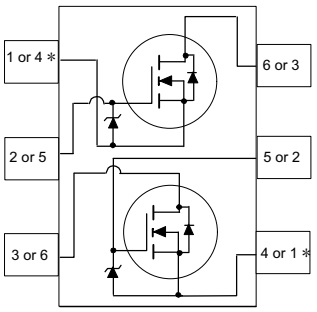
RECTRON SEMICONDUCTOR
TECHNICAL SPECIFICATION

RMD1N25ES9

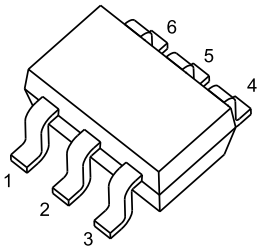
N-Channel Enhancement Mode Power MOSFET

Description

The RMD1N25ES9 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} = 25V,I_D =1.1A
  $R_{DS(ON)}$ < 550 mΩ @ V_{GS}=4.5V
  $R_{DS(ON)}$ < 650 mΩ @ 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:RMD1N25ES9V

Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity
1N25	RMD1N25ES9	SOT-363	Ø180mm	8mm	3000units

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

Parameter		Symbol		Unit
Drain-Source Voltage		V_{DS}	25	V
Gate-Source Voltage		V_{GS}	±12	V
Continuous Drain Current	T_A=25℃	I_D	1.1	A
Pulsed Drain Current (Note 1)		I_{DM}	5	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

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	25	-	-	V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_{DS} = 250 µA	0.4	0.7	1.1	V
I_{DSS}	Drain Leakage Current	V_{DS} = 25 V, V_{GS} = 0 V	-	-	1	µA
		T_J = 85 °C	-	-	30	µA
I_{GSS}	Gate Leakage Current	V_{GS} = ± 10 V, V_{DS} = 0 V	-	-	± 10	µA
$R_{DS(ON)}$[a]	On-State Resistance	V_{GS} = 4.5 V, I_{DS} = 0.5 A	-	0.5	0.6	Ω
		V_{GS} = 2.5 V, I_{DS} = 0.2 A	-	0.55	0.7	
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	-	40	-	ns
Q_{rr}	Reverse Recovery Charge		-	39	-	nC
Dynamic Characteristics[b]						
C_{iss}	Input Capacitance	V_{GS} = 0 V, V_{DS} = 10 V Frequency = 1 MHz	-	30	-	pF
C_{oss}	Output Capacitance		-	3	-	
C_{rss}	Reverse Transfer Capacitance		-	1	-	
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} = 0.95 A	-	3.6	-	ns
t_r	Turn-on Rise Time		-	3.3	-	
t_d(off)	Turn-off Delay Time		-	20	-	
t_f	Turn-off Fall Time		-	11	-	
Q_g	Total Gate Charge	V_{GS} = 4.5 V, V_{DS} = 10 V, I_{DS} = 0.95 A	-	0.6	-	pC
Q_{gs}	Gate-Source Charge		-	0.26	-	
Q_{gd}	Gate-Drain Charge		-	0.17	-	

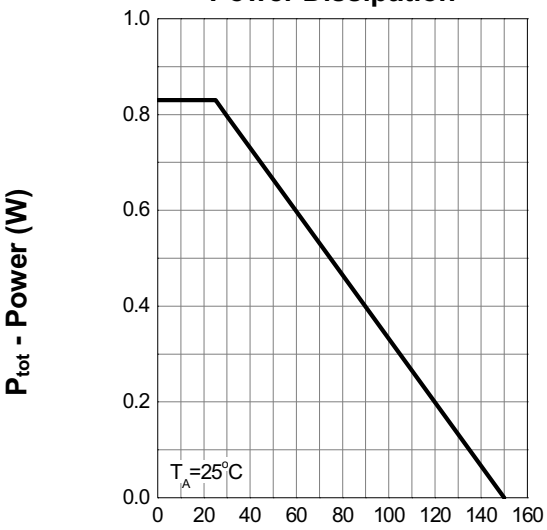
Notes :

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

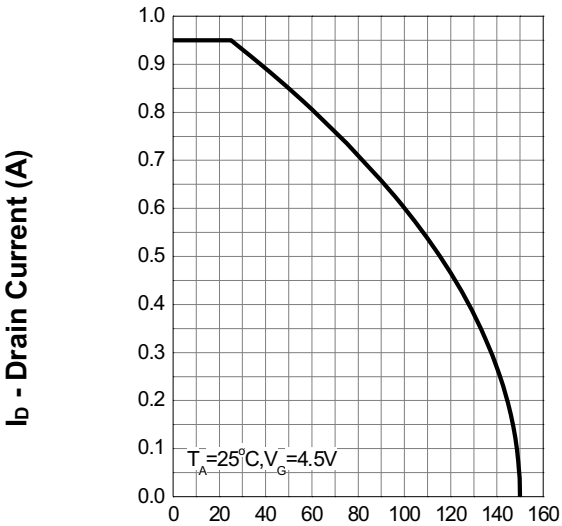
b : Guaranteed by design, not subject to production testing

RATING AND CHARACTERISTICS CURVES (RMD1N25ES9)

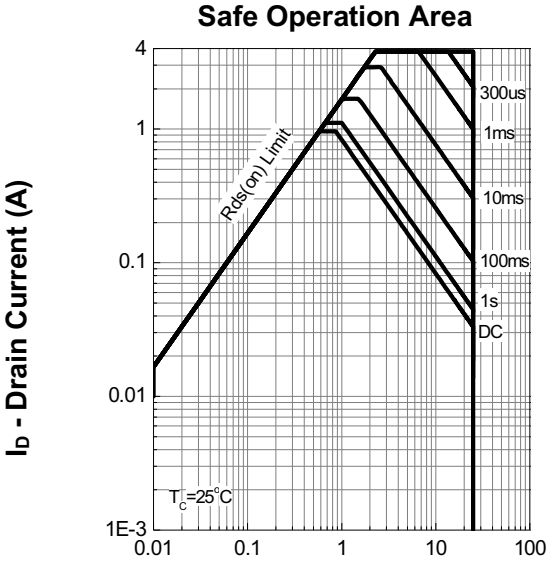
Power Dissipation



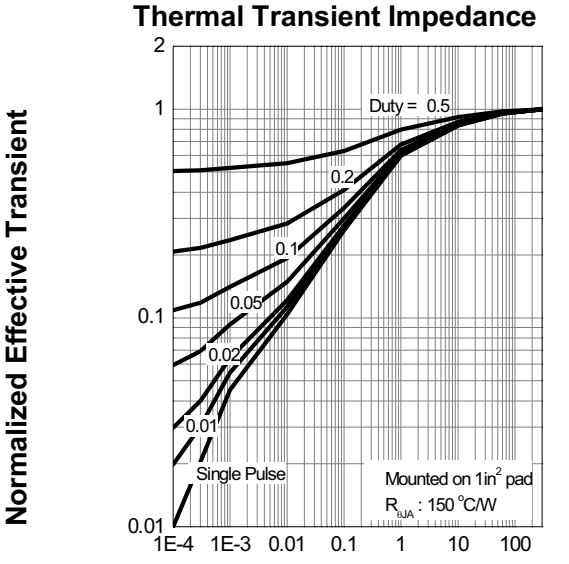
Drain Current



Safe Operation Area

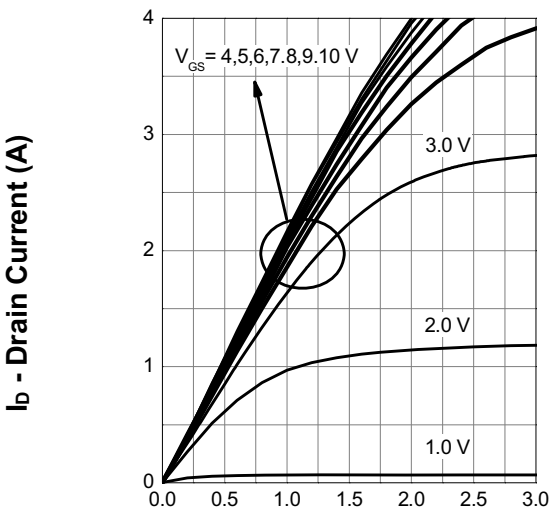


Thermal Transient Impedance

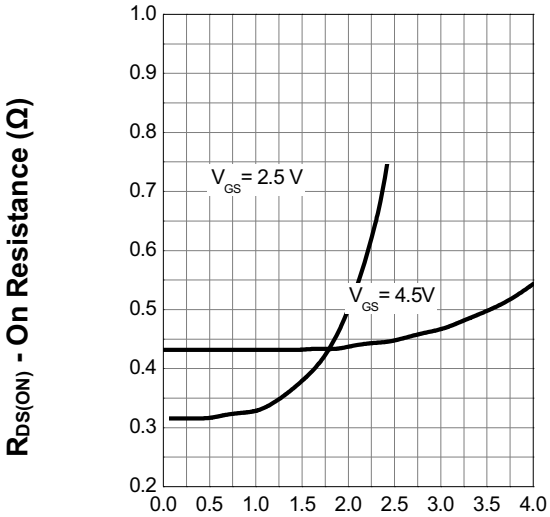


RATING AND CHARACTERISTICS CURVES (RMD1N25ES9)

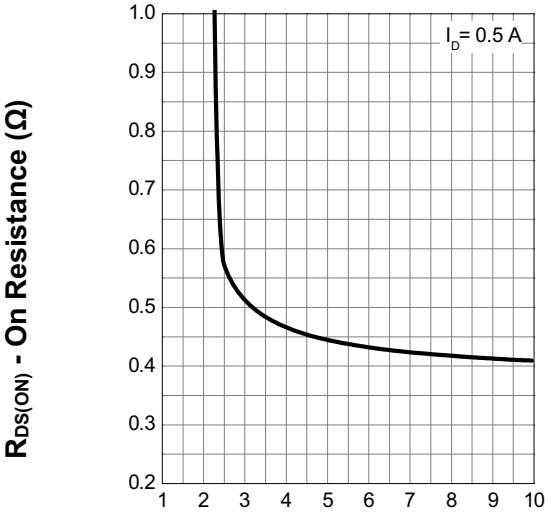
Output Characteristics



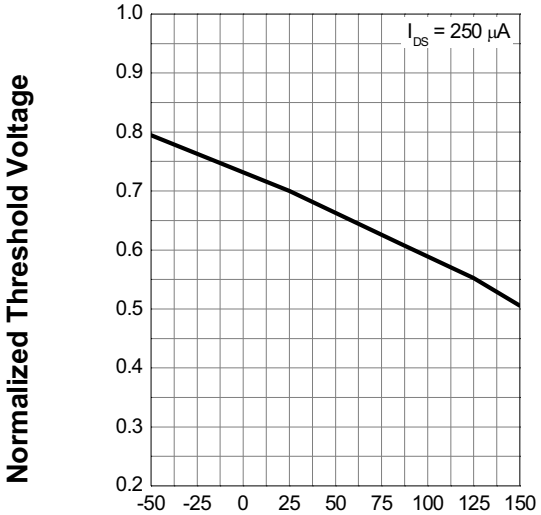
Drain-Source On Resistance



Transfer Characteristics

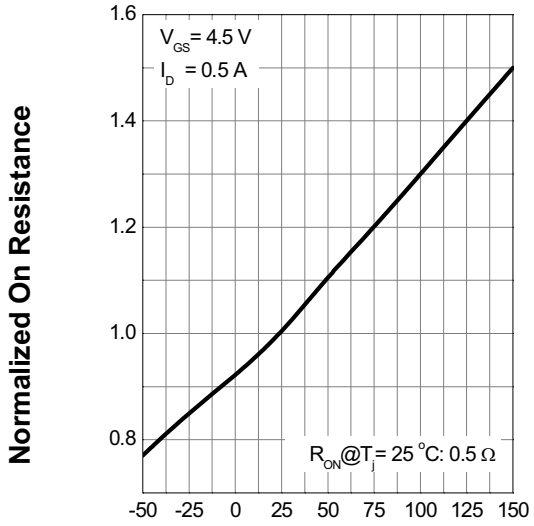


Gate Threshold Voltage

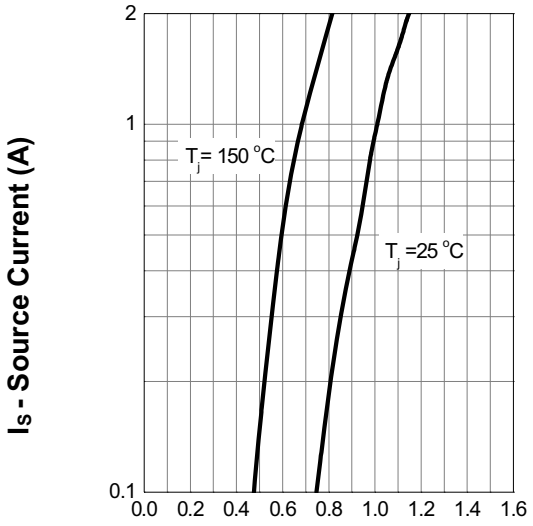


RATING AND CHARACTERISTICS CURVES (RMD1N25ES9)

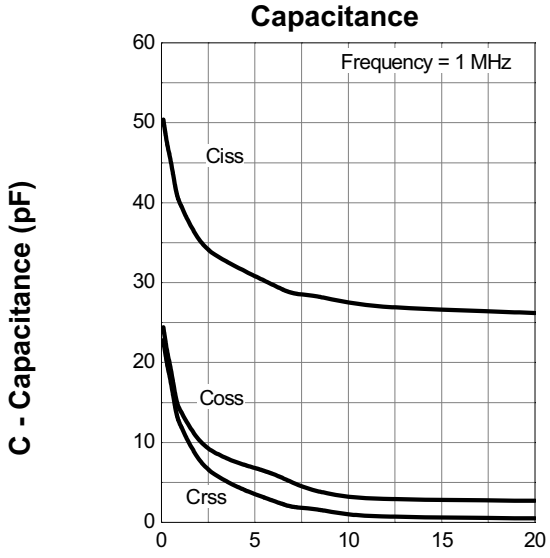
Drain-Source On Resistance



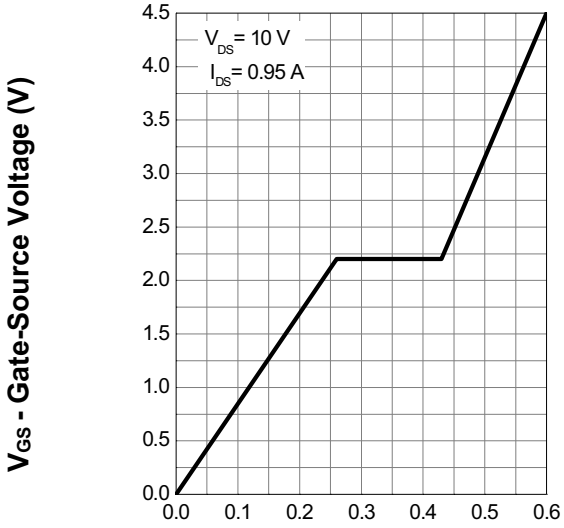
Source-Drain Diode Forward



Capacitance

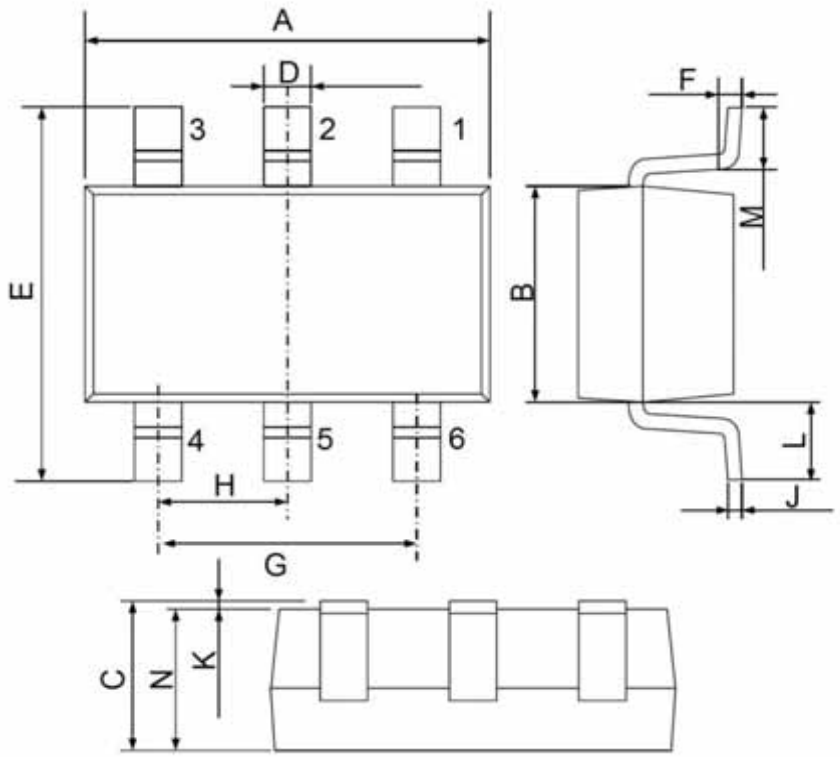


Gate Charge



Package Dimensions

SOT-363-6L



UNIT: mm

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

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.