V,V_G=-10V, Rg=25Ω, L=0.5mH.

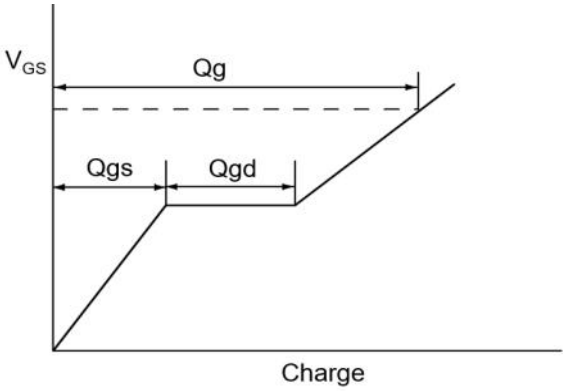
1) E_{AS} Test Circuits



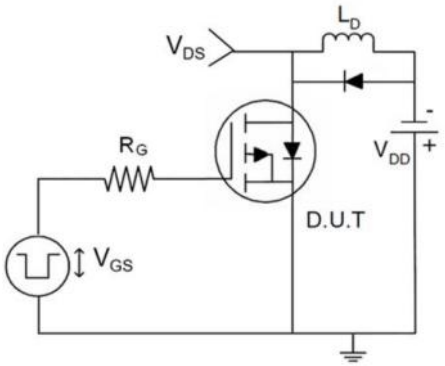


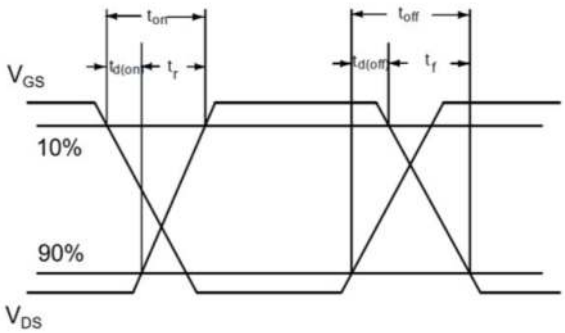
2) Gate Charge Test Circuit





3) Switch Time Test Circuit





RATING AND CHARACTERISTICS CURVES (RM3P100YV)

Figure 1. Output Characteristics

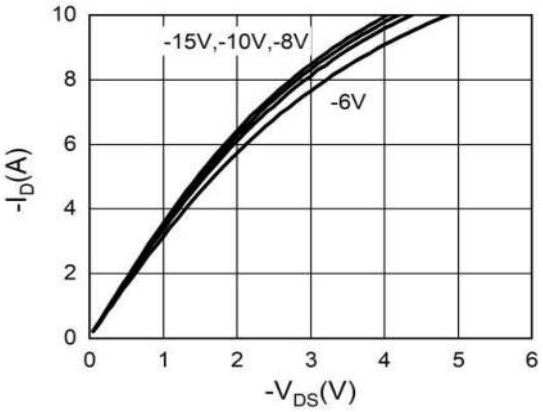


Figure 2. Transfer Characteristics

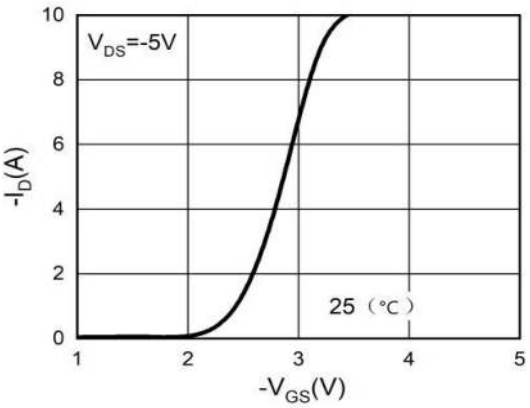


Figure 3. Power Dissipation

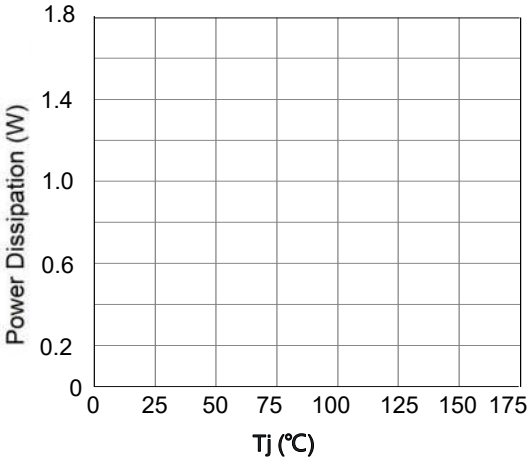


Figure 4. Drain Current

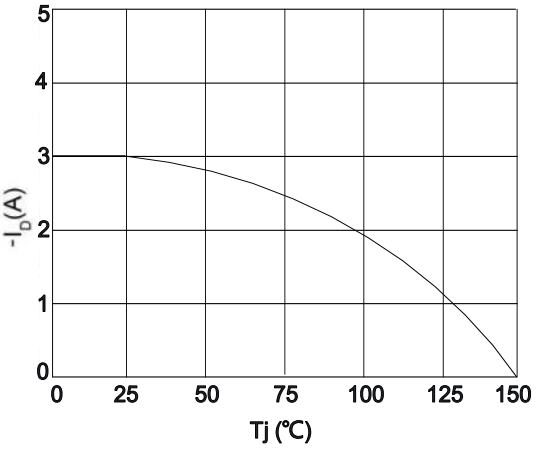


Figure 5. BV_{DSS} vs Junction Temperature

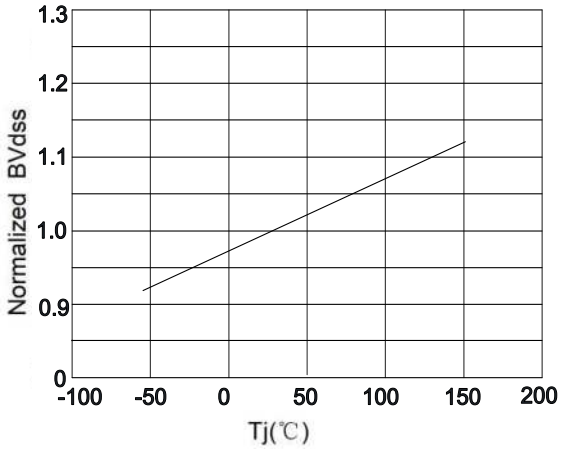
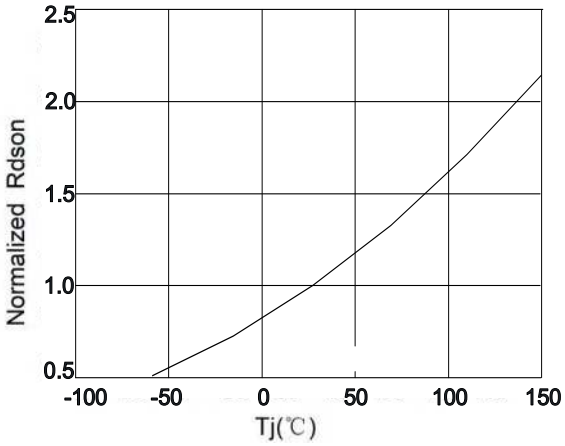


Figure 6. $R_{DS(ON)}$ vs Junction Temperature



RATING AND CHARACTERISTICS CURVES (RM3P100YV)

Figure 7. Gate Charge Waveforms

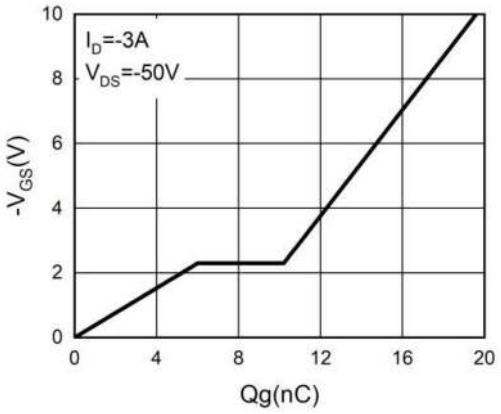


Figure 8. Capacitance

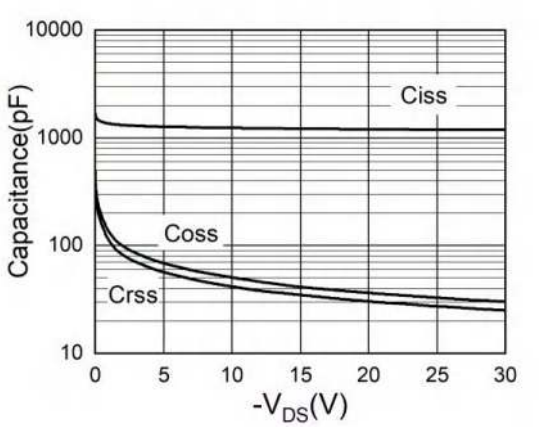


Figure 9. Body-Diode Characteristics

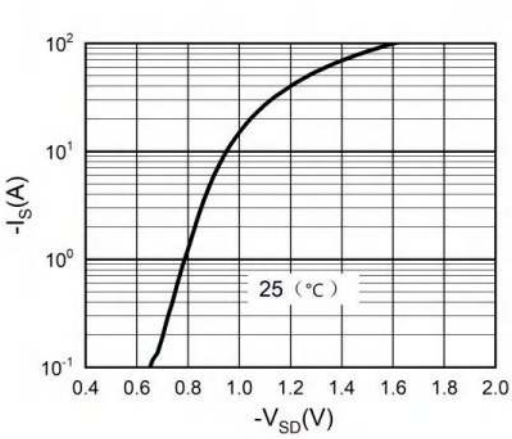
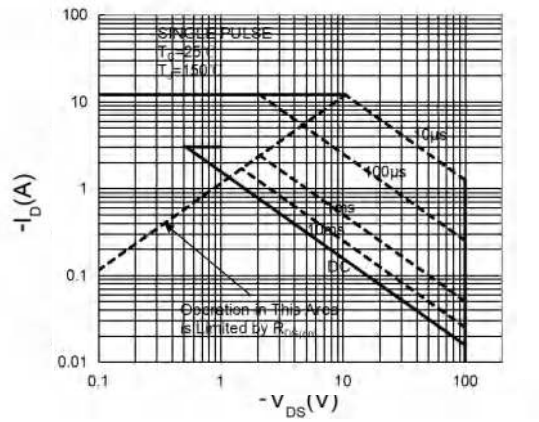
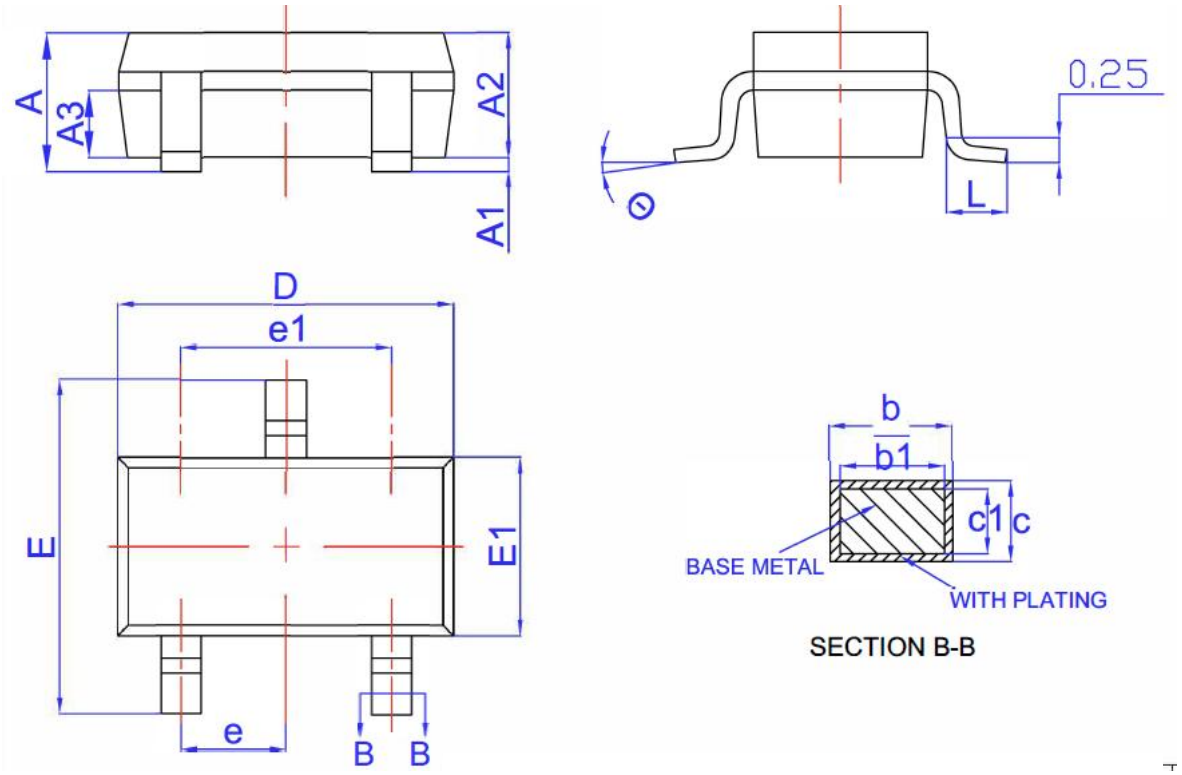


Figure 10. Maximum Safe Operating Area



Package Information SOT23-3L



SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	—	—	1.25
A1	0.04	—	0.10
A2	1.00	1.10	1.20
A3	0.55	0.65	0.75
b	0.38	—	0.48
b1	0.37	0.40	0.43
c	0.11	—	0.21
c1	0.10	0.13	0.16
D	2.72	2.92	3.12
E	2.60	2.80	3.00
E1	1.40	1.60	1.80
e	0.95BSC		
e1	1.90BSC		
L	0.30	—	0.60
Θ	0	—	8°

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