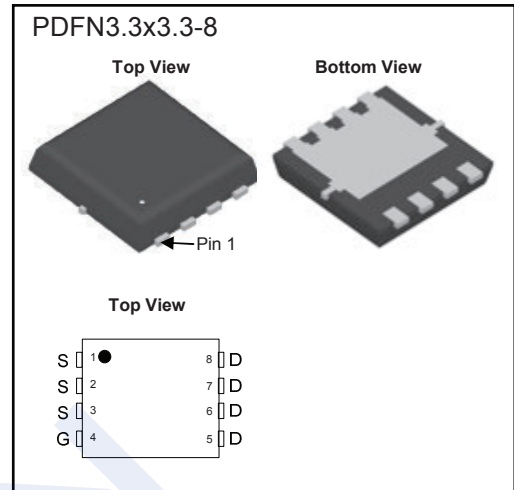
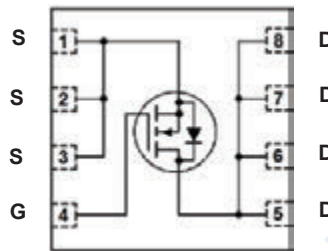


N-Channel MOSFET

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■ Features

- $V_{DS} (V) = 30 V$
- $I_D = 50 A$
- $R_{DS(ON)} (at V_{GS} = 10 V) < 9 m\Omega$
- $R_{DS(ON)} (at V_{GS} = 4.5 V) < 14 m\Omega$



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

Parameter	Symbol	Rating	Unit	
Drain-Source Voltage	V_{DS}	30	V	
Gate-Source Voltage	V_{GS}	± 20		
Continuous Drain Current (Note 1, 3)	I_D	$T_A = 25^\circ C$	50	A
		$T_A = 100^\circ C$	30	
Pulsed Drain Current (Note 2)	I_{DM}	150		
Power Dissipation	P_D	$T_A = 25^\circ C$	25	W
		$T_A = 100^\circ C$	9	
Junction Temperature	T_J	150	$^\circ C$	
Storage Temperature Range	T_{stg}	-55 to 150		

Notes:

1. The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^\circ C$. The value in any given application depends on the user's specific board design.
2. Repetitive rating, pulse width limited by junction temperature.
3. The current rating is based on the $t \leq 10s$ junction to ambient thermal resistance rating.

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■ Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$I_D = 250\ \mu\text{A}$, $V_{GS} = 0\text{V}$	30			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 30\text{V}$, $V_{GS} = 0\text{V}$			1	μA
Gate to Source Leakage Current	I_{GSS}	$V_{DS} = 0\text{V}$, $V_{GS} = \pm 20\text{V}$			± 100	nA
Gate to Source Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 250\ \mu\text{A}$	1.0	1.5	2.2	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = 10\text{V}$, $I_D = 20\text{A}$		7	9	m Ω
		$V_{GS} = 4.5\text{V}$, $I_D = 15\text{A}$		11	14	
Forward Transconductance	g_{FS}	$V_{DS} = 5\text{V}$, $I_D = 20\text{A}$	20			S
Dynamic Characteristics (Note 4)						
Input Capacitance	C_{iss}	$V_{GS} = 0\text{V}$, $V_{DS} = 15\text{V}$, $f = 1\text{MHz}$		1110		pF
Output Capacitance	C_{oss}			460		
Reverse Transfer Capacitance	C_{rss}			80		
Total Gate Charge	Q_g	$V_{GS} = 10\text{V}$, $V_{DS} = 15\text{V}$, $I_D = 20\text{A}$		45		nC
Gate Source Charge	Q_{gs}			12		
Gate Drain Charge	Q_{gd}			8		
Switching Characteristics (Note 4)						
Turn-On Delay Time	$t_{d(on)}$	$V_{GS} = 10\text{V}$, $I_D = 20\text{A}$, $V_{DS} = 15\text{V}$, $R_{GEN} = 2.7\ \Omega$		6		ns
Turn-On Rise Time	t_r			4		
Turn-Off Delay Time	$t_{d(off)}$			18		
Turn-Off Fall Time	t_f			5		
Drain-Source Diode Characteristics (Note 2,3)						
Maximum Body-Diode Continuous Current	I_S				50	A
Diode Forward Voltage	V_{SD}	$V_{GS} = 0\text{V}$, $I_S = 20\text{A}$		0.78	1.2	V

Notes:

1. Repetitive rating, pulse width limited by junction temperature.
2. Surface Mounted on FR4 Board, $t \leq 10\text{ sec}$.
3. Pulse Test: Pulse Width $\leq 300\ \mu\text{s}$, Duty Cycle $\leq 2\%$.
4. Guaranteed by design, not subject to production

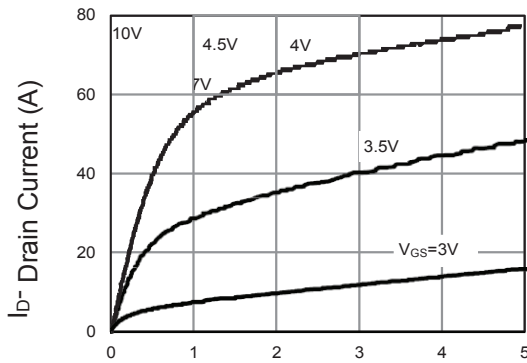
■ Marking

Marking	K5779 KC***
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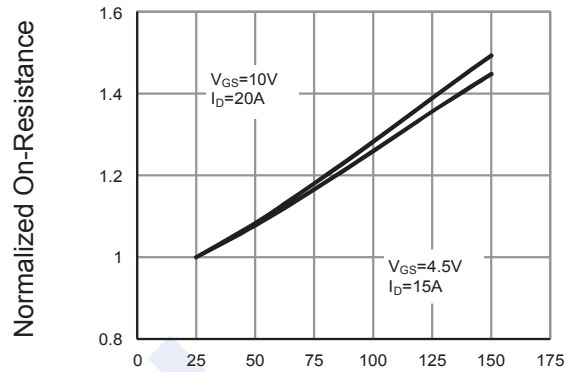
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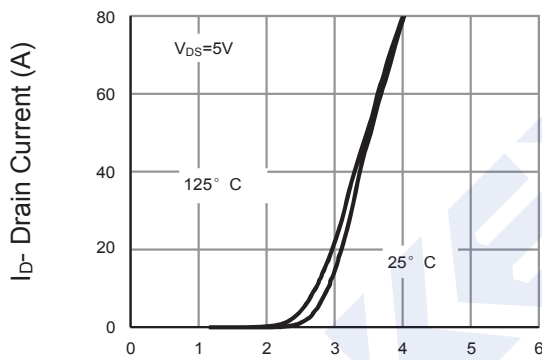
■ Typical Characteristics (TA = 25 °C unless otherwise noted)



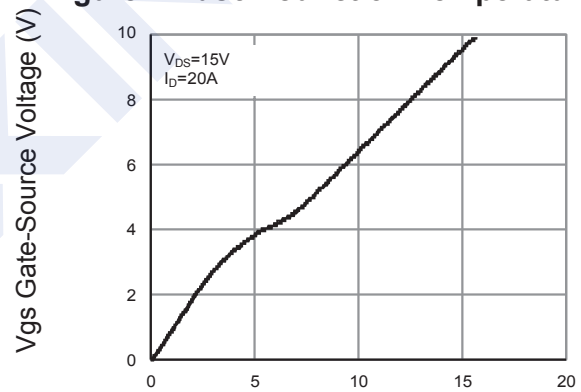
Vds Drain-Source Voltage (V)
Figure 1 Output Characteristics



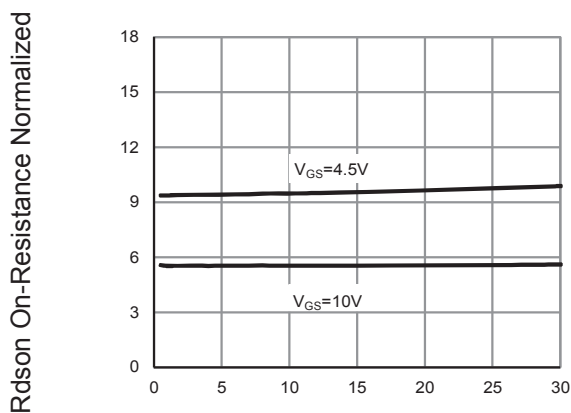
Tj-Junction Temperature(°C)
Figure 4 Rdson-Junction Temperature



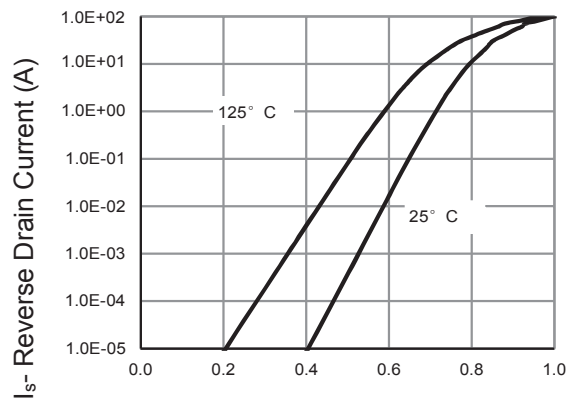
Vgs Gate-Source Voltage (V)
Figure 2 Transfer Characteristics



Qg Gate Charge (nC)
Figure 5 Gate Charge



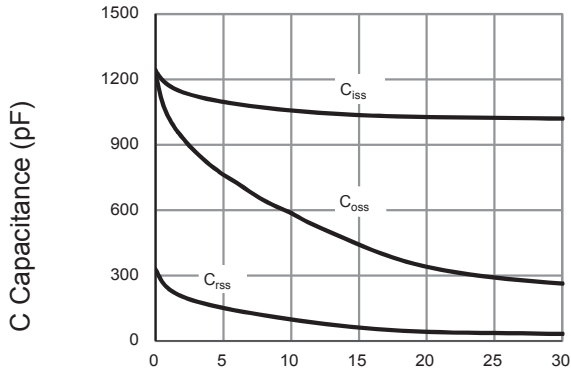
Id- Drain Current (A)
Figure 3 Rdson- Drain Current



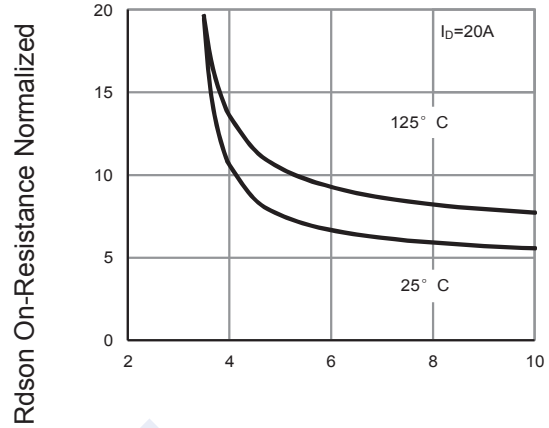
Vsd Source-Drain Voltage (V)
Figure 6 Source- Drain Diode Forward

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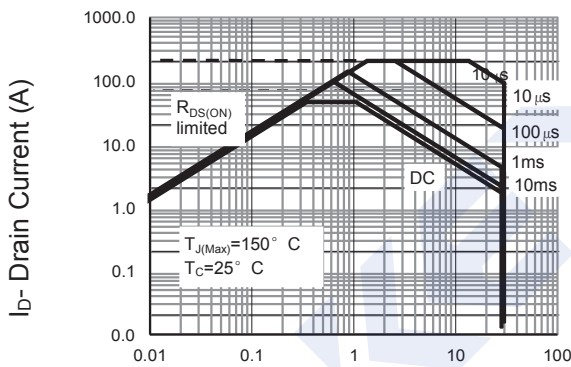
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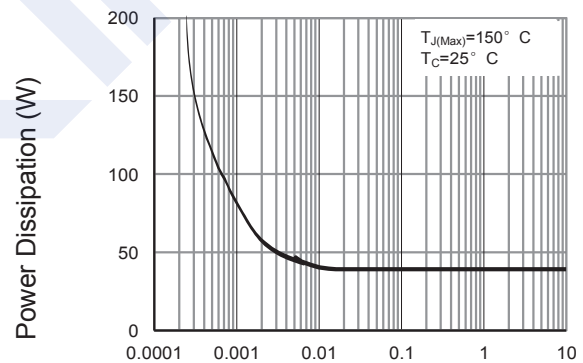
Vds Drain-Source Voltage (V)
Figure 7 Capacitance vs Vds



Vgs Gate-Source Voltage (V)
Figure 9: On-Resistance vs. Gate-Source Voltage



Vds Drain-Source Voltage (V)
Figure 8 Safe Operation Area



Tj-Junction Temperature (°C)
Figure 10 Power De-rating

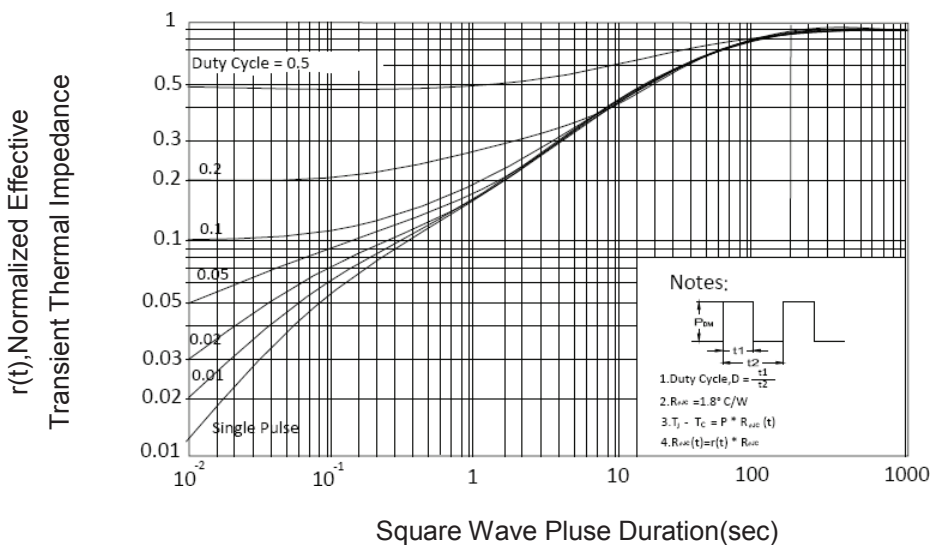
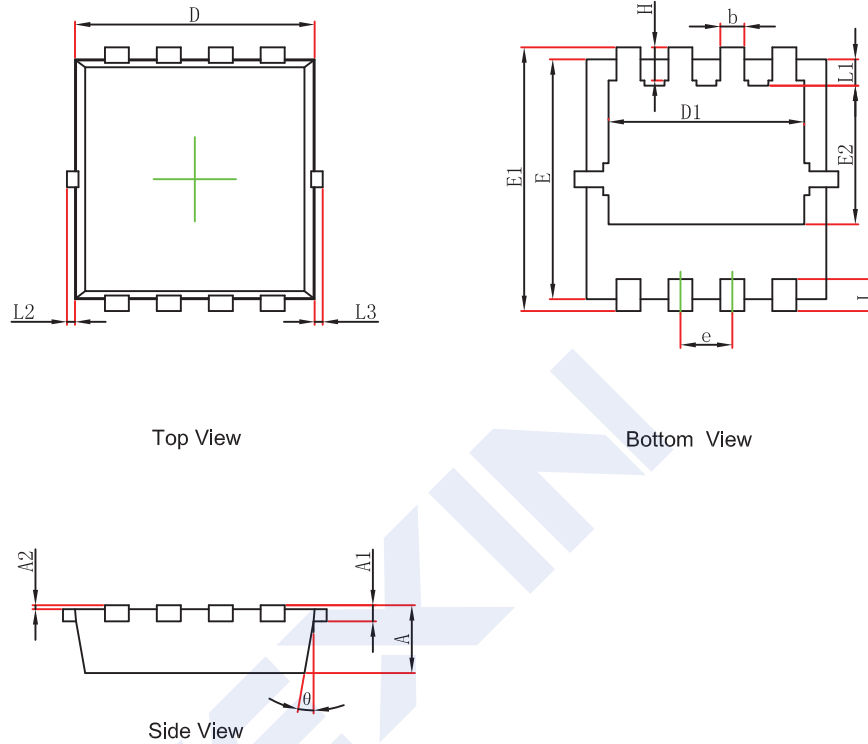


Figure 11 Normalized Maximum Transient Thermal Impedance

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■ PDFN3.3x3.3-8 Package Outline Dimensions



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°