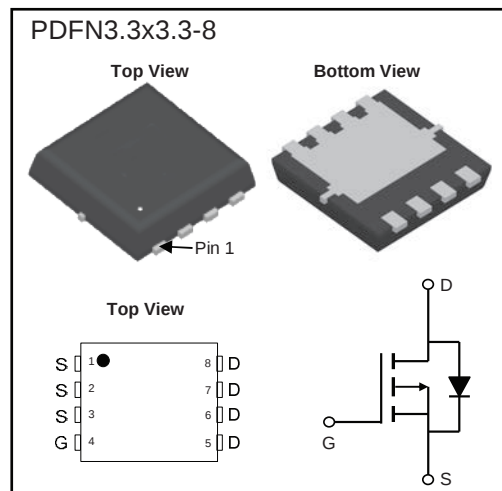


P-Channel MOSFET

RCJ6045DFN

Features

- V_{DS} -30 V
- I_D (at $V_{GS}=-10V$) -50 A
- $R_{DS(ON)}$ (at $V_{GS} = -10V$) < 13 m Ω
- $R_{DS(ON)}$ (at $V_{GS} = -4.5V$) < 18 m Ω



Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ unless otherwise noted.)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Voltage		V_{GS}	± 20	
Continuous Drain Current	$T_C=25^\circ\text{C}$	I_D	-50	A
	$T_C=100^\circ\text{C}$		-31	
	$T_A=25^\circ\text{C}$		-11	
	$T_A=100^\circ\text{C}$		-7	
Pulsed Drain Current	$T_C=25^\circ\text{C}$	I_{DM}	-200	A
Maximum Body Diode Forward Current	$T_C=25^\circ\text{C}$	I_S	-20	
Power Dissipation (Note 1)	$T_A=25^\circ\text{C}$	P_D	2.2	W
Power Dissipation (Note 2)	$T_C=25^\circ\text{C}$		35.7	
	$T_C=100^\circ\text{C}$		14.3	
Thermal Resistance, Junction- to-Ambient (Note 1)		$R_{\theta JA}$	57	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction- to-Case		$R_{\theta JC}$	3.5	
Junction Temperature		T_J	150	$^\circ\text{C}$
Storage Temperature Range		T_{stg}	-55 to 150	

Notes:

1. Surface Mounted on 2oz copper, 1in² pad area.
2. The power dissipation P_D is based on $T_{J(MAX)} = 150^\circ\text{C}$.

P-Channel MOSFET

RCJ6045DFN

Electrical Characteristics (T_A = 25°C unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	I _D = -250μA, V _{GS} = 0V	-30			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -24V, V _{GS} = 0V			-1	μA
Gate-Body Leakage Current	I _{GSS}	V _{DS} = 0V, V _{GS} = ±20V			±100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-1.0		-2.0	V
Static Drain-Source On-Resistance (Note 3)	R _{DS(on)}	V _{GS} = -10V, I _D = -17.6A			13	mΩ
		V _{GS} = -4.5V, I _D = -10A			18	
Diode Forward Voltage (Note 3)	V _{SD}	I _S = -1 A,V _{GS} = 0V		-0.7	-1.0	V
DYNAMIC CHARACTERISTICS (Note 4)						
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} = -15V, f = 1MHz		2110		pF
Output Capacitance	C _{oss}			450		
Reverse Transfer Capacitance	C _{rss}			330		
Gate resistance	R _g	V _{GS} =0V, V _{DS} =0V, f=1MHz		8		Ω
Total Gate Charge	Q _g	V _{DS} = -15V, V _{GS} = -10V, I _D = -17.1A		45		nC
Gate Source Charge	Q _{gs}			5		
Gate Drain Charge	Q _{gd}			12.7		
Body Diode Reverse Recovery Time	T _{rr}	I _{DS} =-17.6A, di/dt=100A/μs		24		ns
ody Diode Reverse Recovery Charge	Q _{rr}			16		nC
SWITCHING CHARACTERISTICS (Note 5)						
Turn-On DelayTime	td(on)	V _{DD} =-15V, R _L =15Ω, V _{GEN} =-10V, R _G =6Ω, I _{DS} =-1A		12		ns
Turn-On Rise Time	tr			14		
Turn-Off DelayTime	td(off)			98		
Turn-Off Fall Time	tf			60		

Notes:

- Measured under pulsed conditions. Pulse width ≤ 300μs; duty cycle ≤ 2%.
- For design aid only, not subject to production testing.
- Switching characteristics are independent of operating junction temperatures.

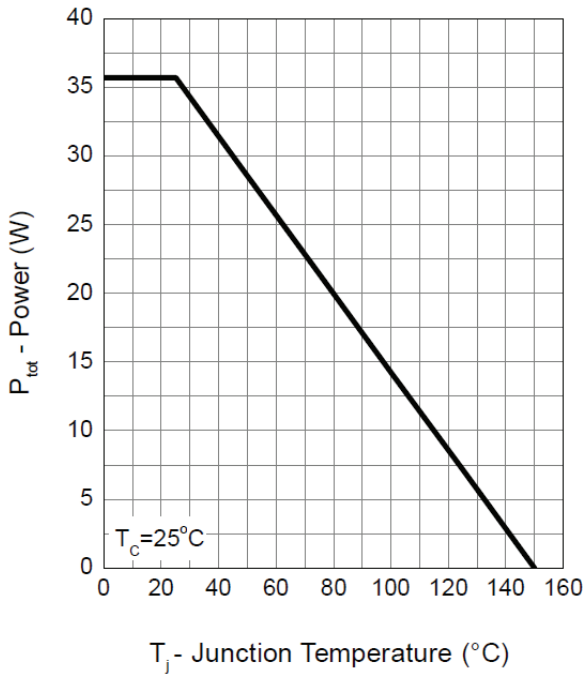
Marking

Marking	J6045 *****
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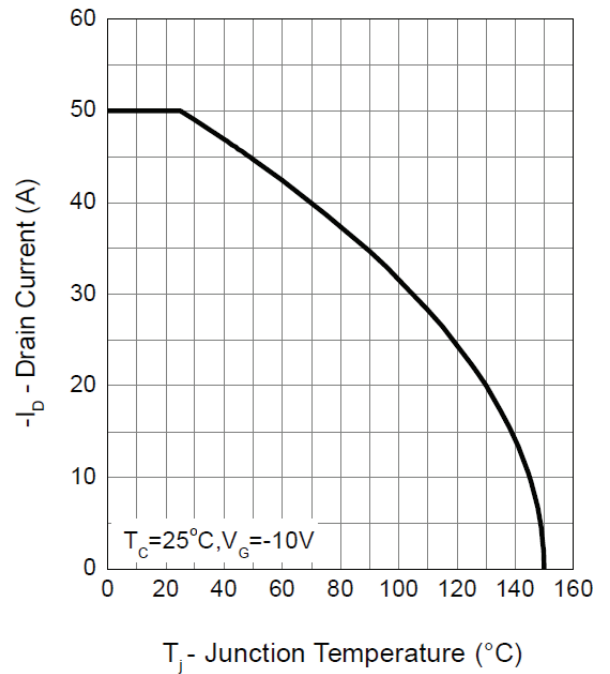
P-Channel MOSFET RCJ6045DFN

■ Typical Characteristics

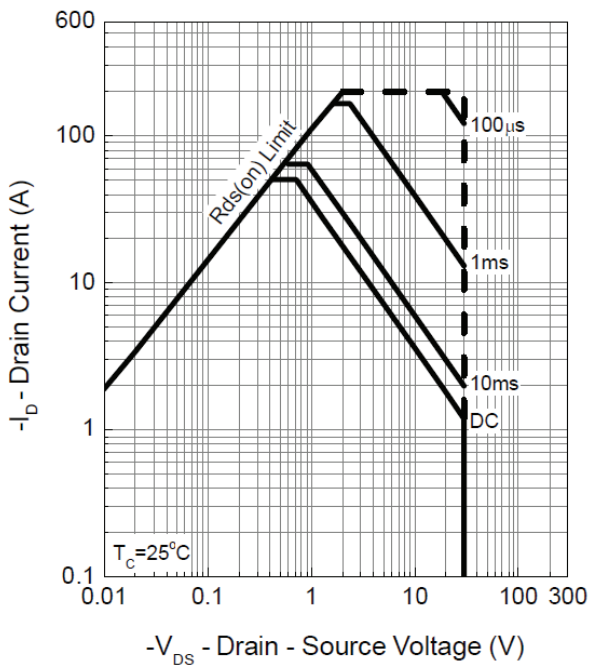
Power Dissipation



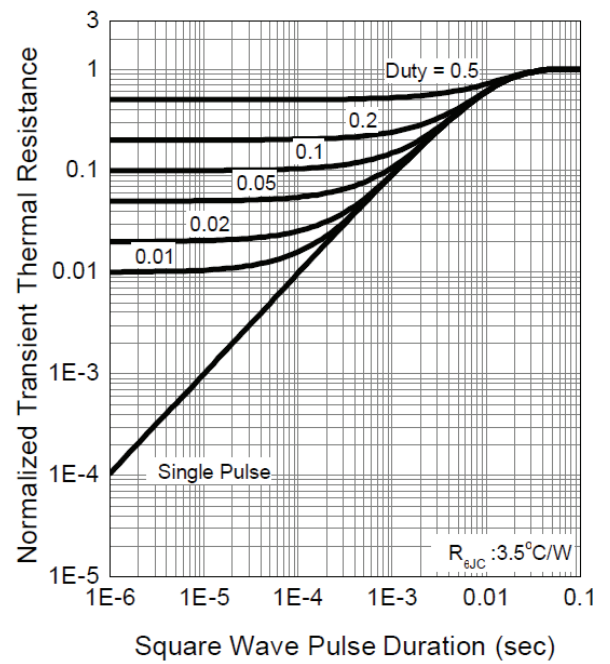
Drain Current



Safe Operation Area



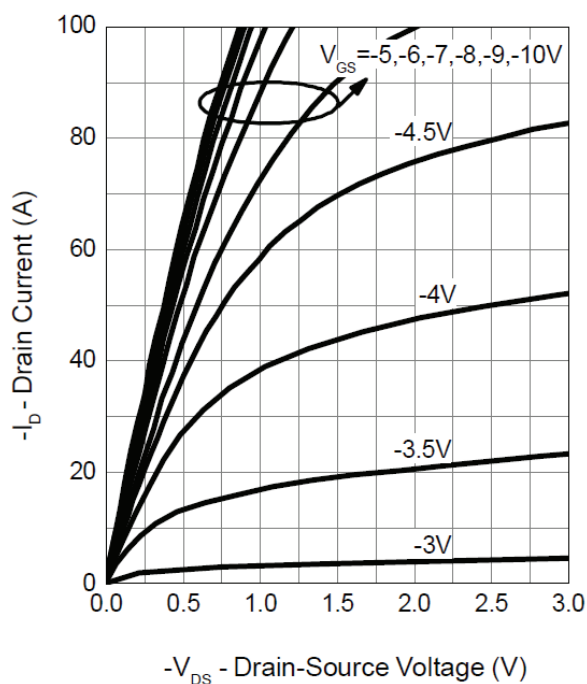
Thermal Transient Impedance



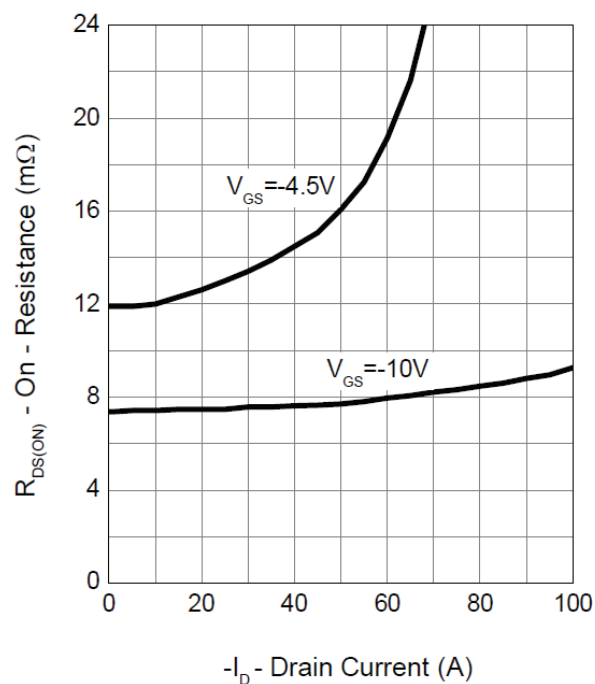
P-Channel MOSFET

RCJ6045DFN

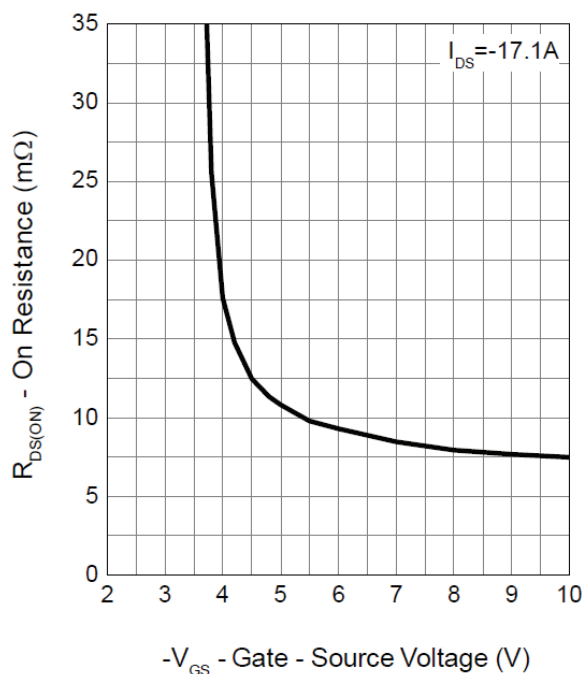
Output Characteristics



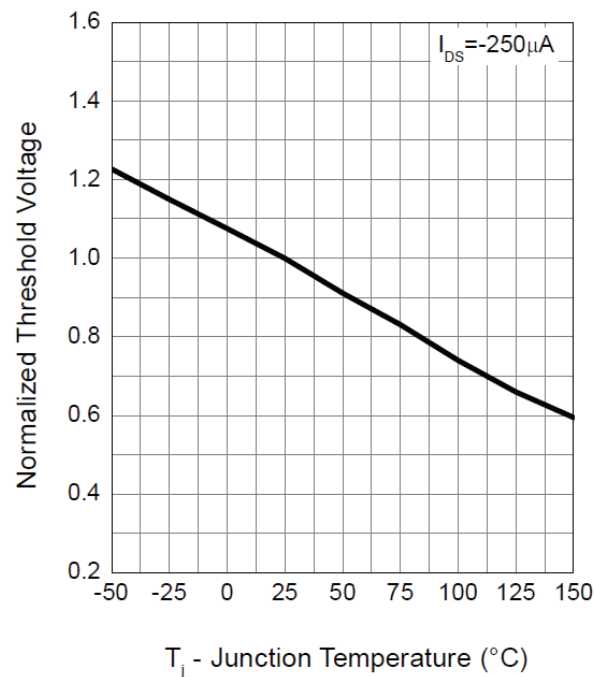
Drain-Source On Resistance



Gate-Source On Resistance

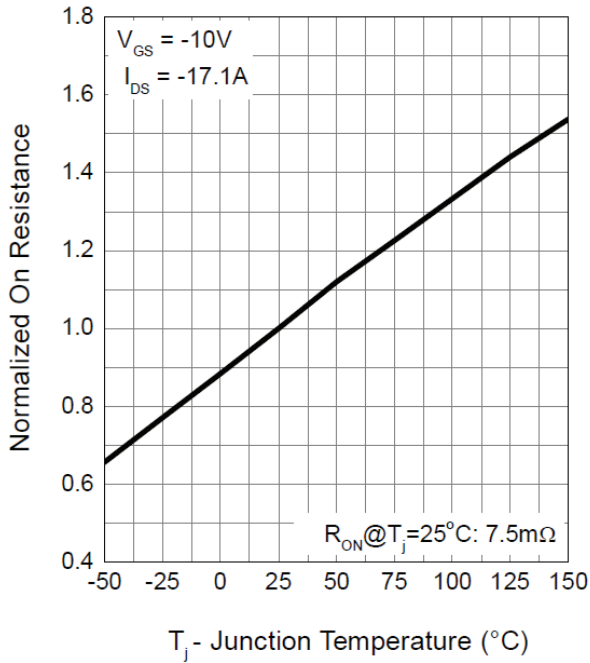


Gate Threshold Voltage

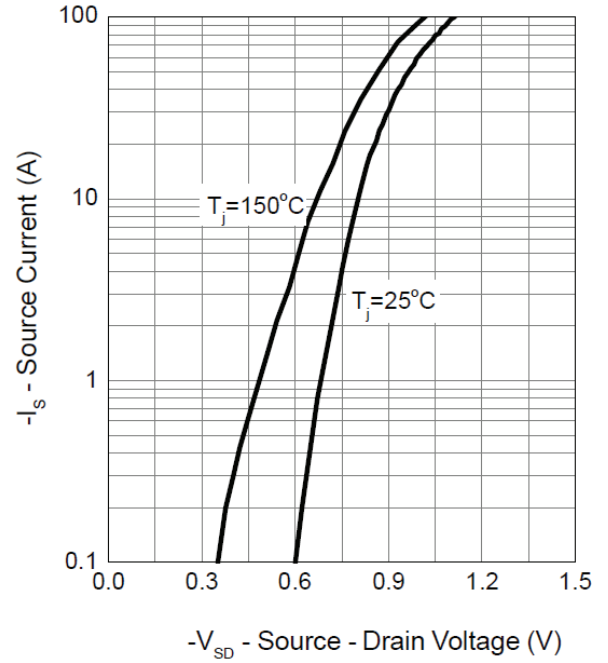


P-Channel MOSFET RCJ6045DFN

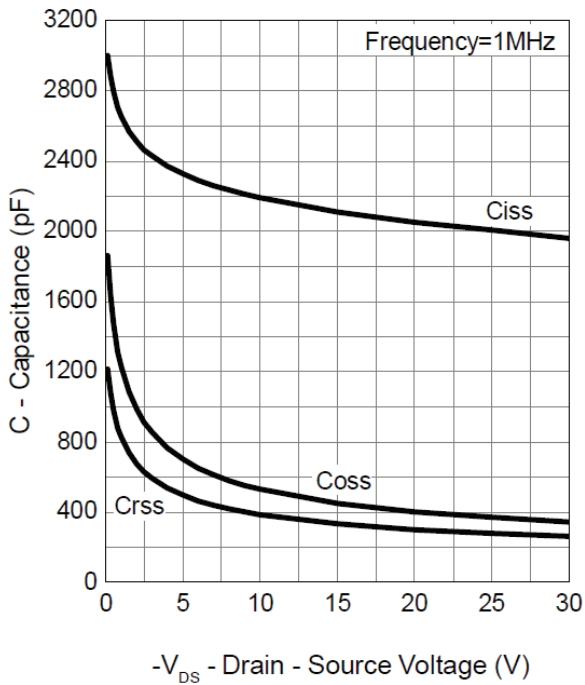
Drain-Source On Resistance



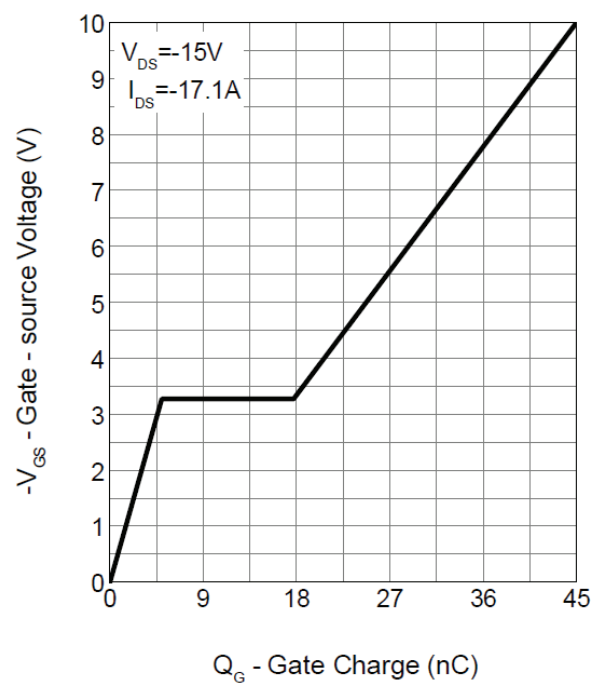
Source-Drain Diode Forward



Capacitance



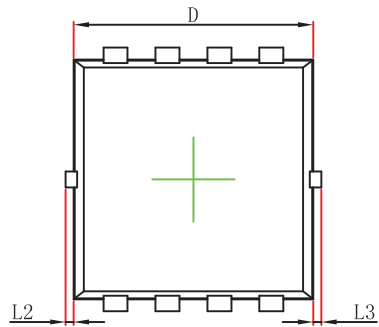
Gate Charge



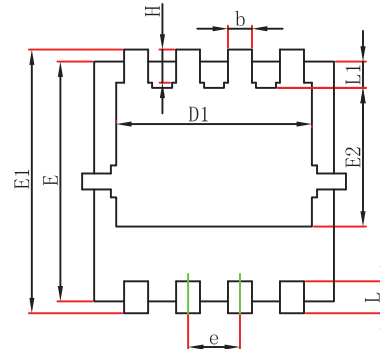
P-Channel MOSFET

RCJ6045DFN

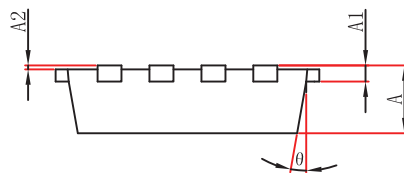
PDFN3.3x3.3-8 Package Outline Dimensions



Top View



Bottom View



Side View

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.650	0.850	0.026	0.033
A1	0.152 REF.		0.006 REF.	
A2	0~0.05		0~0.002	
D	3.050	3.250	0.114	0.122
D1	2.300	2.600	0.091	0.102
E	2.900	3.100	0.114	0.122
E1	3.150	3.450	0.124	0.136
E2	1.535	1.935	0.060	0.076
b	0.200	0.400	0.008	0.016
e	0.550	0.750	0.022	0.030
L	0.300	0.500	0.012	0.020
L1	0.180	0.480	0.007	0.019
L2	0~0.100		0~0.004	
L3	0~0.100		0~0.004	
H	0.315	0.515	0.012	0.020
θ	9°	13°	9°	13°