

➤ General Description

The PAN20TE06F is the low RDSON trench N-CH MOSFETs with robust ESD protection. This product is suitable for Lithium-ion battery pack applications. The efficiency for power switching and load switching application., this device also comply with the RoHS and Green Product requirement with full function

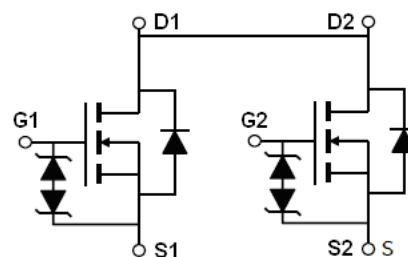
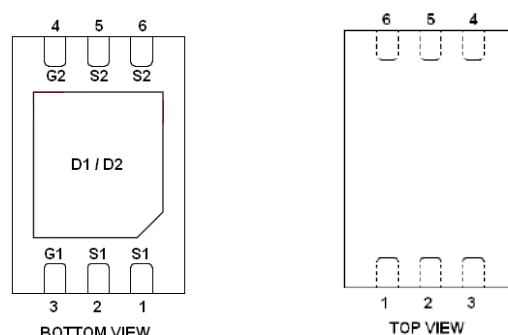
➤ Feature

- Low drain-source ON resistance
- Green Device Available
- ESD Protected Embedded
- DFN2X3-6L package design

➤ Application

- Load Switch
- Portable Equipment
- Battery Powered System

➤ DFN2X3-6L



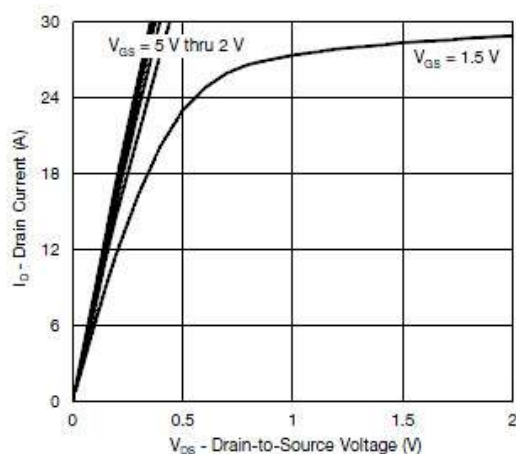
➤ Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DSS}	20	V
Gate –Source Voltage	V_{GSS}	± 8	V
Continuous Drain Current($T_J=150^{\circ}C$)	I_D	$T_A=25^{\circ}C$ 11	A
		$T_A=70^{\circ}C$ 8	
Pulsed Drain Current	I_{DM}	40	A
Power Dissipation	P_D	$T_A=25^{\circ}C$ 1.56	W
		$T_A=70^{\circ}C$ 1.0	
Operating Junction Temperature	T_J	150	$^{\circ}C$
Storage Temperature Range	T_{STG}	-55/150	$^{\circ}C$
Thermal Resistance-Junction to Ambient	$R_{\theta JA}$	65	$^{\circ}C/W$

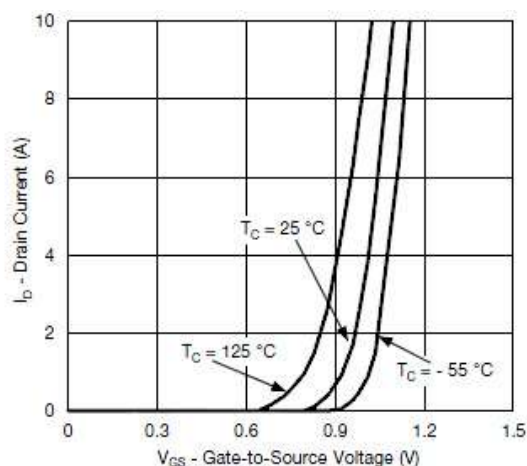
➤ Electrical Characteristics ($T_J=25^\circ C$ Unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	20			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.4		1.2	
Gate Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 8V$			± 10	μA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=16V, V_{GS}=0V$			10	μA
		$V_{DS}=16V, V_{GS}=0V$ $T_J=85^\circ C$			50	
On-State Drain Current	$I_{D(on)}$	$V_{DS} \geq 5V, V_{GS}=4.5V$	12			A
		$V_{DS} \geq 5V, V_{GS}=2.5V$	8			
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=4.5V, I_D=3.0A$		9.3	11	$m\Omega$
		$V_{GS}=2.5V, I_D=3.0A$		10.8	13	
		$V_{GS}=1.8V, I_D=2.5A$		16.2	24	
Forward Transconductance	g_{FS}	$V_{DS}=10V, I_D=12.4A$		70		S
Diode Forward Voltage	V_{SD}	$I_S=3.0A, V_{GS}=0V$		0.85	1.3	V
Dynamic						
Total Gate Charge	Q_g	$V_{DS}=10V, V_{GS}=4.5V$ $I_D \equiv 11A$		15	25	nC
Gate-Source Charge	Q_{gs}			3		
Gate-Drain Charge	Q_{gd}			4		
Input Capacitance	C_{iss}	$V_{DS}=10V, V_{GS}=0V$ $f=1MHz$		1400		pF
Output Capacitance	C_{oss}			200		
Reverse Transfer Capacitance	C_{rss}			80		
Turn-On Time	$t_{d(on)}$	$V_{DD}=10V, R_L=1.0\Omega$ $I_D \equiv 10A, V_{GEN}=4.5V$ $R_G=1\Omega$		10	20	ns
	t_r			15	30	
Turn-Off Time	$t_{d(off)}$			35	70	
	t_f			10	20	

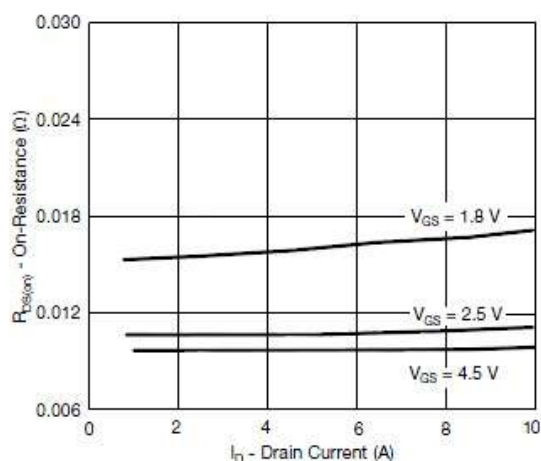
➤ Typical Characteristics



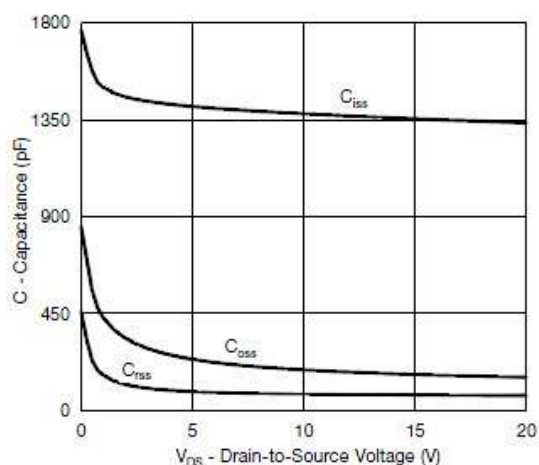
Output Characteristics



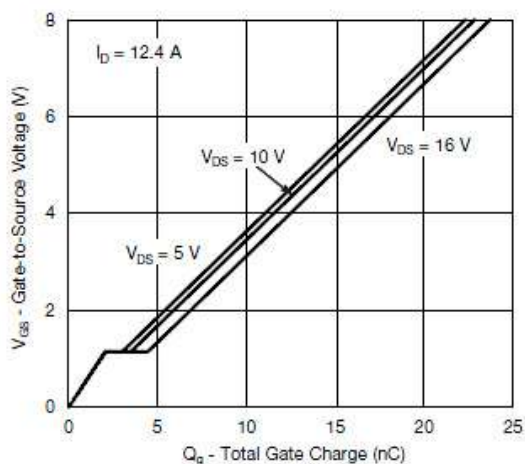
Transfer Characteristics



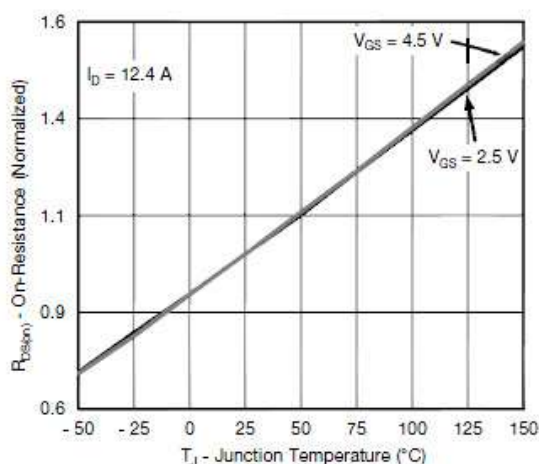
On-Resistance vs. Drain Current and Gate Voltage



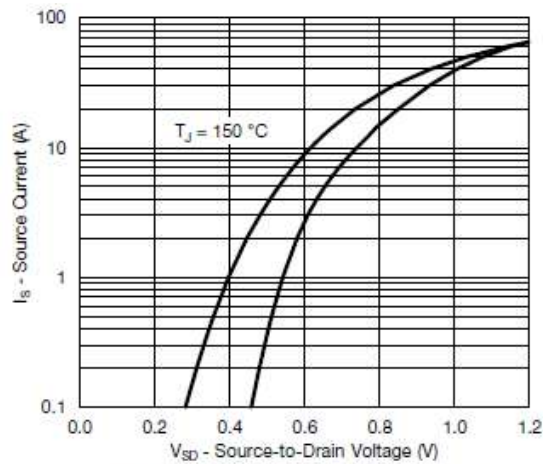
Capacitance



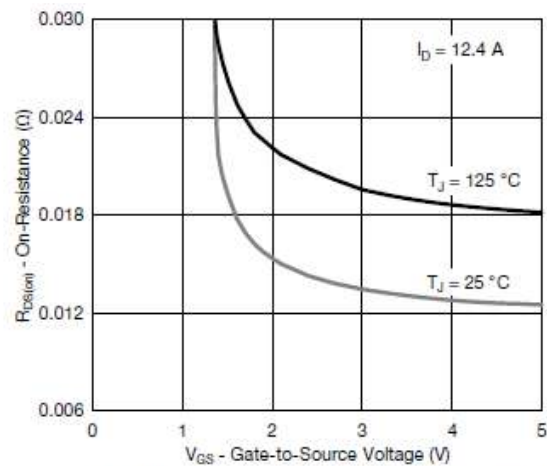
Gate Charge



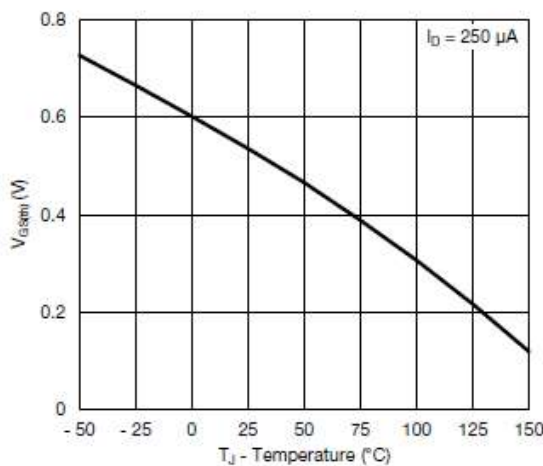
On-Resistance vs. Junction Temperature



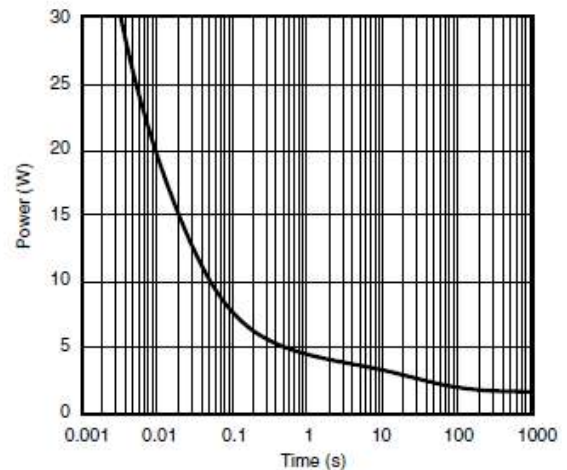
Source-Drain Diode Forward Voltage



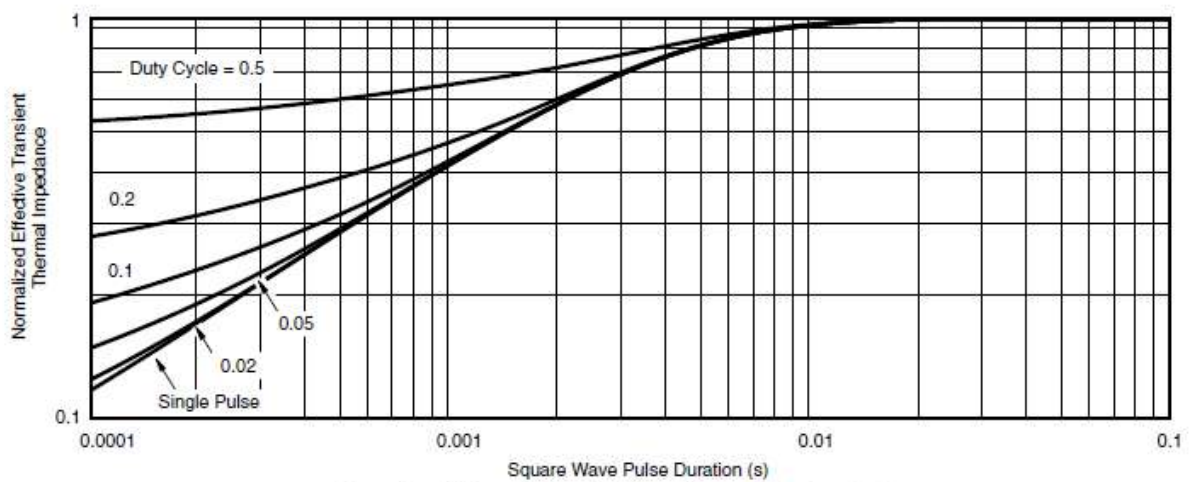
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage

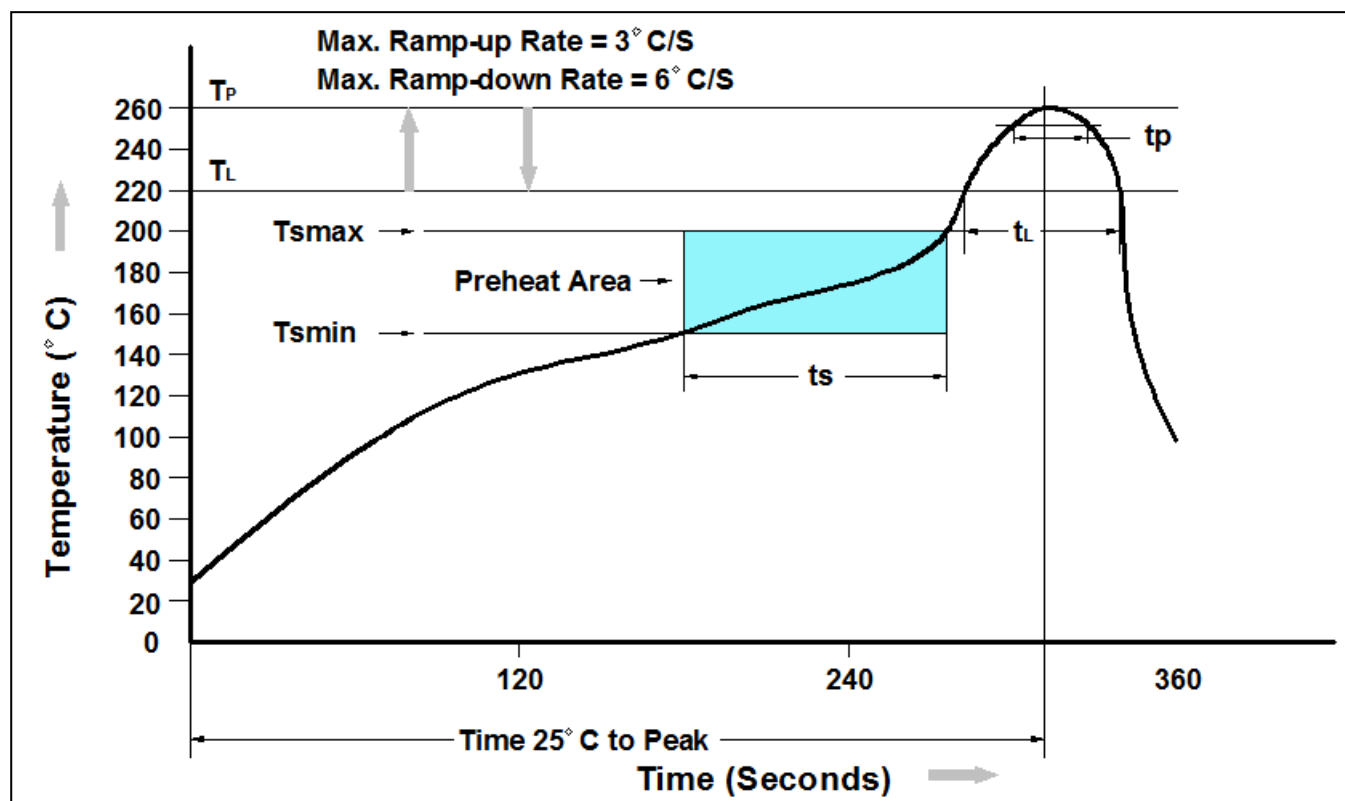


Single Pulse Power, Junction-to-Ambient



Normalized Thermal Transient Impedance, Junction-to-Case

➤ Recommend IR Reflow Soldering Thermal Profile

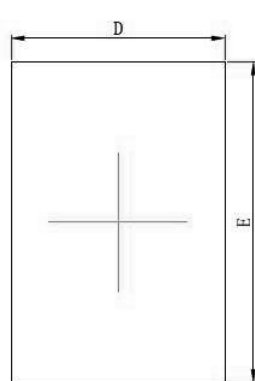


Profile Feature	Pb-Free Assembly Profile
Temperature Min. (T _{smin})	150°C
Temperature Max. (T _{smax})	200°C
Time (ts) from (T _{smin} to T _{smax})	60-120 seconds
Average Ramp-up Rate (t _L to t _P)	3°C/second max.
Liquidous Temperature (T _L)	217°C
Time (t _L) Maintained Above (T _L)	60 – 150 seconds
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.

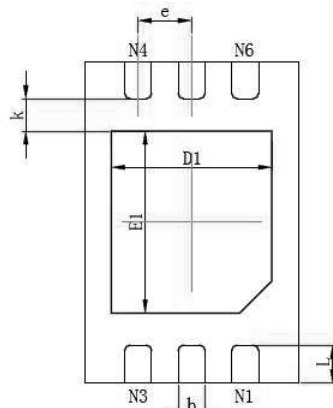
➤ Ordering Information

Part Number	Description	Quantity
PAN20TE06F	DFN2X3-6L Reel	4000 pcs

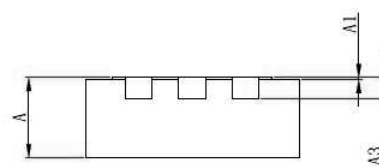
➤ Package Information (DFN2X3-6L)



TOP VIEW



BOTTOM VIEW



SIDE VIEW

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.800	0.028	0.031
A1	0.000	0.050	0.000	0.002
A3	0.203REF.		0.008REF.	
D	1.950	2.050	0.077	0.081
E	2.950	3.050	0.116	0.120
D1	1.450	1.550	0.057	0.061
E1	1.650	1.750	0.065	0.069
k	0.200MIN.		0.008MIN.	
b	0.200	0.300	0.008	0.012
e	0.500TYP.		0.020TYP.	
L	0.300	0.400	0.012	0.016

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