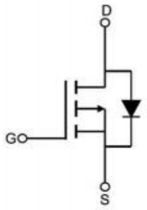
RECTRON SEMICONDUCTOR
TECHNICAL SPECIFICATION

RM6P100LDV

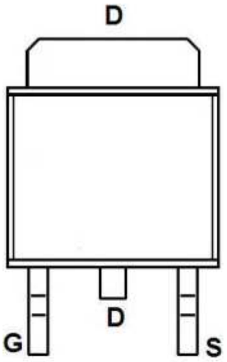
P-Channel Enhancement Mosfet

Features

- -100V,-6A
  $R_{DS(ON)}$<367mΩ@V_{GS}=-10V TYP: 282mΩ
- Advanced Trench Technology
- Low Gate Charge
- 100% UIS Tested, 100% DVDS Tested
- High Power and current handing capability
- Lead free product is acquired



Schematic Diagram



pin assignment

Applications

- PWM Applications
- Load Switch
- Power Management
- Halogen-free
- P/N suffix V means AEC-Q101 qualified, e.g:RM6P100LDV

Package Marking and Ordering Information

Device Marking	Device	Device Package	Packaging Code	Reel Size	Quantity(PCS)
6P100V	RM6P100LDV	TO-252	-W	13inch	2500

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 (Tc=25℃)	I_D	-6	A
Continuous Drain Current (Tc=100℃)	I_D	-4.2	A
Pulsed Drain Current (1)	I_{DM}	-24	A
Drain Power Dissipation	P_D	40	W
Single Pulsed Avalanche Energy(2)	E_{AS}	109	mJ
Thermal Resistance from Junction to Case	$R_{\theta JC}$	3.7	℃/W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	58	℃/W
Junction Temperature	T_J	-55~ +175	℃
Storage Temperature	T_{STG}	-55~ +175	℃

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

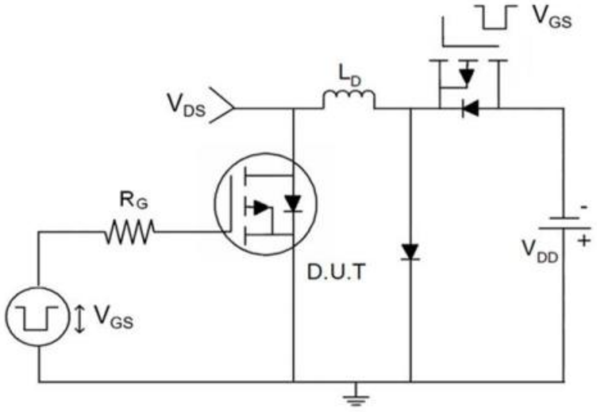
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =-250μA	-100	-	-	V
Zero gate voltage drain current	I_{DSS}	V_{DS} =-100V, V_{GS} = 0V	-	-	-1	μA
Gate-body leakage current	I_{GSS}	V_{GS} ±20V, V_{DS} = 0V	-	-	±100	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	-	282	367	mΩ
Drain-source on-resistance	$R_{DS(on)}$	V_{GS}=-4.5V, I_D=-3A	-	302	403	mΩ
Forward Transconductance	G_{fs}	V_{DS}=-5V, I_D=-3A	-	4	-	S
Dynamic characteristics						
Input Capacitance	C_{iss}	V_{DS} =-50V, V_{GS}=0V, f=1MHz	-	1199	-	pF
Output Capacitance	C_{oss}		-	33.8	-	
Reverse Transfer Capacitance	C_{rss}		-	68	-	
Switching characteristics						
Turn-on delay time	$t_{d(on)}$	V_{DD}=-50V, I_D=-3.1A, R_G=2.7Ω, V_{GS}=-10V	-	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$^{(3)}$	V_{SD}	T_J=25℃, V_{GS} =0V, I_S=-3A	-	-0.9	-1.2	V
Diode Forward current	I_S	T_C=25℃	-	-	-6	A
Body Diode Reverse Recovery Time	trr	T_J=25℃, I_F=-3A,di/dt=100A/us	-	42.9	-	nS
Body Diode Reverse Recovery Charge	Qrr		-	83.7	-	nC

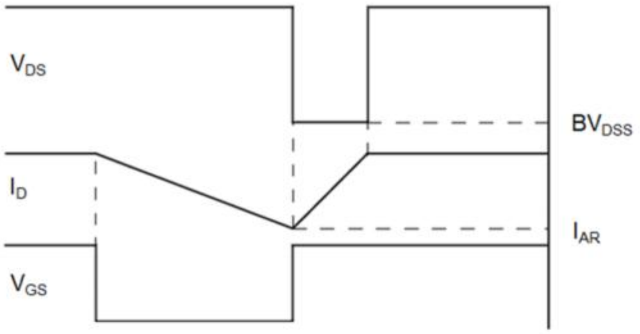
Notes:

1) Repetitive Rating: Pulse width limited by maximum junction temperature.
2) Pulse Test: pulse width≤300μs, duty cycle≤2%
3) Surface Mounted on FR4 Board,t≤10 sec

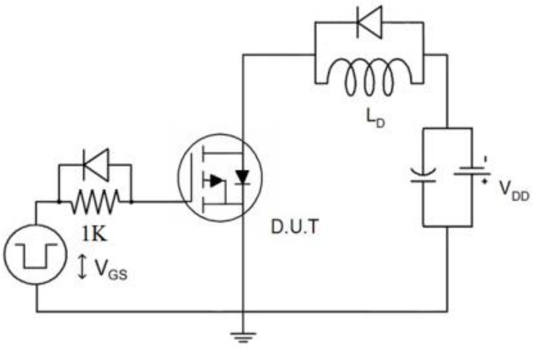
Test Circuit

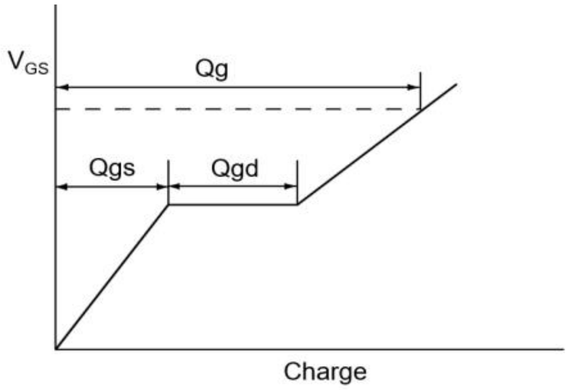
1) E_{AS} Test Circuits



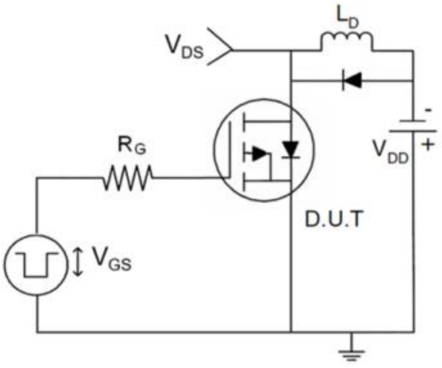


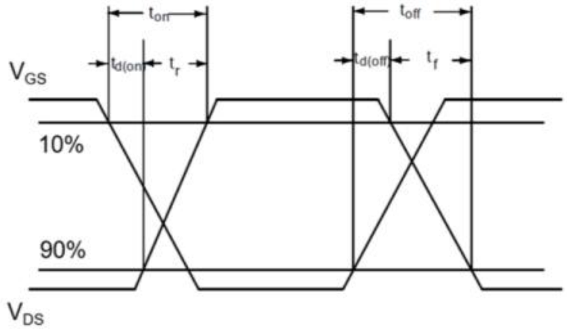
2) Gate Charge Test Circuit





3) Switch Time Test Circuit





RATING AND CHARACTERISTICS CURVES (RM6P100LDV)

Figure 1. Output Characteristics

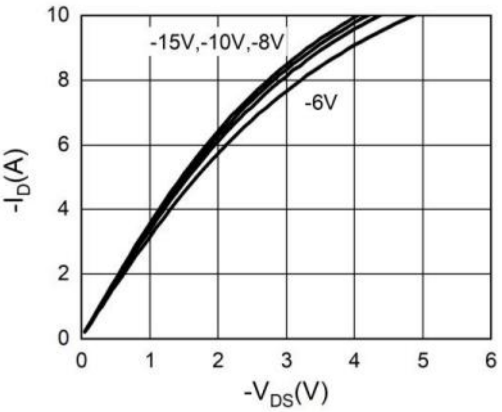


Figure 2. Transfer Characteristics

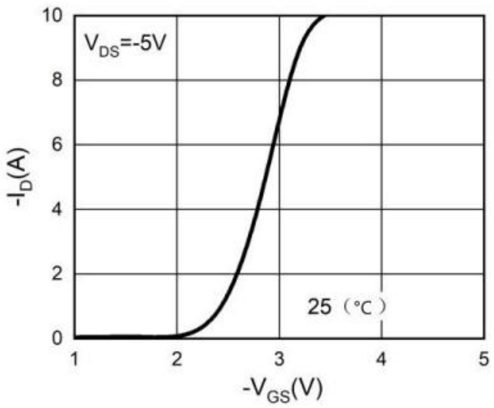


Figure 3. Power Dissipation

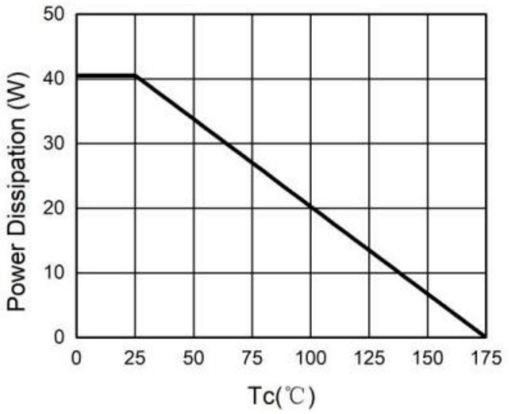


Figure 4. Drain Current

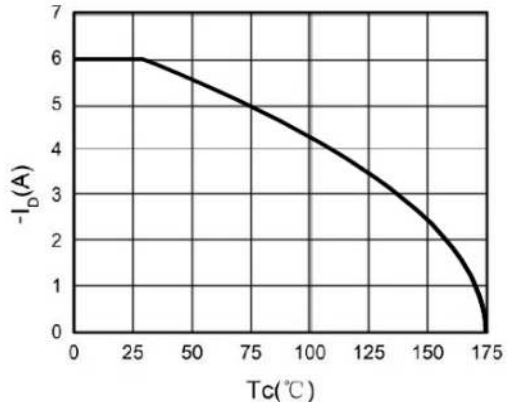


Figure 5. BV_{DSS} vs Junction Temperature

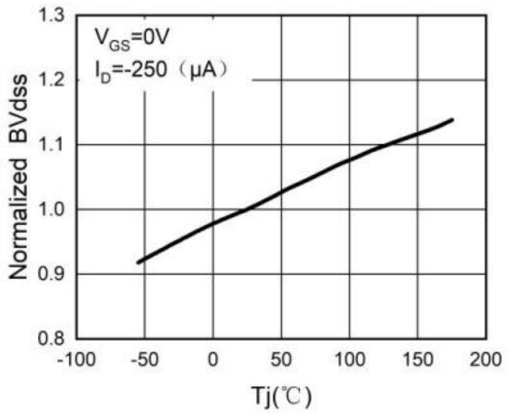
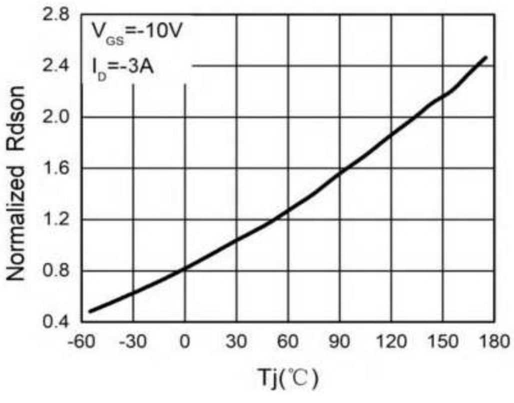


Figure 6. $R_{DS(ON)}$ vs Junction Temperature



RATING AND CHARACTERISTICS CURVES (RM6P100LDV)

Figure 7. Gate Charge Waveforms

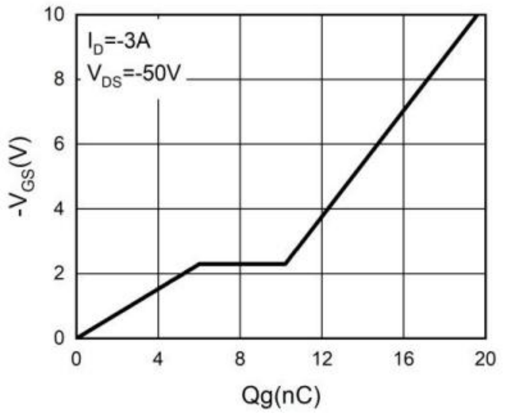


Figure 8. Capacitance

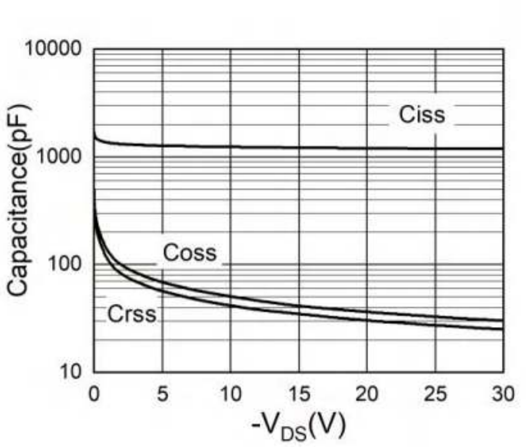


Figure 9. Body-Diode Characteristics

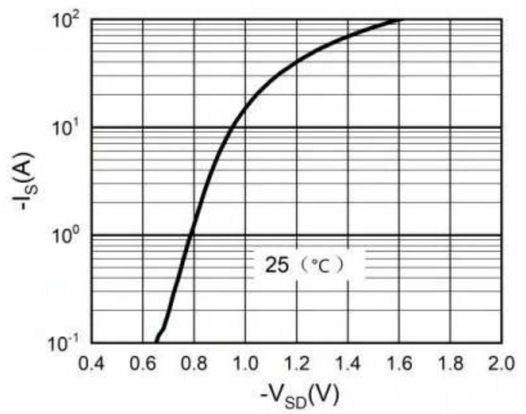


Figure 10. Maximum Safe Operating Area

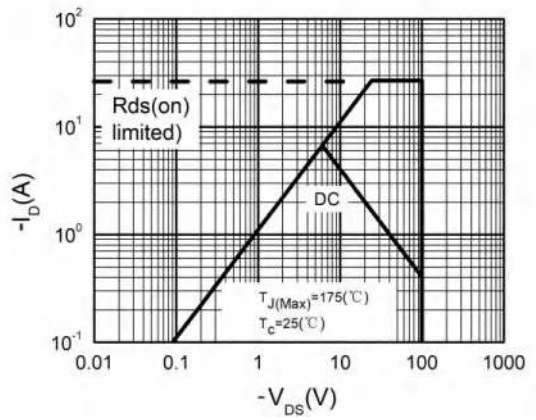
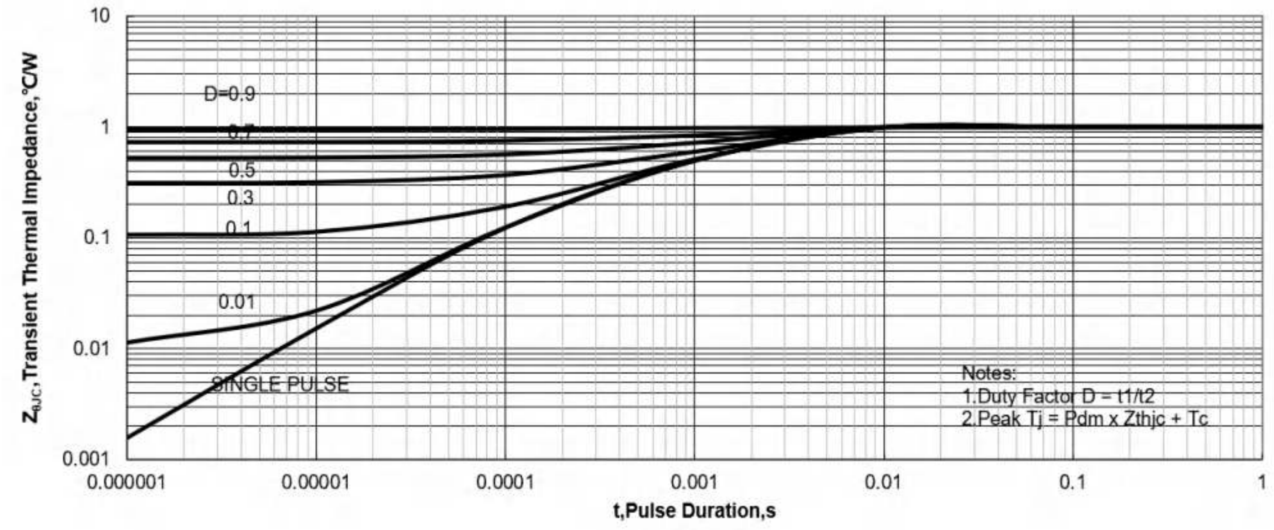
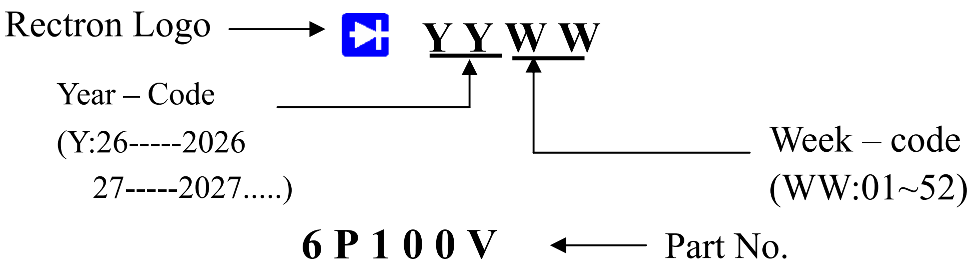


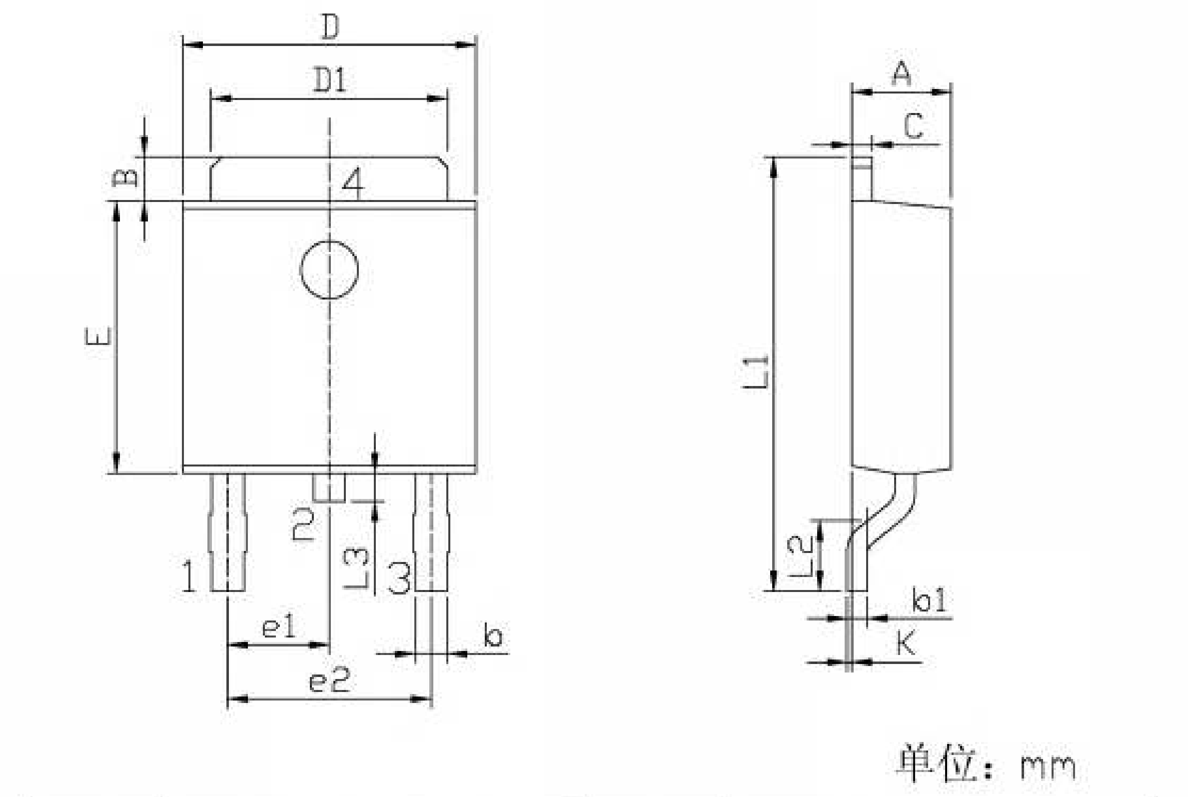
Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case



Marking on the body



Package Information TO-252



Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
A	2.20	2.40	E	5.95	6.25
B	0.95	1.25	e1	2.24	2.34
b	0.50	0.90	e2	4.43	4.73
b1	0.45	0.55	L1	9.45	9.95
C	0.45	0.55	L2	1.25	1.75
D	6.45	6.75	L3	0.60	0.90
D1	5.10	5.50	K	0.00	0.10

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