

### Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	$I_D$
100V	4.3mΩ@10V	120A

### Feature

- High Power and current handing capability
- Load switch
- High density cell design for ultra low  $R_{DS(ON)}$
- Lead free product is acquired

### Application

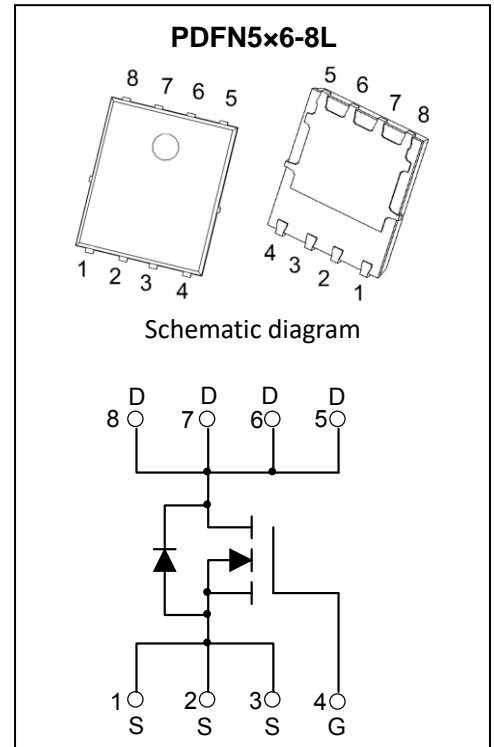
- SMPS and general purpose applications
- Hard switched and high frequency circuits

### MARKING:



T043N10= Device code

XX= Date Code



### ABSOLUTE MAXIMUM RATINGS ( $T_C=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	100	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current	$I_D$	120	A
Pulsed Drain Current	$I_{DM}$	480	A
Avalanche Current	$I_{AS}$	23	A
Single Pulse Avalanche Energy	$E_{AS}$	130	mJ
Power Dissipation	$P_D$	192	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	40	$^\circ\text{C}/\text{W}$
Junction Temperature	$T_J$	150	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-55~ +150	$^\circ\text{C}$

\*EAS test condition:  $V_{DD}= 50\text{V}$ ,  $V_{GS}= 10\text{V}$ ,  $L= 0.5\text{mH}$ , starting  $T_J= 25^\circ\text{C}$ .

## MOSFET ELECTRICAL CHARACTERISTICS ( $T_J=25^\circ\text{C}$ unless otherwise noted)

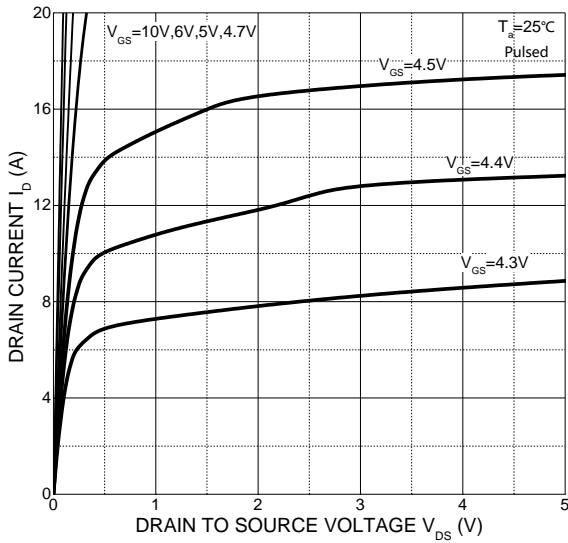
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
<b>Static Characteristics</b>						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	100			V
Zero gate voltage drain current	$I_{DSS}$	$V_{DS}=100V, V_{GS}=0V$			1	$\mu A$
Gate-body leakage current	$I_{GSS}$	$V_{GS}=\pm 20V, V_{DS}=0V$			$\pm 100$	nA
Gate threshold voltage <sup>(1)</sup>	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2.0	3.0	4.0	V
Drain-source on-resistance <sup>(1)</sup>	$R_{DS(on)}$	$V_{GS}=10V, I_D=20A$		4.0	5.3	m $\Omega$
<b>Dynamic characteristics<sup>(2)</sup></b>						
Input capacitance	$C_{iss}$	$V_{DS}=45V, V_{GS}=0V, f=1MHz$		4023		pF
Output capacitance	$C_{oss}$			732		
Reverse transfer capacitance	$C_{rss}$			40		
<b>Switching Characteristics<sup>(2)</sup></b>						
Total gate charge	$Q_g$	$V_{DS}=50V, V_{GS}=10V, I_D=22A$		104.3		nC
Gate-source charge	$Q_{gs}$			20.7		
Gate-drain charge	$Q_{gd}$			30.1		
Turn-on delay time	$t_{d(on)}$	$V_{GS}=10V, V_{DS}=50V$ $R_g=2.2\Omega, I_D=22A$		29.3		ns
Turn-on rise time	$t_r$			7.8		
Turn-off delay time	$t_{d(off)}$			82.1		
Turn-off fall time	$t_f$			20.4		
<b>Diode Characteristics<sup>(1)</sup></b>						
Diode Forward Voltage	$V_{SD}$	$V_{GS}=0V, I_S=20A$			1.1	V

### Notes:

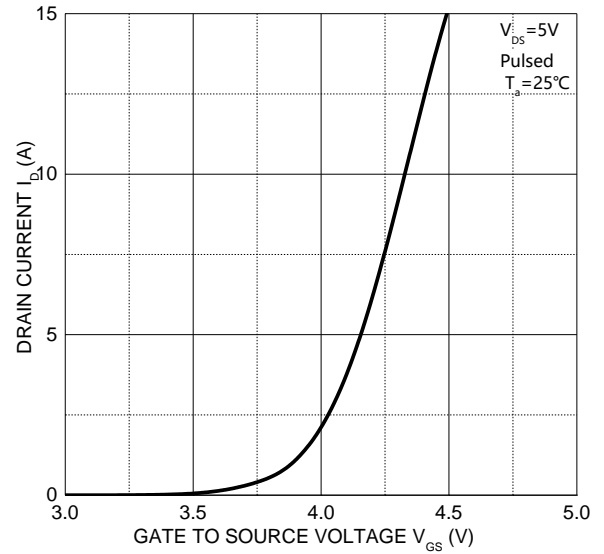
1. Pulse Test: Pulse width $\leq 300\mu s$ , duty cycle $\leq 0.5\%$ .
2. Guaranteed by design, not subject to production testing.
3. The value of  $R_{\theta JA}$  is measured with the device mounted on 1 in 2 FR-4 board with 1.5oz. Copper, in a still air environment with  $T_a=25^\circ\text{C}$ .
4.  $P_D$  is based on max. junction temperature, using junction-case thermal resistance.

## Typical Electrical and Thermal Characteristics

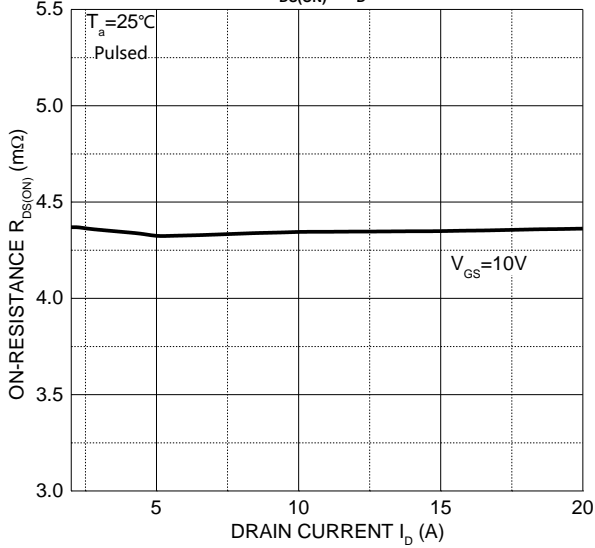
### Output Characteristics



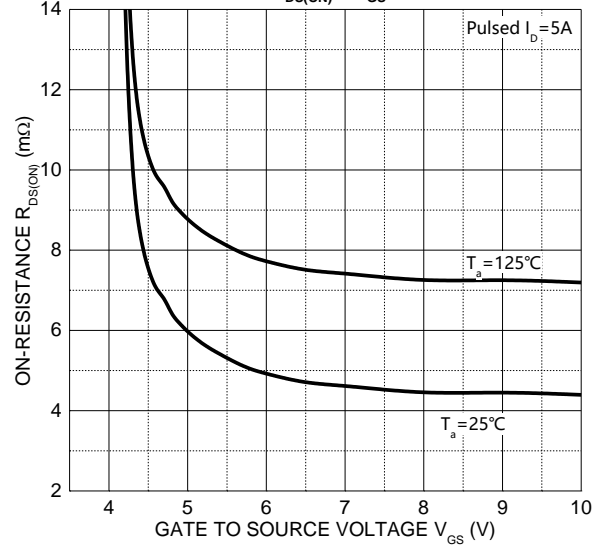
### Transfer Characteristics



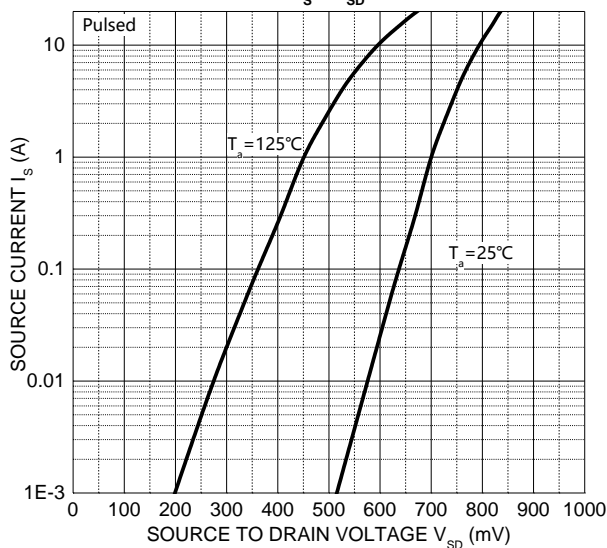
### $R_{DS(ON)} - I_D$



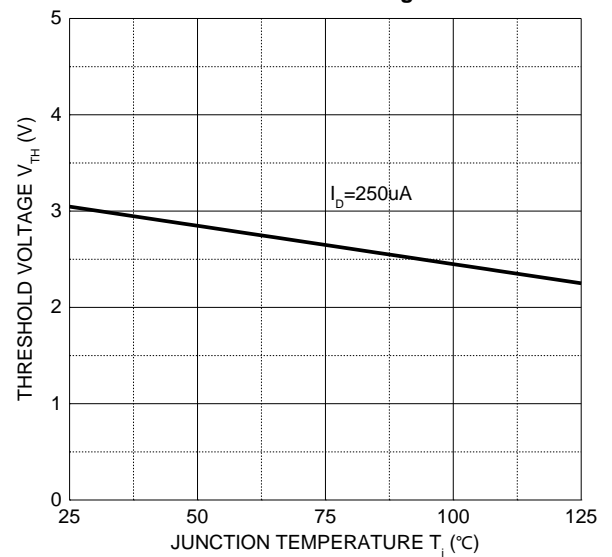
### $R_{DS(ON)} - V_{GS}$



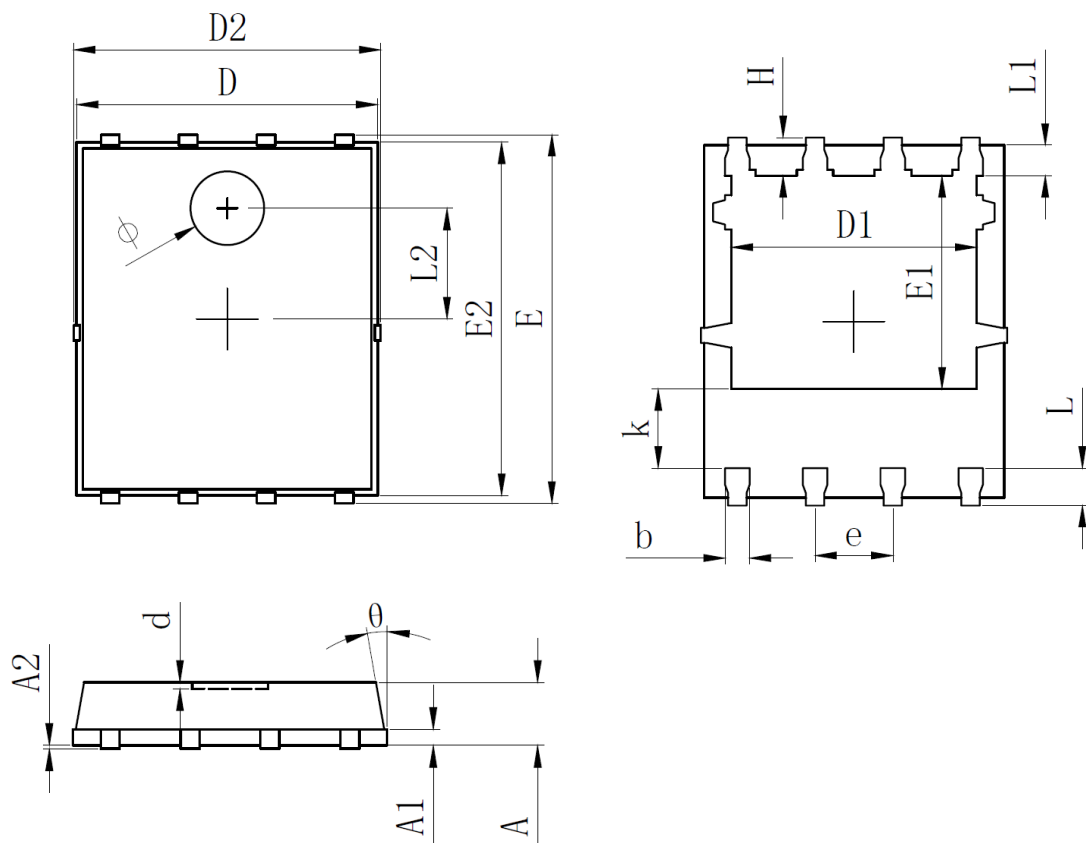
### $I_S - V_{SD}$



### Threshold Voltage



## PDFN5×6-8L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.100	0.035	0.043
A1	0.254REF		0.010REF	
A2	0.000	0.050	0.000	0.002
D	4.824	4.976	0.190	0.196
D1	3.910	4.110	0.154	0.162
D2	4.924	5.076	0.194	0.200
E	5.924	6.076	0.233	0.239
E1	3.375	3.575	0.133	0.141
E2	5.674	5.826	0.223	0.229
b	0.350	0.450	0.014	0.018
e	1.270TYP		0.050TYP	
L	0.534	0.686	0.021	0.027
L1	0.424	0.576	0.017	0.023
k	1.190	1.390	0.047	0.055
H	0.549	0.701	0.022	0.028
θ	8°	12°	8°	12°
Φ	1.100	1.300	0.043	0.051
d	-	0.100	-	0.004