

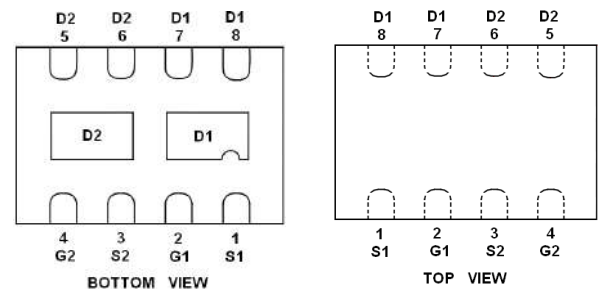
### ➤ General Description

This PAN2954D Dual N-Channel enhancement mode power field effect transistor is the high density trench technology and this advanced technology can provide excellent  $R_{ds(On)}$  performance and efficiency for power switching and load switching application., this device also comply with the RoHS and Green Product requirement with full function reliability approved.

### ➤ Feature

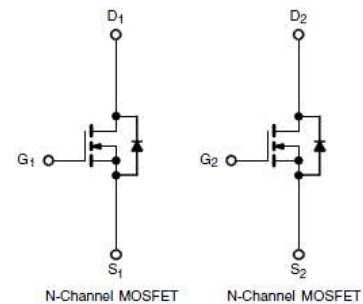
- Super high density cell design for extremely low  $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- DFN3X2-8L package design

### ➤ DFN3X2-8L



### ➤ Application

- Load Switch
- PA Switch
- Battery Switch



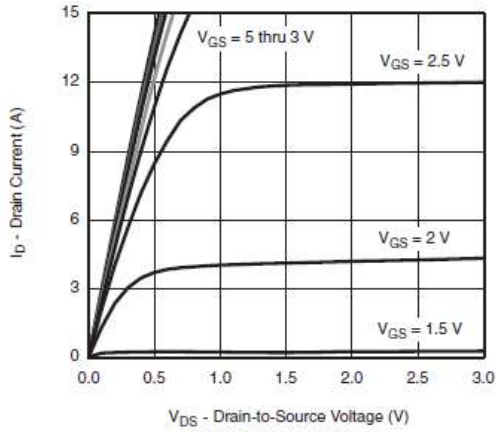
### ➤ Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DSS}$	20	V
Gate -Source Voltage	$V_{GSS}$	$\pm 12$	V
Continuous Drain Current( $T_J=150^\circ C$ )	$I_D$	$T_A=25^\circ C$	4.5
		$T_A=70^\circ C$	2.4
Pulsed Drain Current	$I_{DM}$	20	A
Continuous Source Current(Diode Conduction)	$I_S$	1.6	A
Power Dissipation	$P_D$	$T_A=25^\circ C$	6.5
		$T_A=70^\circ C$	4.2
Operating Junction Temperature	$T_J$	150	$^\circ C$
Storage Temperature Range	$T_{STG}$	-55/150	$^\circ C$
Thermal Resistance-Junction to Ambient	$R_{\theta JA}$	120	$^\circ C/W$

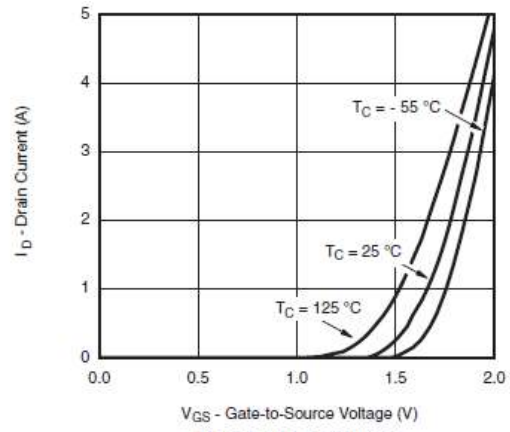
➤ **Electrical Characteristics (T<sub>J</sub>=25°C Unless otherwise noted)**

Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
<b>Static</b>						
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =250μA	20			V
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	0.3		0.8	
Gate Leakage Current	I <sub>GSS</sub>	V <sub>DS</sub> =0V, V <sub>GS</sub> =±12V			±100	nA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =16V, V <sub>GS</sub> =0V			1	μA
		V <sub>DS</sub> =16V, V <sub>GS</sub> =0V T <sub>J</sub> =85°C			10	
On-State Drain Current	I <sub>D(on)</sub>	V <sub>DS</sub> ≥5V, V <sub>GS</sub> =4.5V	6			A
		V <sub>DS</sub> ≥5V, V <sub>GS</sub> =2.5V	4			
Drain-Source On-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =4.5V, I <sub>D</sub> =4.5A		46	50	mΩ
		V <sub>GS</sub> =2.5V, I <sub>D</sub> =3.6A		54	60	
		V <sub>GS</sub> =1.8V, I <sub>D</sub> =2.4A		67	78	
Forward Transconductance	g <sub>FS</sub>	V <sub>DS</sub> =5V, I <sub>D</sub> =3.6A		10		S
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =1.6A, V <sub>GS</sub> =0V		0.85	1.2	V
<b>Dynamic</b>						
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =10V, V <sub>GS</sub> =4.5V I <sub>D</sub> ≅3.6A		4.2	5.0	nC
Gate-Source Charge	Q <sub>gs</sub>			0.6		
Gate-Drain Charge	Q <sub>gd</sub>			0.4		
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =10V, V <sub>GS</sub> =0V f=1MHz		340		pF
Output Capacitance	C <sub>oss</sub>			115		
Reverse Transfer Capacitance	C <sub>rss</sub>			33		
Turn-On Time	t <sub>d(on)</sub>	V <sub>DD</sub> =10V, R <sub>L</sub> =2.8Ω I <sub>D</sub> ≅3.6A, V <sub>GEN</sub> =4.5V R <sub>G</sub> =1Ω		8	15	ns
	t <sub>r</sub>			8	15	
Turn-Off Time	t <sub>d(off)</sub>			25	40	
	t <sub>f</sub>			8	15	

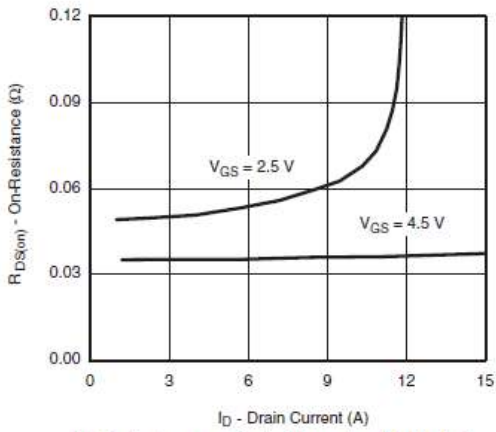
### ➤ Typical Characteristics



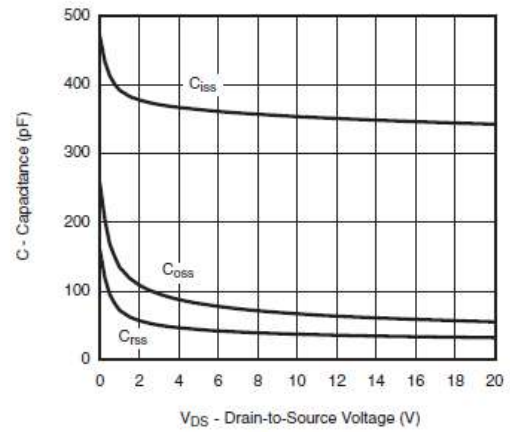
**Output Characteristics**



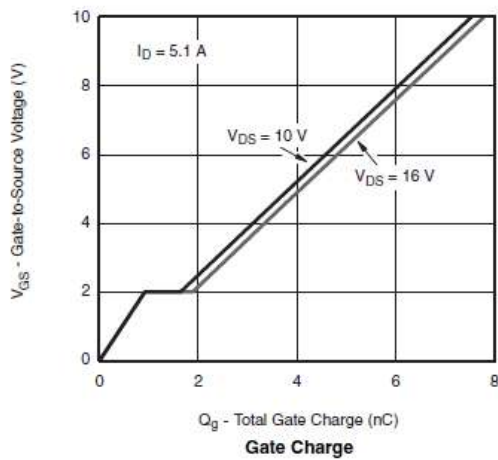
**Transfer Characteristics**



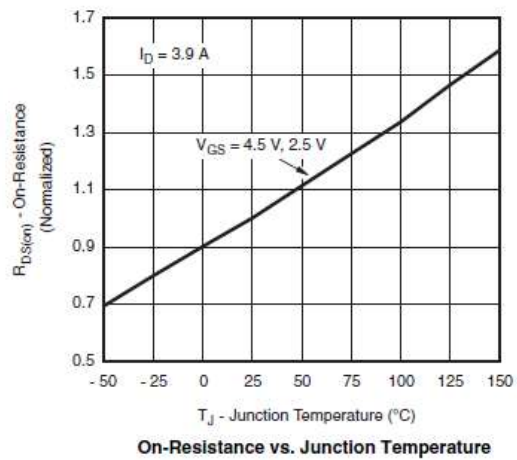
**On-Resistance vs. Drain Current and Gate Voltage**



**Capacitance**

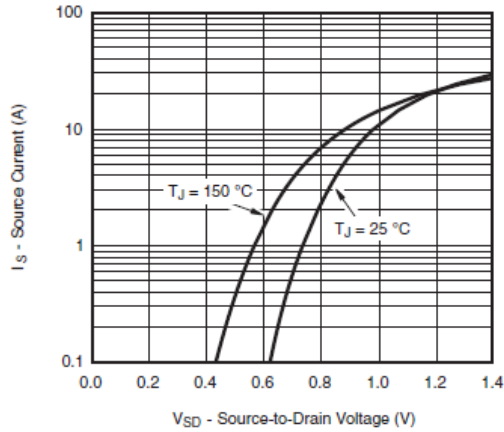


**Gate Charge**

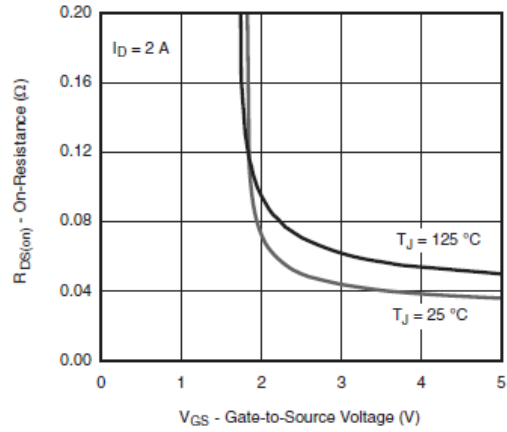


**On-Resistance vs. Junction Temperature**

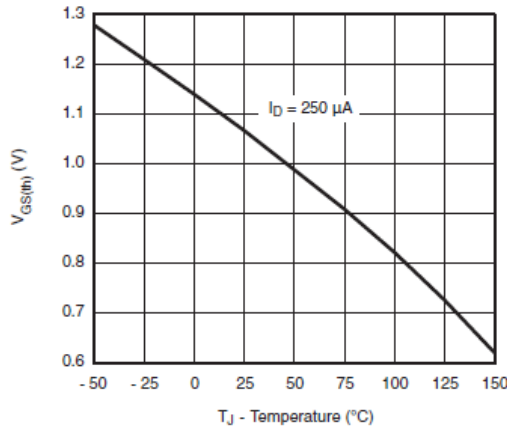
### ➤ Typical Characteristics



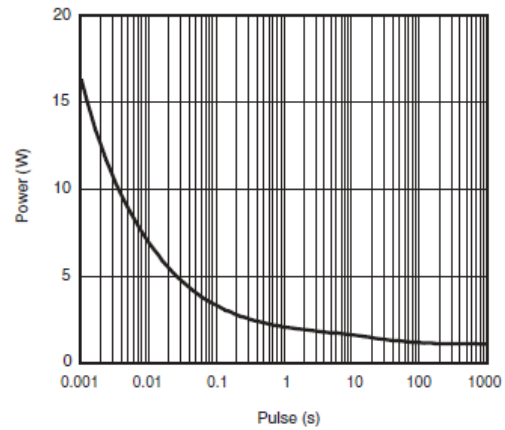
Source-Drain Diode Forward Voltage



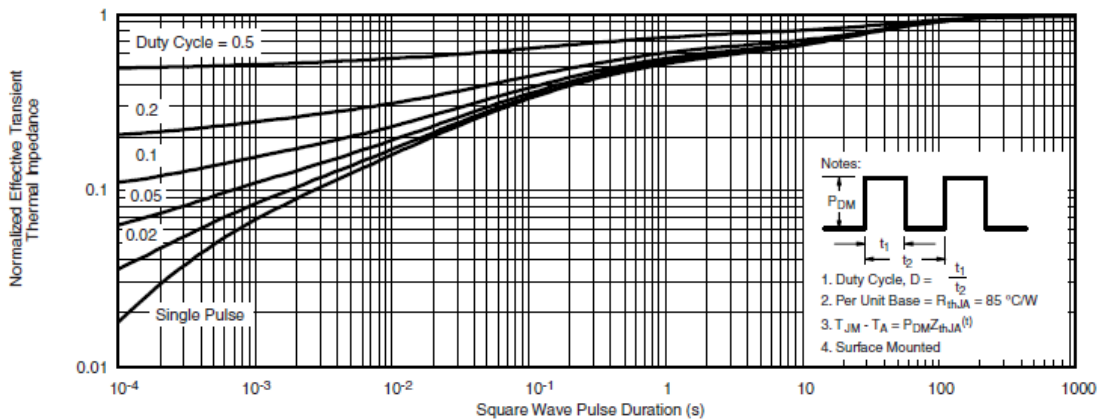
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage

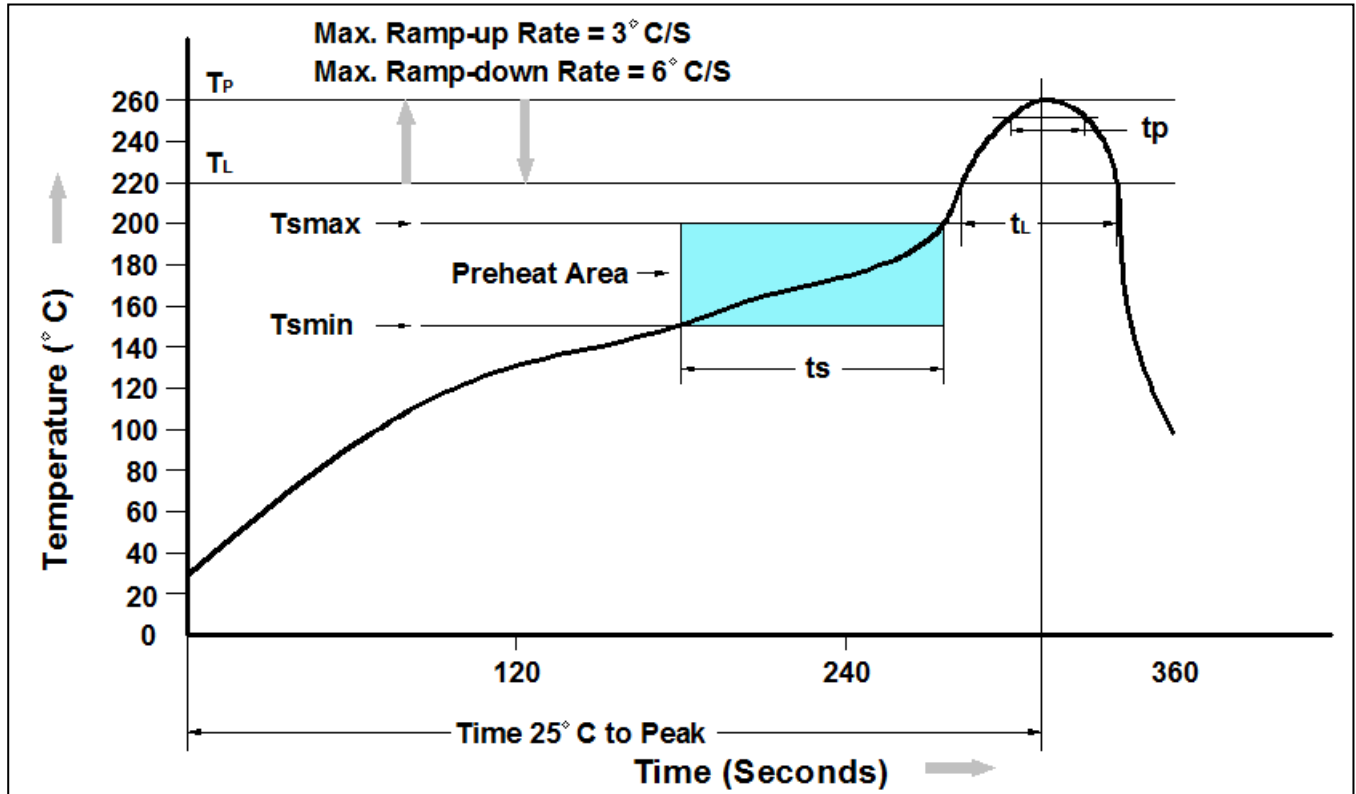


Single Pulse Power (Junction-to-Ambient)



Normalized Thermal Transient Impedance, Junction-to-Ambient

### ➤ Recommend IR Reflow Soldering Thermal Profile

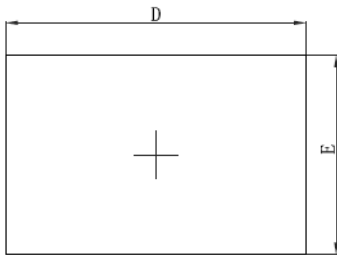


Profile Feature	Pb-Free Assembly Profile
Temperature Min. ( $T_{smin}$ )	150°C
Temperature Max. ( $T_{smax}$ )	200°C
Time ( $t_s$ ) from ( $T_{smin}$ to $T_{smax}$ )	60-120 seconds
Average Ramp-up Rate ( $t_L$ to $t_P$ )	3°C/second max.
Liquidous Temperature ( $T_L$ )	217°C
Time ( $t_L$ ) Maintained Above ( $T_L$ )	60 – 150 seconds
Peak Temperature	260°C +0°C / -5°C
Time ( $t_P$ ) within 5°C of actual Peak Temperature	30 seconds
Ramp-down Rate ( $T_P$ to $T_L$ )	6°C/second max
Time 25°C to Peak Temperature	8 minutes max.

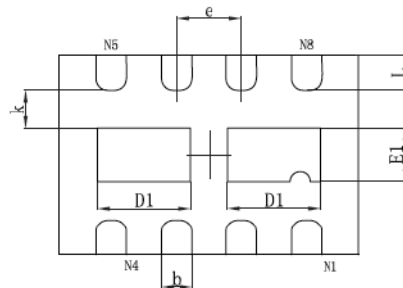
### ➤ Ordering Information

Part Number	Description	Quantity
PAC2954D	DFN3X2-8L Reel	4000 pcs

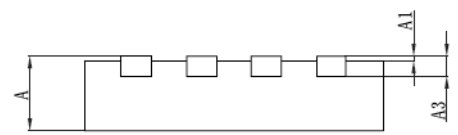
### ➤ Package Information ( DFN3X2-8L )



Top View



Bottom View



Side View

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700/0.800	0.800/0.900	0.028/0.031	0.031/0.035
A1	0.000	0.050	0.000	0.002
A3	0.203REF.		0.008REF.	
D	2.924	3.076	0.115	0.121
E	1.924	2.076	0.076	0.082
D1	0.820	1.020	0.032	0.040
E1	0.430	0.630	0.017	0.025
k	0.200MIN.		0.008MIN.	
b	0.250	0.350	0.010	0.014
e	0.650TYP.		0.026TYP.	
L	0.274	0.426	0.011	0.017

4000 pcs

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4000 pcs