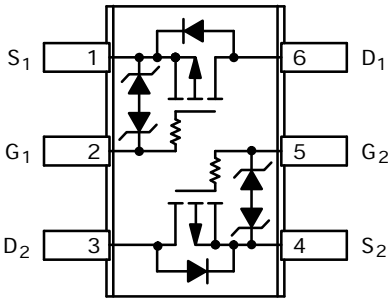
RECTRON SEMICONDUCTOR
TECHNICAL SPECIFICATION

RMD0A8P20ES9

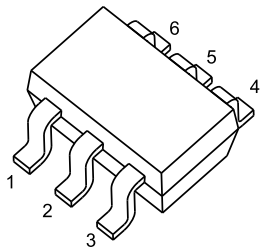
P-Channel Enhancement Mode Power MOSFET

Description

The RMD0A8P20ES9 uses advanced trench technology to provide excellent $R_{DS(ON)}$ and low gate charge . The complementary MOSFETs may be used to form a level shifted high side switch, and for a host of other applications.



Top View



SOT-363

General Features

- V_{DS} = -20V,I_D = -0.8A
  $R_{DS(ON)}$ < 800 mΩ @ V_{GS}=-4.5V
  $R_{DS(ON)}$ <1200mΩ @ V_{GS}=-2.5V
- High power and current handing capability
- Lead free product is acquired
- Surface mount package
- Halogen-free
- P/N suffix V means AEC-Q101 qualified, e.g:RMD0A8P20ES9V

Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity
0A8P20	RMD0A8P20ES9	SOT-363-6L	Ø180mm	8mm	3000units

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

Parameter		Symbol	P-Channel	Unit
Drain-Source Voltage		V_{DS}	-20	V
Gate-Source Voltage		V_{GS}	±12	V
Continuous Drain Current	T_A=25℃	I_D	-0.8	A
Pulsed Drain Current (Note 1)		I_{DM}	-4	A
Maximum Power Dissipation	T_A=25℃	P_D	0.8	W
Operating Junction and Storage Temperature Range		T_J,T_{STG}	-55 To 150	℃

Thermal Characteristic

Thermal Resistance,Junction-to-Ambient	$R_{\theta JA}$	156	℃/W

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Electrical Characteristics (T_A =25 °C 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	-20	-	-	V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_{DS} = -250 µA	-0.3	-0.65	-1.0	V
I_{DSS}	Drain Leakage Current	V_{DS} = -20 V, V_{GS} = 0 V	-	-	-1	µA
		T_J = 85 °C	-	-	-30	µA
I_{GSS}	Gate Leakage Current	V_{GS} = ± 8 V, V_{DS} = 0 V	-	-	± 10	µA
$R_{DS(ON)}$[a]	On-State Resistance	V_{GS} = -4.5 V, I_{DS} = -0.5 A	-	0.85	1.2	Ω
		V_{GS} = -2.5 V, I_{DS} = -0.2 A	-	1.05	1.5	
		V_{GS} = -1.5V , I_{DS} = -0.04A	-	1.5	-	
		V_{GS} = -1.2V , I_{DS} = -0.01A	-	2	-	
Diode Characteristics						
V_{SD}[a]	Diode Forward Voltage	I_{SD} = -0.5 A, V_{GS} = 0 V	-	-	1.3	V
t_{rr}	Reverse Recovery Time	I_{SD} = -0.5 A, dI_{SD} / dt = 100 A / µs	-	70	-	ns
Q_{rr}	Reverse Recovery Charge		-	68	-	nC
Dynamic Characteristics[b]						
C_{iss}	Input Capacitance	V_{GS} = 0 V, V_{DS} = -10 V Frequency = 1 MHz	-	87	-	pF
C_{oss}	Output Capacitance		-	15	-	
C_{rss}	Reverse Transfer Capacitance		-	8.2	-	
t_d(on)	Turn-on Delay Time	V_{DS} = -30 V, V_{GEN} = -10 V, R_G = 25 Ω, R_L = 60 Ω, I_{DS} = -0.67 A	-	5.6	-	ns
t_r	Turn-on Rise Time		-	5.3	-	
t_d(off)	Turn-off Delay Time		-	30	-	
t_f	Turn-off Fall Time		-	21	-	
Q_g	Total Gate Charge	V_{GS} = -4.5 V, V_{DS} = -10 V, I_{DS} = -0.67 A	-	1.8	-	nC
Q_{gs}	Gate-Source Charge		-	0.82	-	
Q_{gd}	Gate-Drain Charge		-	0.59	-	

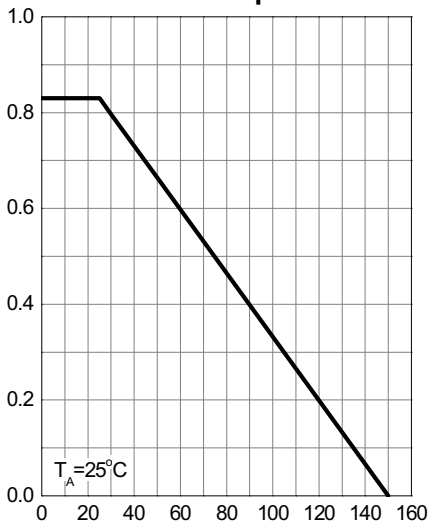
Notes：

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

b : Guaranteed by design, not subject to production testing

RATING AND CHARACTERISTICS CURVES (RMP0A8P20ES9)

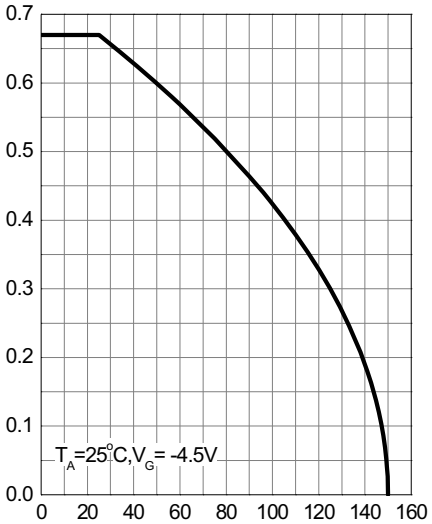
Power Dissipation



P_{tot} - Power (W)

T_j - Junction Temperature (°C)

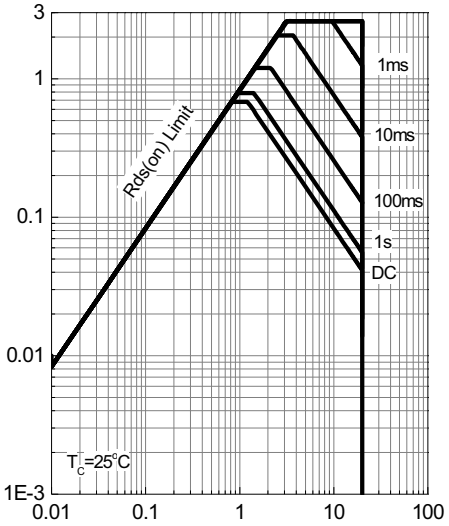
Drain Current



I_D - Drain Current (A)

T_j - Junction Temperature (°C)

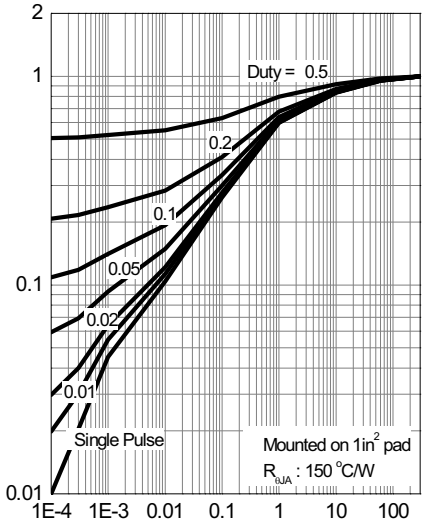
Safe Operation Area



I_D - Drain Current (A)

$-V_{DS}$ - Drain-Source Voltage (V)

Thermal Transient Impedance

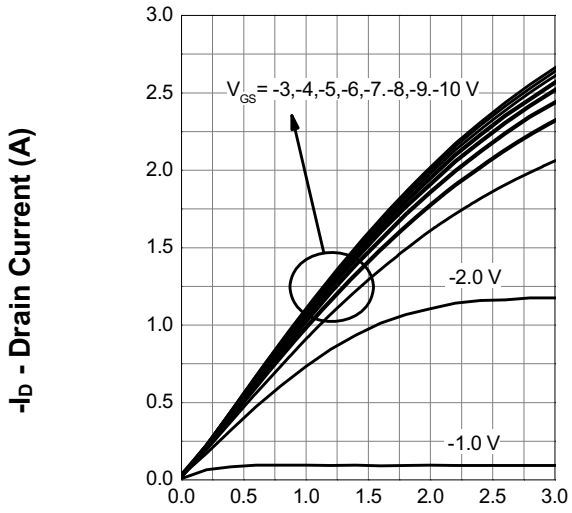


Normalized Effective Transient

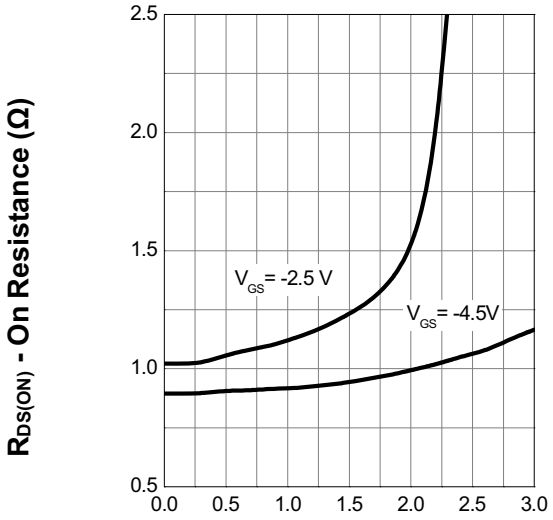
Square Wave Pulse Duration (sec)

RATING AND CHARACTERISTICS CURVES (RMP0A8P20ES9)

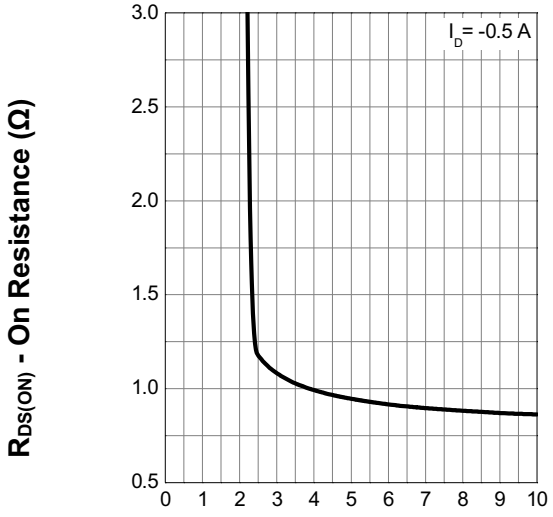
Output Characteristics



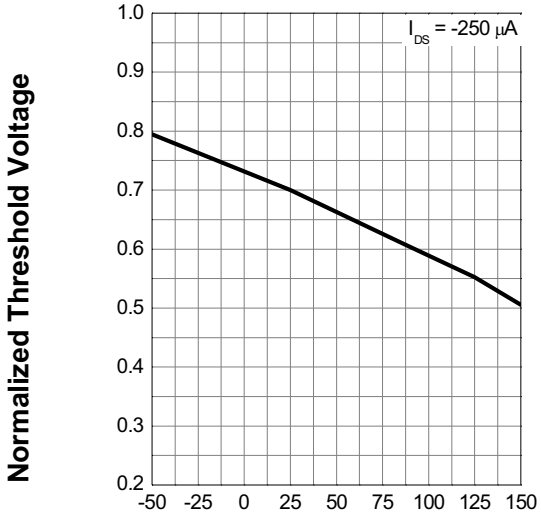
Drain-Source On Resistance



Transfer Characteristics

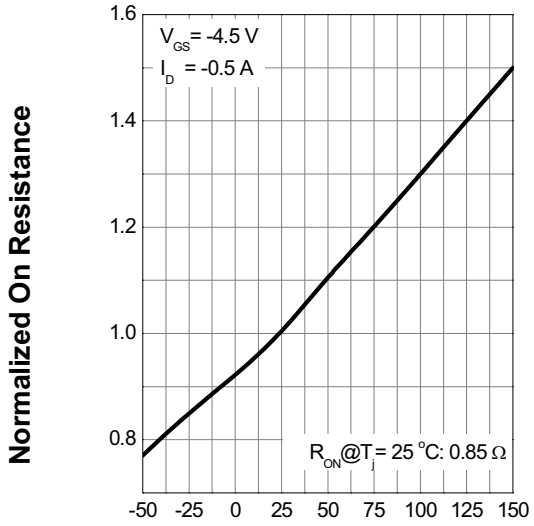


Gate Threshold Voltage

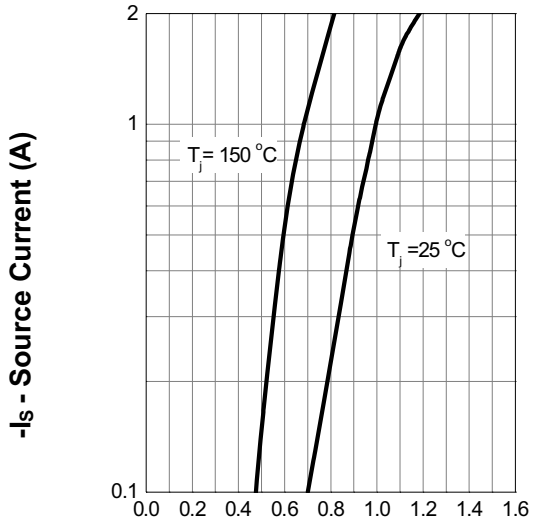


RATING AND CHARACTERISTICS CURVES (RMP0A8P20ES9)

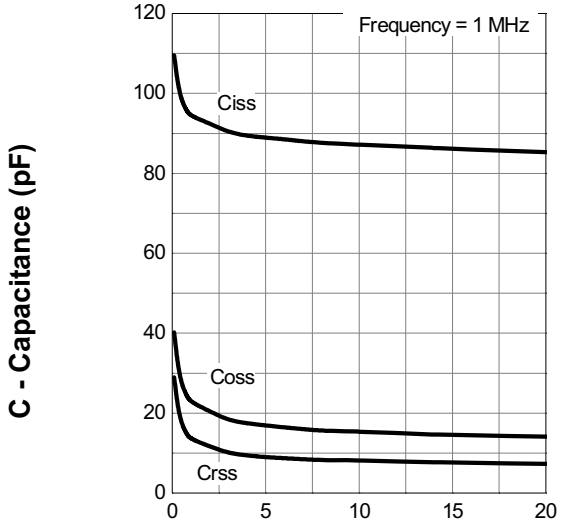
Drain-Source On Resistance



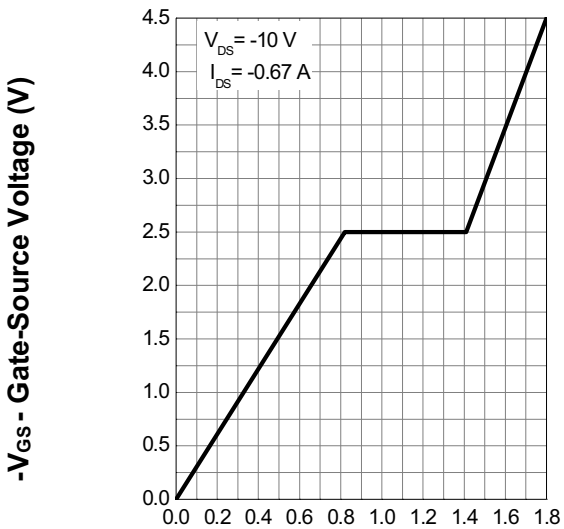
Source-Drain Diode Forward



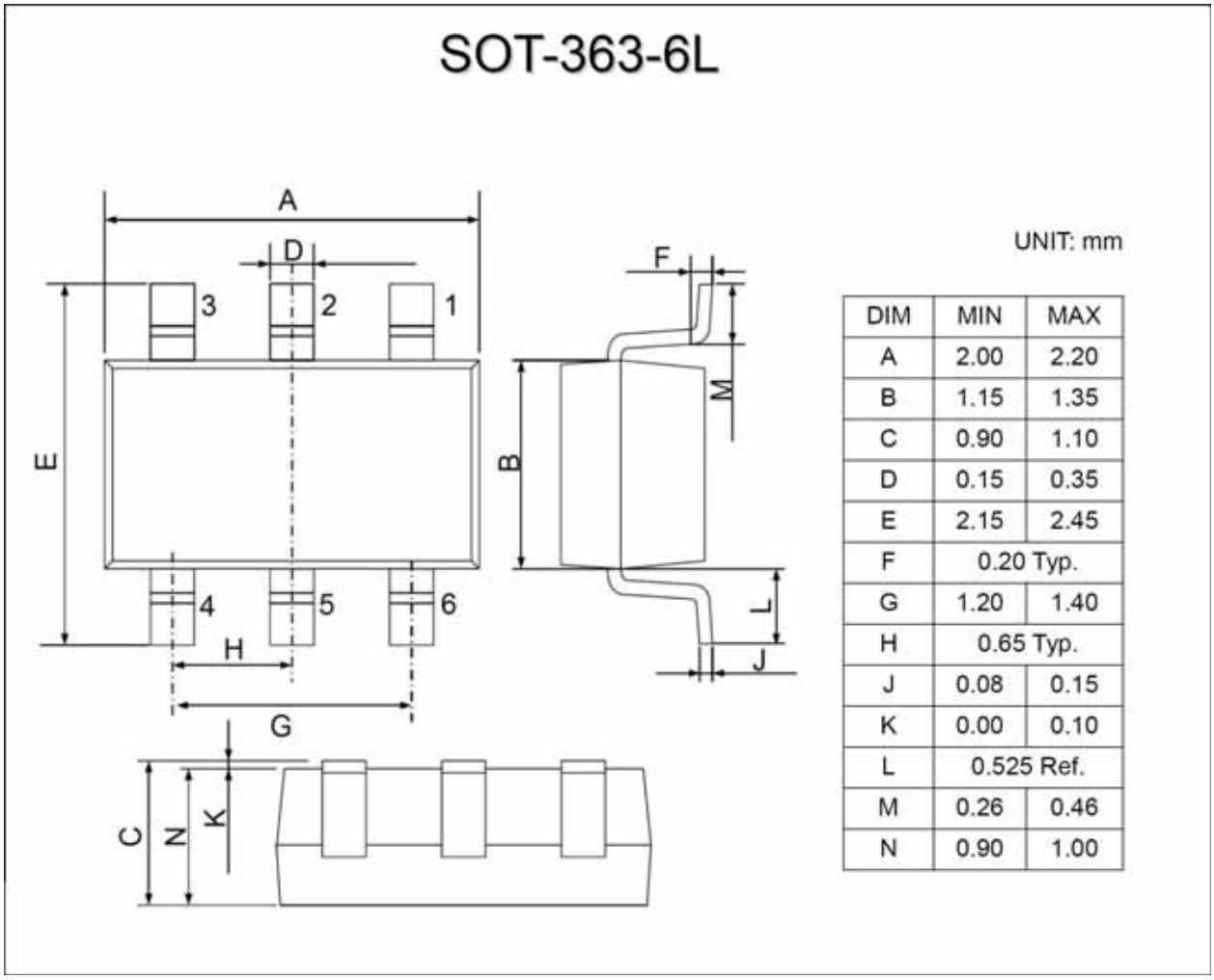
Capacitance



Gate Charge



Package Dimensions



DIM	MIN	MAX
A	2.00	2.20
B	1.15	1.35
C	0.90	1.10
D	0.15	0.35
E	2.15	2.45
F	0.20 Typ.	
G	1.20	1.40
H	0.65 Typ.	
J	0.08	0.15
K	0.00	0.10
L	0.525 Ref.	
M	0.26	0.46
N	0.90	1.00

PKG	Reel	Box	pcs/reel	reel/box	pcs/box	box/carton	pcs/carton
SOT363	7”		3000	10	30000	4	120000

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