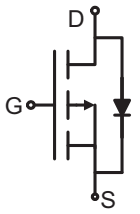
RECTRON SEMICONDUCTOR
TECHNICAL SPECIFICATION

RM5P60Y

P-Channel Enhancement Mode Power MOSFET

Description

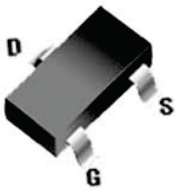
The RM5P60Y uses advanced trench technology to provide excellent $R_{DS(ON)}$, This device is suitable for use as a load switch or in PWM applications.



Schematic diagram

General Features

- V_{DS} = -60V,I_D = -5A
  $R_{DS(ON)}$ < 120mΩ @ V_{GS}=-4.5V
  $R_{DS(ON)}$ <90 mΩ @ V_{GS}=-10V
- High power and current handing capability
- Lead free product is acquired
- Surface mount package



SOT-23-3L top view

Application

- PWM applications
- Load switch
- Power management
- Halogen-free
- P/N suffix V means AEC-Q101 qualified, e.g:RM5P60YV

Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity
6P60	RM5P60Y	SOT-23-3L	Ø180mm	8 mm	3000 units

Absolute Maximum Ratings (T_A=25℃unless otherwise noted)

Symbol	Parameter	Conditions	Min	Max	Unit
V_{DS}	Drain-Source Voltage	T_A = 25 ℃	-60	-	V
V_{GS}	Gate-Source Voltage	T_A= 25 ℃	-	± 20	V
I_D	Drain Current (DC)	T_A= 25 ℃, V_{GS}= -10 V	-	- 5	A
I_{DM}*	Drain Current (Pulsed) *	T_A = 25 ℃, V_{GS}= -10 V	-	-12.8	A
P_{tot}	Drain power dissipation	T_A= 25 ℃	-	1.56	W
T_{stg}	Storage Temperature		-55	150	℃
T_J	Junction Temperature		-	150	℃
I_S	Diode Forward Current	T_A= 25 ℃	-	- 5	A
$R_{\theta JA}$**	Thermal Resistance- Junction to Ambient		-	80	℃/W
$R_{\theta JC}$***	Thermal Resistance- Junction to Case		-	2.5	

Notes：

* Pulse width ≤ 300 μs, duty cycle ≤ 2 %
** Mounted on PCB of 1 in^2 pad area
*** Mounted on Large Heat Sink

2022-05/113
REV:B

Electrical Characteristics (T =25℃unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS} 0 V, I_{DS} - 250 µA	- 60	-	-	V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} V_{GS}, I_{DS} - 250 µA	- 1.0	-	- 2.5	V
I_{DSS}	Drain Leakage Current	V_{DS} - 48V , V_{GS} 0 V	-	-	- 1.0	µA
I_{GSS}	Gate Leakage Current	V_{GS} 0 V, V_{GS} ± 20 V	-	-	±100	nA
$R_{DS(ON)}$[a]	On-State Resistance	V_{GS} - 10 V, I_{DS} - 2 A	-	80	90	mΩ
		V_{GS} - 4.5 V, I_{DS} - 1 A	-	105	120	
Diode Characteristics						
V_{SD}[a]	Diode Forward Voltage	I_{SD} - 2 A, V_{GS} 0 V	-	-	- 1.3	V
t_{rr}	Reverse Recovery Time	I_{SD} - 2 A, dI_{SD} / dt 100 A / µs	-	15	-	nS
Q_{rr}	Reverse Recovery Charge		-	13	-	nC
Dynamic Characteristics[b]						
C_{iss}	Input Capacitance	V_{GS} 0 V, V_{DS} - 30 V Frequency 1 MHz	-	934	-	pF
C_{oss}	Output Capacitance		-	44	-	
C_{rss}	Reverse Transfer Capacitance		-	37	-	
t_d(on)	Turn-on Delay Time	V_{DS} - 30 V, V_{GEN} - 10 V, R_G 4.5 Ω, R_L 15 Ω, I_{DS} - 2 A	-	8.4	-	nS
t_r	Turn-on Rise Time		-	23	-	
t_d(off)	Turn-off Delay Time		-	109	-	
t_f	Turn-off Fall Time		-	48	-	
Gate Charge Characteristics[b]						
Q_g	Total Gate Charge	V_{DS} - 30 V, V_{GS} - 10 V, I_{DS} - 2 A	-	16	-	nC
Q_{gs}	Gate-Source Charge		-	3.8	-	
Q_{gd}	Gate-Drain Charge		-	1.8	-	

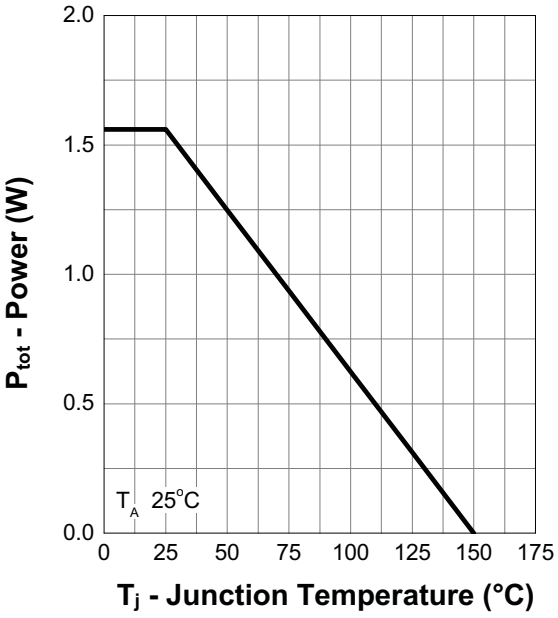
Notes :

a : Pulse test ; pulse width ≤ 300 µs, duty cycle ≤ 2%

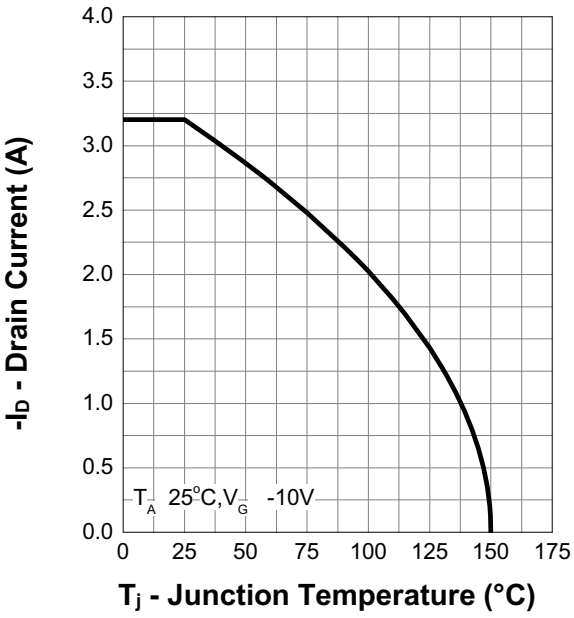
b : Guaranteed by design, not subject to production testing

RATING AND CHARACTERISTICS CURVES (RM5P60Y)

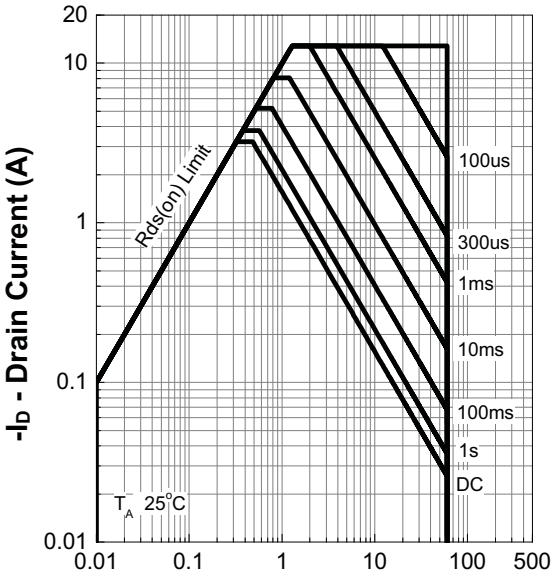
Power Capability



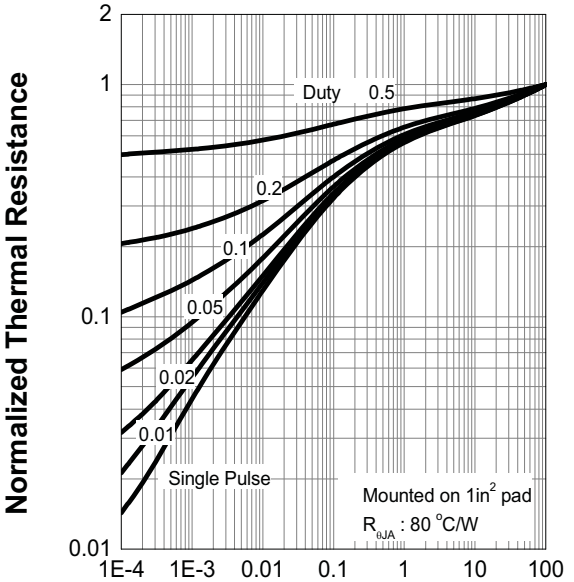
Current Capability



Safe Operation Area

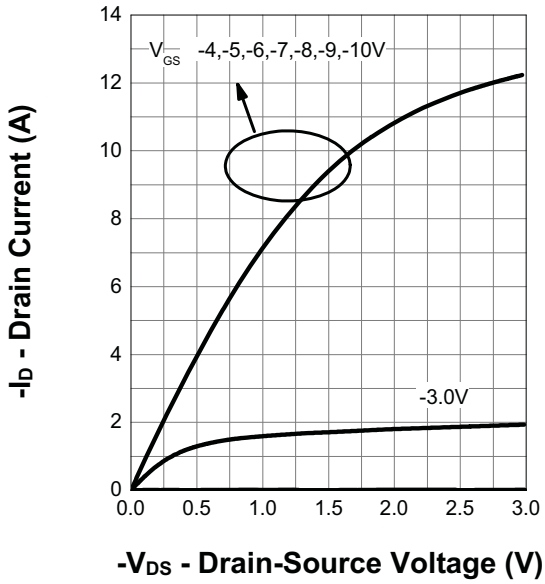


Transient Thermal Impedance

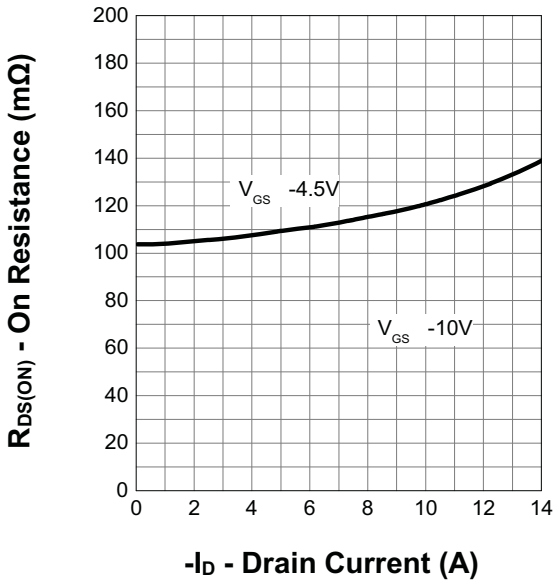


RATING AND CHARACTERISTICS CURVES (RM5P60Y)

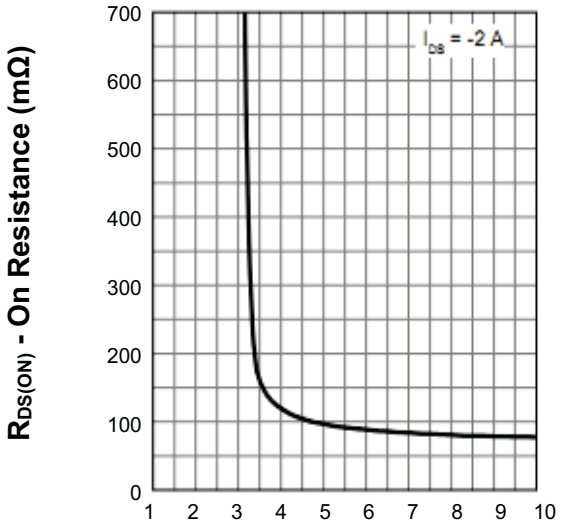
Output Characteristics



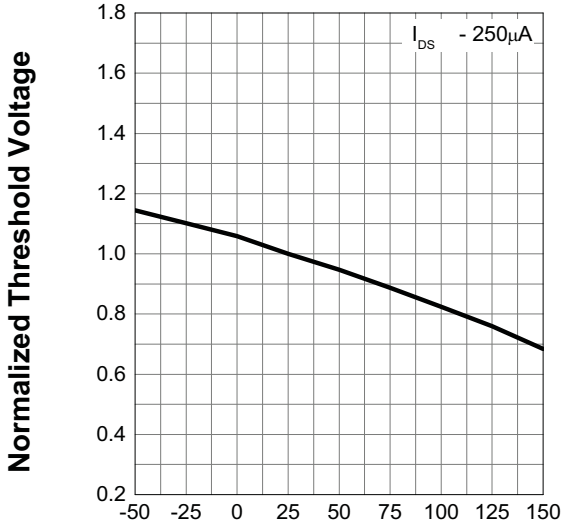
Drain-Source On Resistance



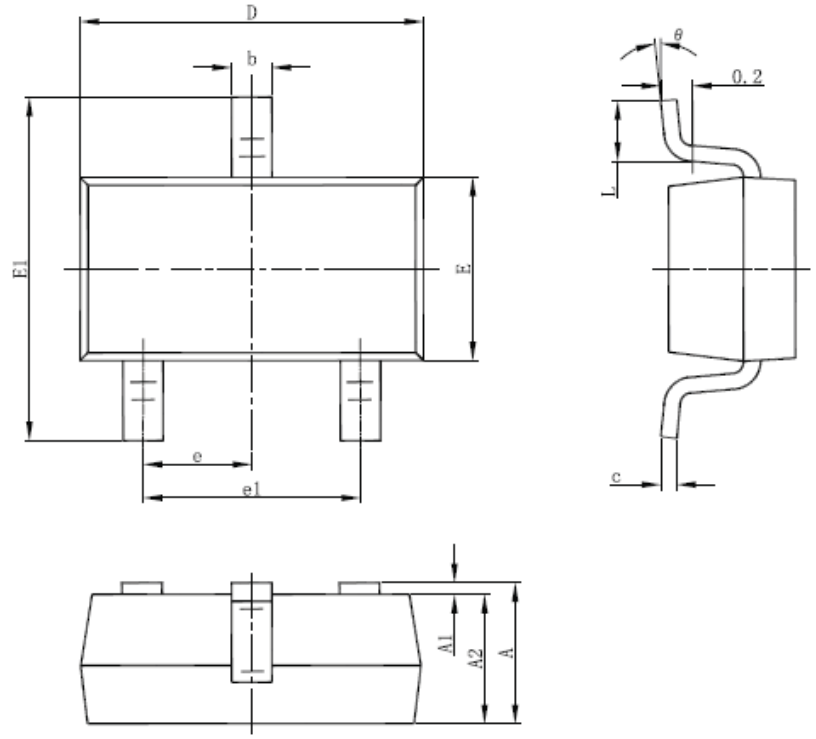
Transfer Characteristics



Normalized Threshold Voltage



SOT-23-3L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

Notes

1. All dimensions are in millimeters.
2. Tolerance ±0.10mm (4 mil) unless otherwise specified
3. Package body sizes exclude mold flash and gate burrs. Mold flash at the non-lead sides should be less than 5 mils.
4. Dimension L is measured in gauge plane.
5. Controlling dimension is millimeter, converted inch dimensions are not necessarily exact.

DISCLAIMER NOTICE

Rectron Inc reserves the right to make changes without notice to any product specification herein, to make corrections, modifications, enhancements or other changes. Rectron Inc or anyone on its behalf assumes no responsibility or liability for any errors or inaccuracies. Data sheet specifications and its information contained are intended to provide a product description only. "Typical" parameters which may be included on RECTRON data sheets and/ or specifications can and do vary in different applications and actual performance may vary over time. Rectron Inc does not assume any liability arising out of the application or use of any product or circuit.

Rectron products are not designed, intended or authorized for use in medical, life-saving implant or other applications intended for life-sustaining or other related applications where a failure or malfunction of component or circuitry may directly or indirectly cause injury or threaten a life without expressed written approval of Rectron Inc. Customers using or selling Rectron components for use in such applications do so at their own risk and shall agree to fully indemnify Rectron Inc and its subsidiaries harmless against all claims, damages and expenditures.