RECTRON SEMICONDUCTOR
TECHNICAL SPECIFICATION

RMD6P60S8

Dual P-Channel Enhancement Mosfet

Features

- P-Channel

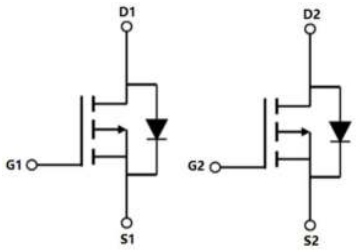
V_{DS} = -60V, I_D = -6.0A

$R_{DS(ON)}$ @V_{GS}= 10V, TYP 52mΩ

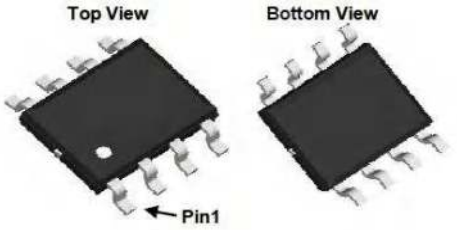
$R_{DS(ON)}$ @V_{GS}= 4.5V, TYP 65mΩ

General Description

- Motor Control
- Synchronous Rectification
- Halogen-free



Schematic Diagram



Package Marking and Ordering Information

Device Marking	Device	Device Package	Packaging Code	Reel Size	Quantity(PCS)
D6P60	RMD6P60S8	SOP-8	-W	13inch	4000

Absolute Maximum Ratings @T_A=25℃ unless otherwise noted

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current (T_a =25℃)	I_D	-6.0	A
Continuous Drain Current (T_a = 70℃)	I_D	-4.5	A
Pulsed Drain Current [1]	I_{DM}	-12	A
Power Dissipation (T_a =25℃)	P_D	3.3	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	62.5	℃/W
Junction Temperature	T_J	-55~150	℃
Storage Temperature	T_{STG}	-55~150	℃

Electrical Characteristics @T_A=25℃ unless otherwise noted

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D= -250μA	-60	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = -48V, V_{GS} = 0V	--	--	-1	μA
Gate Threshold Voltage	$V_{GS(TH)}$	V_{GS} = V_{DS}, I_{DS}= -250 μ A	-1	-1.6	-3	V
Gate Leakage Current	I_{GSS}	V_{GS}= ±20V, V_{DS}=0V	--	--	±100	nA
Drain-Source On-state Resistance	$R_{DS(on)}$	V_{GS} = -10V, I_D = -4.5A	--	52	65	mΩ
	$R_{DS(on)}$	V_{GS} = -4.5V, I_D = -3.8A	--	65	75	mΩ
Forward Transconductance	g_{FS}	V_{DS}= -10V, I_D= -3.1A	2	--	--	S
Diode Forward Voltage	V_{SD}	I_{SD}= -1A , V_{GS}=0V	--	--	-1.2	V
Diode Forward Current	I_S	T_C =25°C	--	--	-3.5	A
Switching						
Total Gate Charge	Q_g	V_{GS}=-10V, V_{DS}=-30V, I_D=-3.5A	--	11	--	nC
Gate-Source Charge	Q_{gs}		--	2.4	--	nC
Gate-Drain Charge	Q_{gd}		--	1.6	--	nC
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=-30V, V_{GS}=-10V, I_D=-1A, R_{GEN}=6Ω	--	12	--	ns
Turn-on Rise Time	t_r		--	4	--	ns
Turn-off Delay Time	$t_{d(off)}$		--	38	--	ns
Turn-Off Fall Time	t_f		--	12	--	ns
Dynamic						
Input Capacitance	C_{iss}	V_{DS}= -30V,V_{GS}=0V, f=1.0MHz	--	885	--	pF
Output Capacitance	C_{oss}		--	85	--	pF
Reverse Transfer Capacitance	C_{rss}		--	80	--	pF

A: The value of $R_{\theta JA}$ is measured with the device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A=25°C. The value in any given application depends on the user's specific board design.

B: Repetitive rating, pulse width limited by junction temperature.

C: The current rating is based on the t≤ 10s junction to ambient thermal resistance rating.

RATING AND CHARACTERISTICS CURVES (RMD6P60S8)

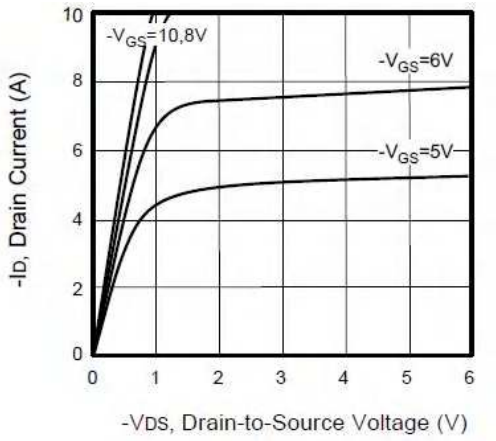


Figure 1. Output Characteristics

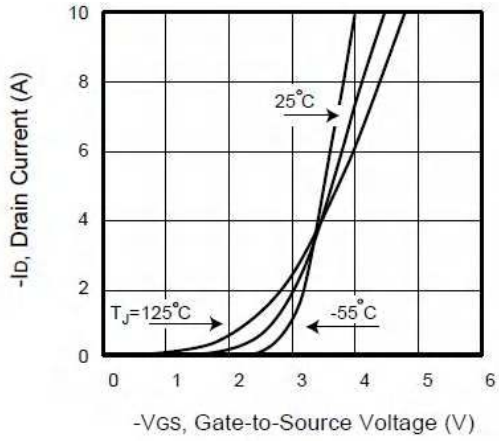


Figure 2. Transfer Characteristics

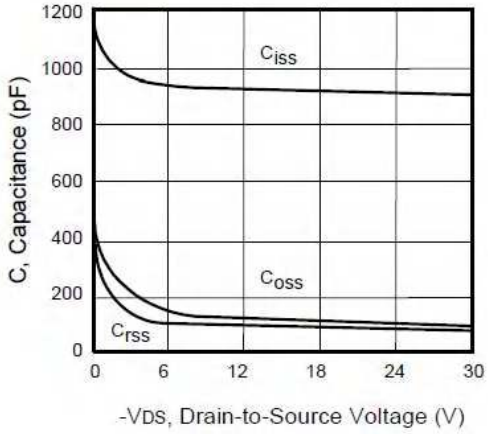


Figure 3. Capacitance

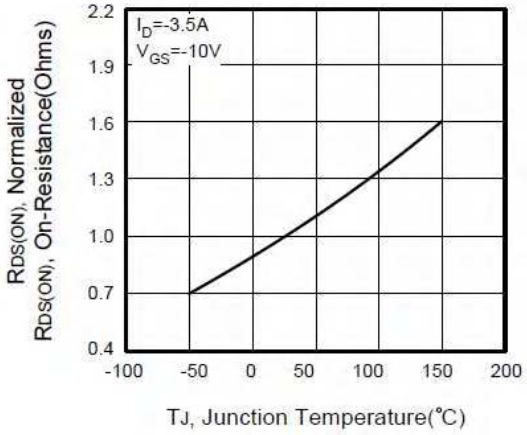


Figure 4. On-Resistance Variation with Temperature

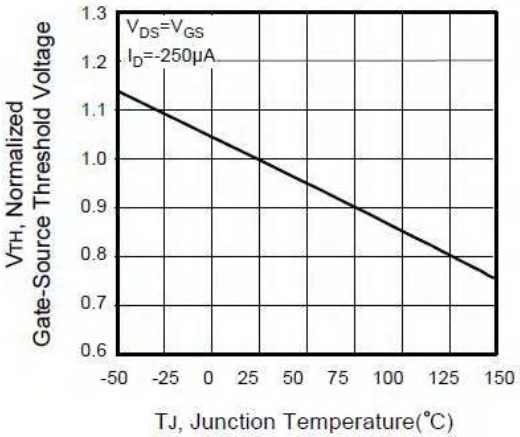


Figure 5. Gate Threshold Variation with Temperature

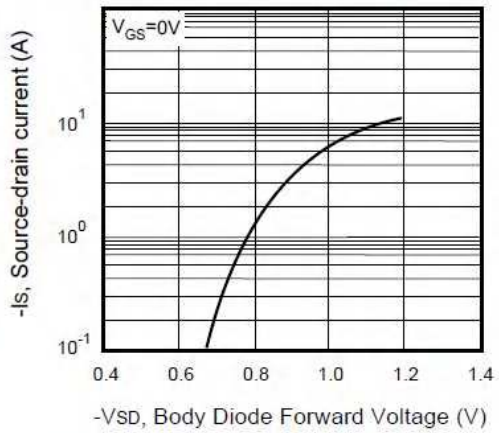


Figure 6. Body Diode Forward Voltage Variation with Source Current

RATING AND CHARACTERISTICS CURVES (RMD6P60S8)

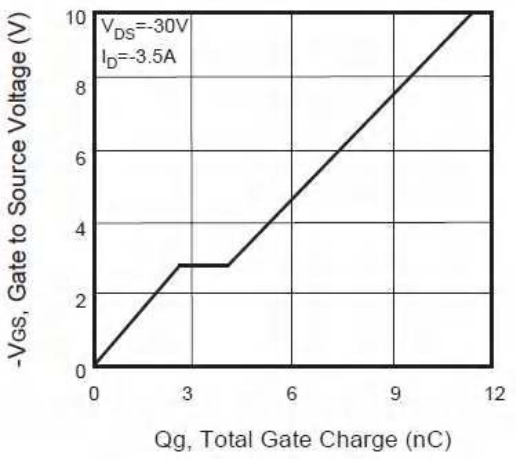


Figure 7 . Gate Charge

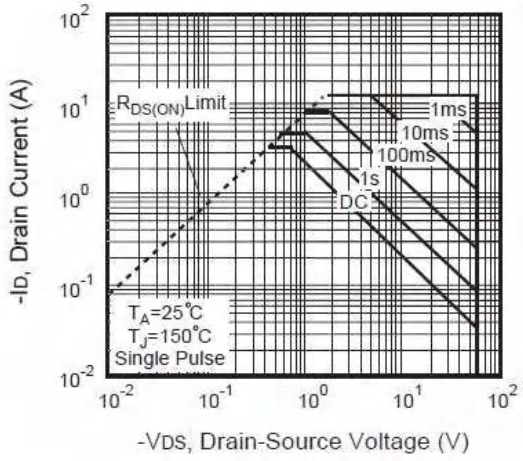


Figure 8 . Maximum Safe Operating Area

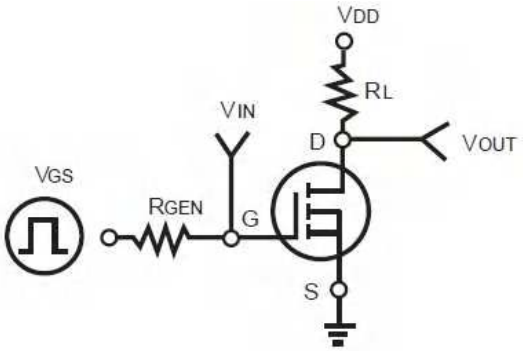


Figure 9 . Switching Test Circuit

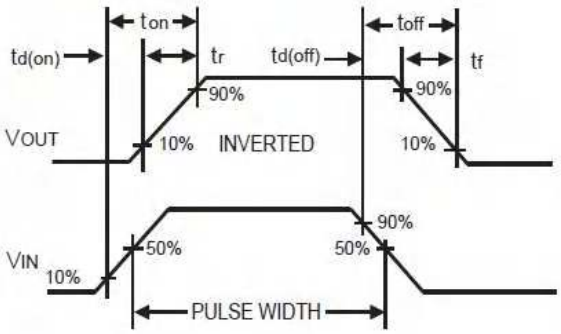


Figure 10. Switching Waveforms

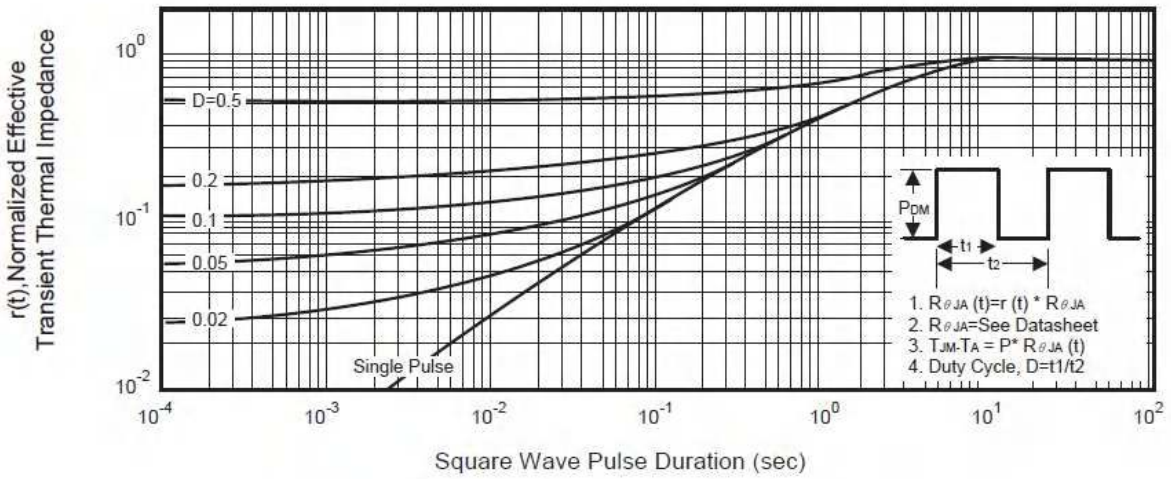
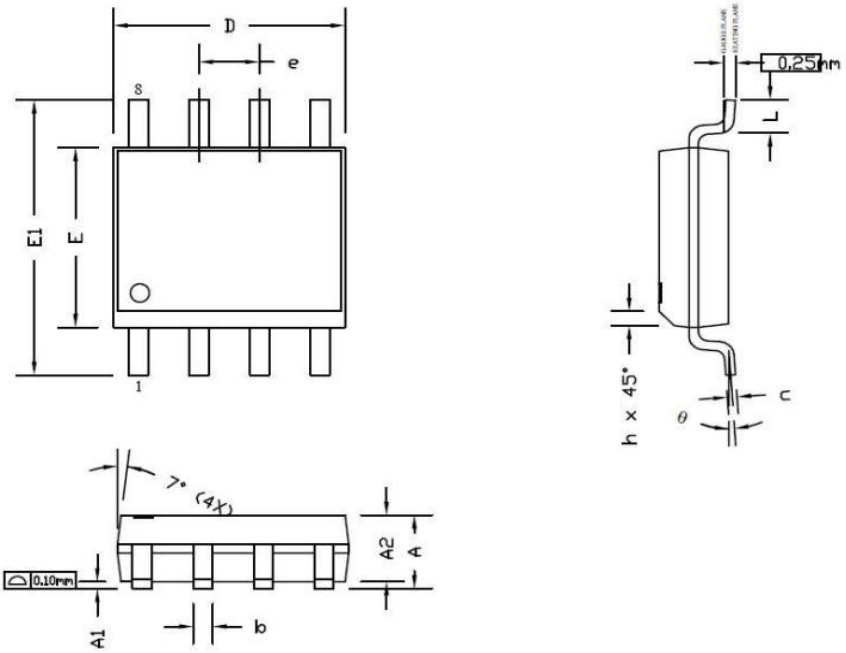
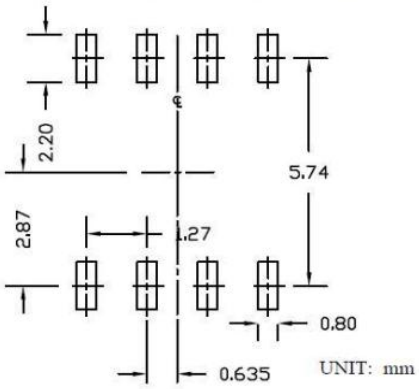


Figure 11 . Normalized Thermal Transient Impedance Curve

Package Information



RECOMMENDED LAND PATTERN



SYMBOLS	DIMENSIONS IN MILLIMETERS			DIMENSIONS IN INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	1.35	1.65	1.75	0.053	0.065	0.069
A1	0.10	0.15	0.25	0.004	0.006	0.010
A2	1.25	1.50	1.65	0.049	0.059	0.065
b	0.31	0.41	0.51	0.012	0.016	0.020
c	0.17	0.20	0.25	0.007	0.008	0.010
D	4.80	4.90	5.00	0.189	0.193	0.197
E	3.80	3.90	4.00	0.150	0.154	0.157
e	1.27 BSC			0.050 BSC		
E1	5.80	6.00	6.20	0.228	0.236	0.244
h	0.25	0.30	0.50	0.010	0.012	0.020
L	0.40	0.69	1.27	0.016	0.027	0.050
θ	0°	4°	8°	0°	4°	8°

NOTE
1. ALL DIMENSIONS ARE IN MILLMETERS.
2. DIMENSIONS ARE INCLUSIVE OF PLATING.
3. PACKAGE BODY SIZES EXCLUDE MOLD FLASH AND GATE BURRS.
   MOLD FLASH AT THE NON-LEAD SIDES SHOULD BE LESS THAN 6 MILS EACH.
4. DIMENSION L IS MEASURED IN GAUGE PLANE.
5. CONTROLLING DIMENSION IS MILLIMETER.
   CONVERTED INCH DIMENSIONS ARE NOT NECESSARILY EXACT.

RECTRON

Marking on the body

Rectron Logo → Y Y W W

Year – Code
(Y:24-----2024
25-----2025.....)

Week – code
(WW:01~52)

D 6 P 6 0 ← Part No.

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