

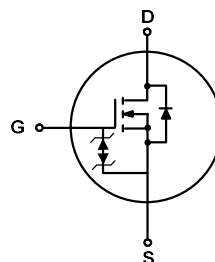
## P-Channel Enhancement Mode Power MOSFET

### General Features

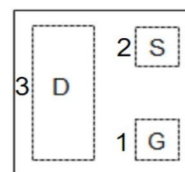
- $V_{DS} = -30V, I_D = -0.36A$   
 $R_{DS(ON)} < 2.5\Omega @ V_{GS} = -4.5V$   
 $R_{DS(ON)} < 2.9\Omega @ V_{GS} = -2.5V$   
 $R_{DS(ON)} < 5.0\Omega @ V_{GS} = -1.8V$
- Surface-mounted package
- Advanced trench cell design
- Extremely low threshold voltage
- ESD protected

### Application

- Portable appliances
- Halogen-free



Schematic diagram



Top view  
DFN0606-3L

### Package Marking and Ordering Information

Device Marking	Device	Device Package	Packaging Code	Reel Size	Quantity(PCS)
C2	RM04P30ED06	DFN0606-3L	-T	7inch	10000

### Absolute Maximum Ratings ( $T_A = 25^\circ C$ unless otherwise noted)

Symbol	Parameter	Conditions	Min	Max	Unit
$V_{DS}$	Drain-Source Voltage	$T_A = 25^\circ C$	-	-30	V
$V_{GS}$	Gate-Source Voltage	$T_A = 25^\circ C$	-	$\pm 10$	V
$I_D^*$	Drain Current	$T_A = 25^\circ C, V_{GS} = -4.5 V$	-	-0.36	A
$I_{DM}^{*,**}$	Pulsed Drain Current	$T_A = 25^\circ C, V_{GS} = -4.5 V$	-	-1.4	A
$P_{tot}^*$	Total Power Dissipation	$T_A = 25^\circ C$	-	0.5	W
		$T_A = 100^\circ C$	-	0.2	
$T_{stg}$	Storage Temperature		-55	150	$^\circ C$
$T_J$	Junction Temperature		-	150	$^\circ C$
$I_S^*$	Diode Forward Current	$T_A = 25^\circ C$	-	-0.36	A
$R_{\theta JA}^*$	Thermal Resistance- Junction to Ambient		-	250	$^\circ C / W$

Notes :

- \* Surface Mounted on 1 in<sup>2</sup> pad area,  $t \leq 10$  sec
- \*\* Pulse width  $\leq 300 \mu s$ , duty cycle  $\leq 2\%$

**Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise noted)**

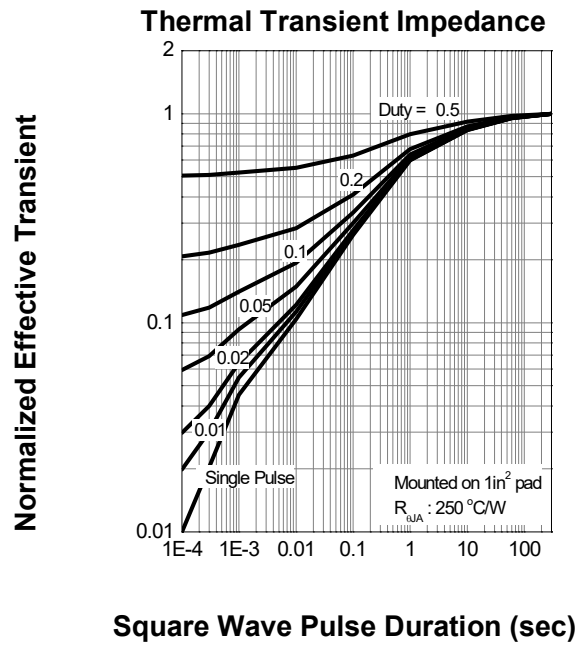
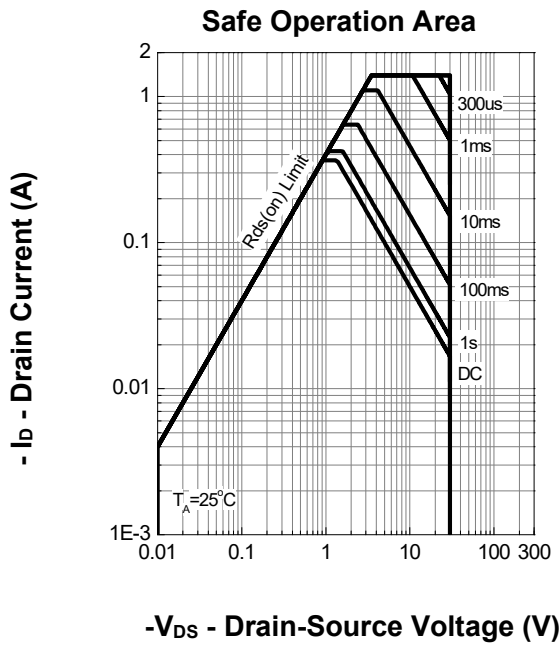
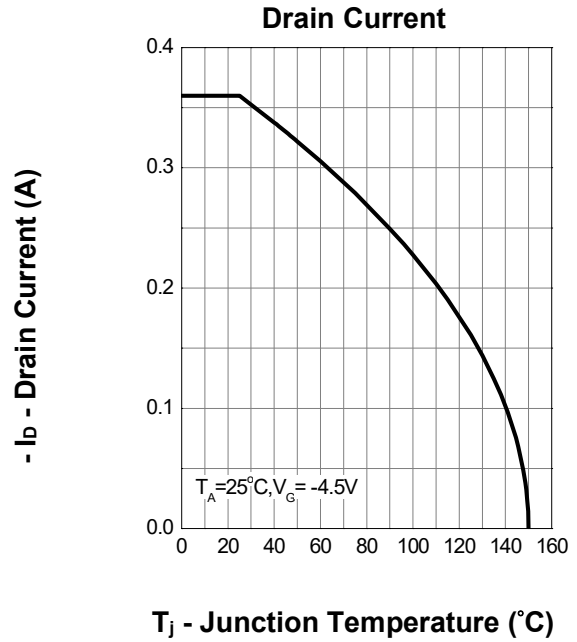
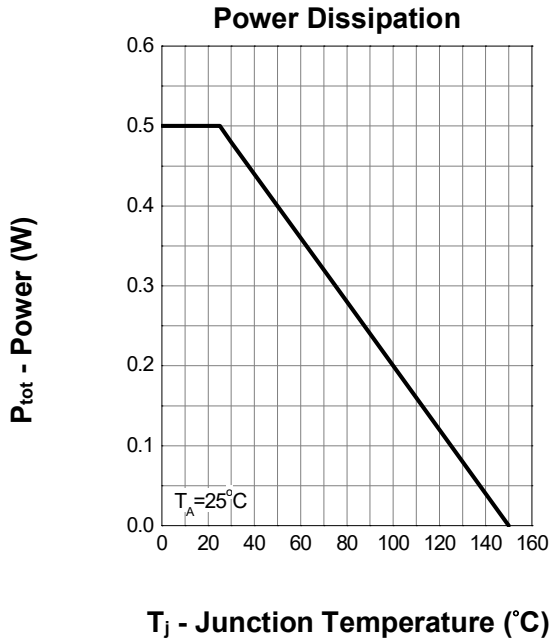
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
<b>Static Characteristics</b>						
B <sub>V</sub> DSS	Drain-Source Breakdown Voltage	V <sub>GS</sub> = 0 V, I <sub>DS</sub> = - 250 μA	- 30	-	-	V
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>DS</sub> = - 250 μA	- 0.4	- 0.7	- 1.0	V
I <sub>DSS</sub>	Drain Leakage Current	V <sub>DS</sub> = - 24 V, V <sub>GS</sub> = 0 V	-	-	- 1	μA
		T <sub>J</sub> = 85 °C	-	-	- 30	μA
I <sub>GSS</sub>	Gate Leakage Current	V <sub>GS</sub> = ± 8 V, V <sub>DS</sub> = 0 V	-	-	± 10	μA
R <sub>DS(ON)</sub> <sup>a</sup>	On-State Resistance	V <sub>GS</sub> = - 4.5 V, I <sub>DS</sub> = - 0.3 A	-	1.7	2.5	Ω
		V <sub>GS</sub> = - 2.5 V, I <sub>DS</sub> = - 0.2 A	-	2	2.9	
		V <sub>GS</sub> = - 1.8V, I <sub>DS</sub> = - 0.1A	-	2.8	5	
<b>Diode Characteristics</b>						
V <sub>SD</sub> <sup>a</sup>	Diode Forward Voltage	I <sub>SD</sub> = - 0.3 A, V <sub>GS</sub> = 0 V	-	-	1.3	V
t <sub>rr</sub>	Reverse Recovery Time	I <sub>SD</sub> = - 0.1 A, dI <sub>SD</sub> /dt = 100 A/μs	-	42	-	ns
Q <sub>rr</sub>	Reverse Recovery Charge		-	41	-	nC
<b>Dynamic Characteristics<sup>b</sup></b>						
C <sub>iss</sub>	Input Capacitance	V <sub>GS</sub> = 0 V, V <sub>DS</sub> = - 10 V Frequency = 1 MHz	-	32	-	pF
C <sub>oss</sub>	Output Capacitance		-	6	-	
C <sub>rss</sub>	Reverse Transfer Capacitance		-	5	-	
t <sub>d(on)</sub>	Turn-on Delay Time	V <sub>DS</sub> = - 10 V, V <sub>GEN</sub> = - 4.5 V, R <sub>G</sub> = 6 Ω, R <sub>L</sub> = 150 Ω, I <sub>DS</sub> = - 0.1 A	-	3.4	-	ns
t <sub>r</sub>	Turn-on Rise Time		-	13	-	
t <sub>d(off)</sub>	Turn-off Delay Time		-	37	-	
t <sub>f</sub>	Turn-off Fall Time		-	23	-	
<b>Gate Charge Characteristics</b>						
Q <sub>g</sub>	Total Gate Charge	V <sub>GS</sub> = - 4.5 V, V <sub>DS</sub> = - 10 V, I <sub>DS</sub> = - 0.1 A	-	1.22	-	nC
Q <sub>gs</sub>	Gate-Source Charge		-	0.33	-	
Q <sub>gd</sub>	Gate-Drain Charge		-	0.22	-	

**Notes :**

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

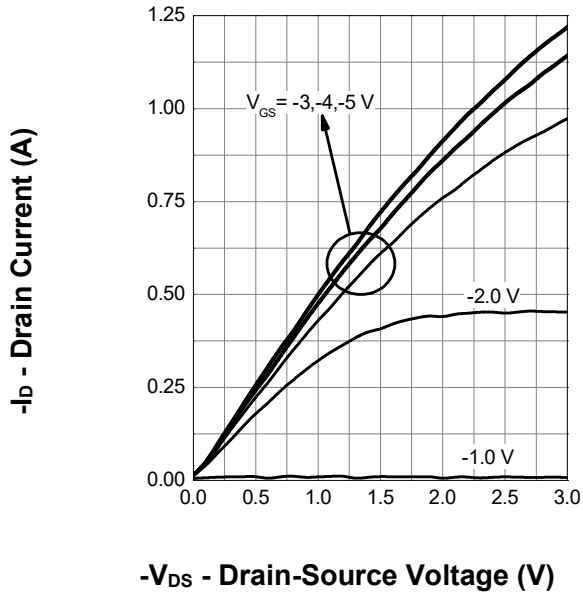
b : Guaranteed by design, not subject to production testing

## RATING AND CHARACTERISTICS CURVES (RM04P30ED06)

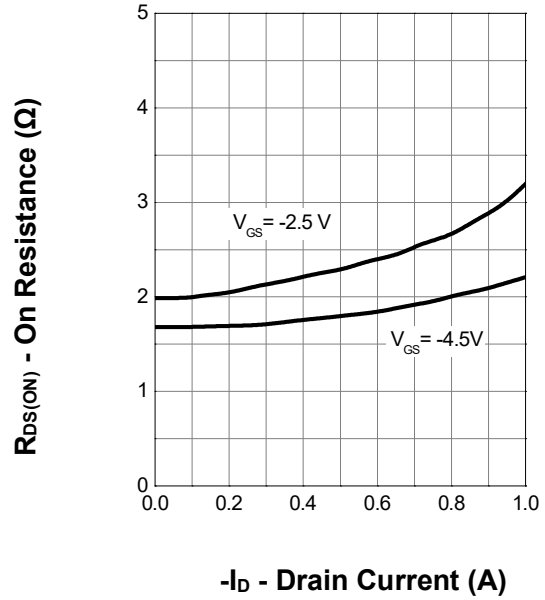


# RATING AND CHARACTERISTICS CURVES (RM04P30ED06)

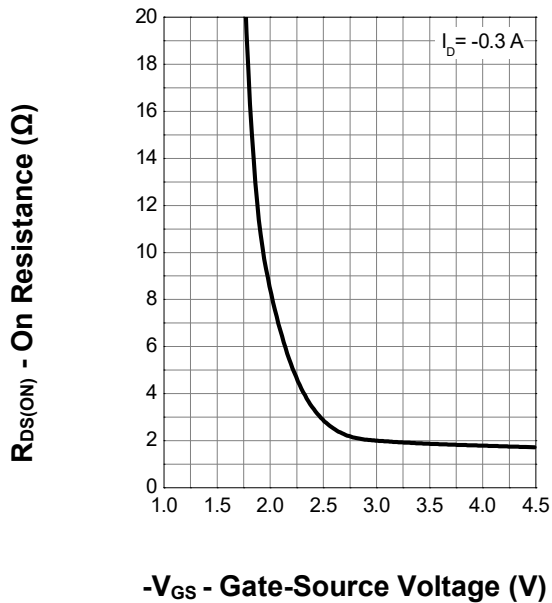
**Output Characteristics**



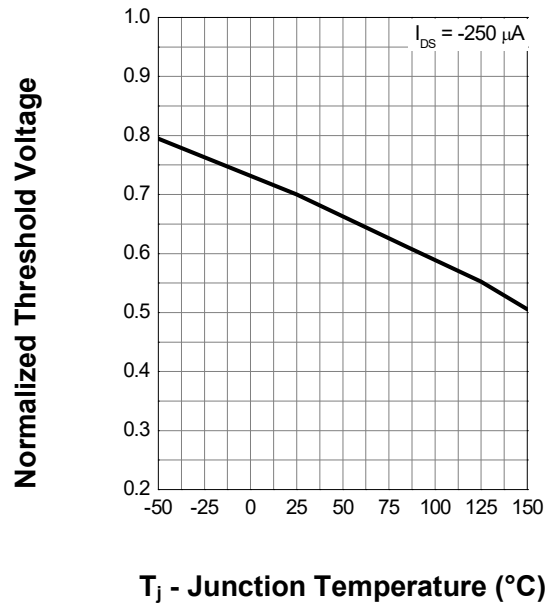
**Drain-Source On Resistance**



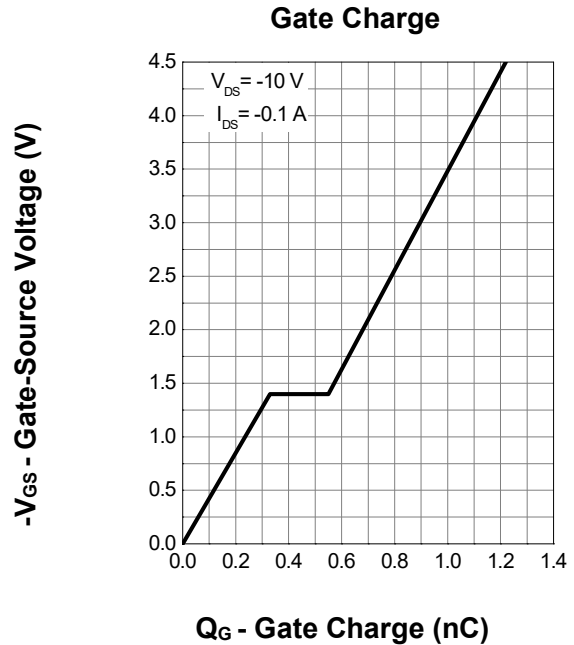
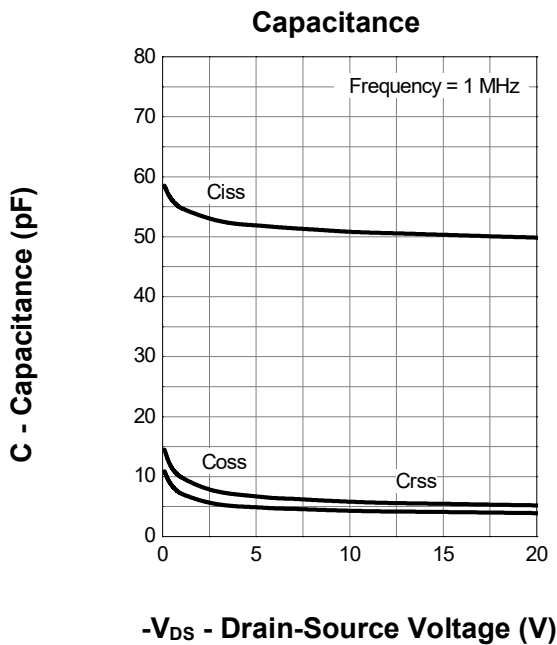
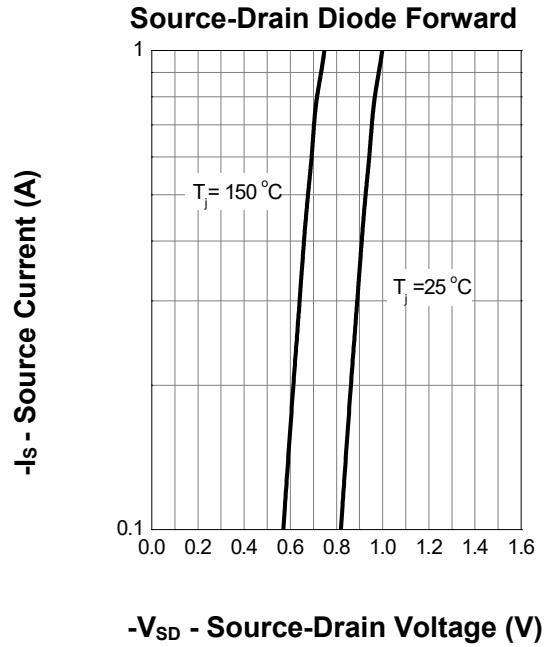
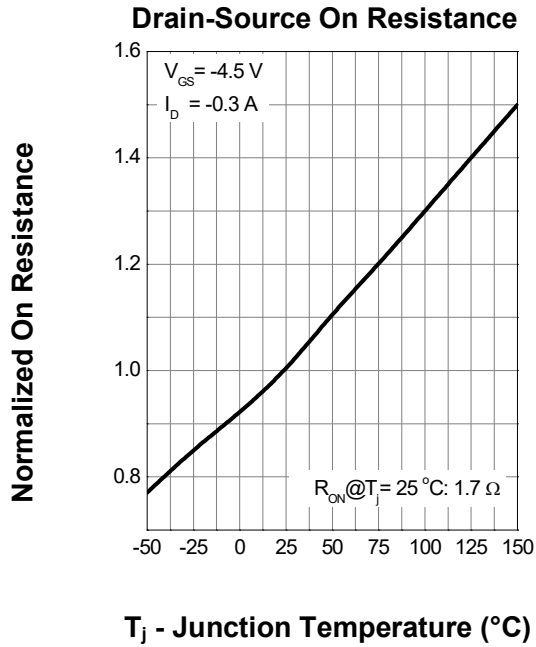
**Transfer Characteristics**



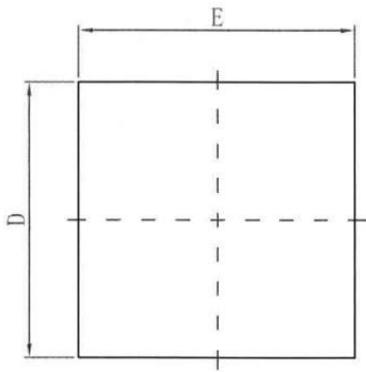
**Gate Threshold Voltage**



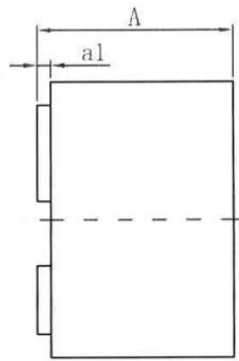
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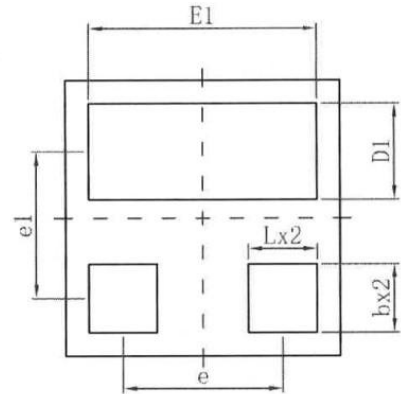
## Package Dimensions DFN0606-3L



TOP VIEW



SIDE VIEW



BOTTOM VIEW

Symbol	Dimensions In Millimeters		
	MIN.	NOM.	MAX.
A	0.350	0.420	0.450
al	0.000	AN	0.030
D	0.550	0.600	0.650
D1	0.160	0.210	0.260
E	0.550	0.600	0.650
E1	0.450	0.500	0.550
e	0.350BSC		
e1	0.300BSC		
L	0.120	0.150	0.180
b	0.120	0.150	0.180

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