

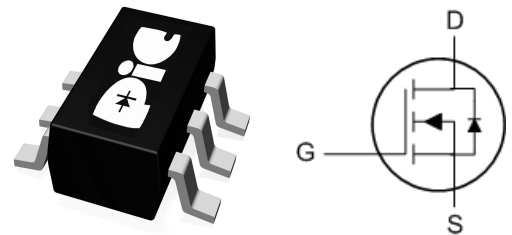
### ➤ General Description

This PAN3046SQ 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  $R_{DS(ON)}$
- TSOT-23-6L package design

### ➤ TSOT-23-6L



### ➤ Application

- Power Management in Notebook
- LED Display
- DC-DC System
- LCD Panel

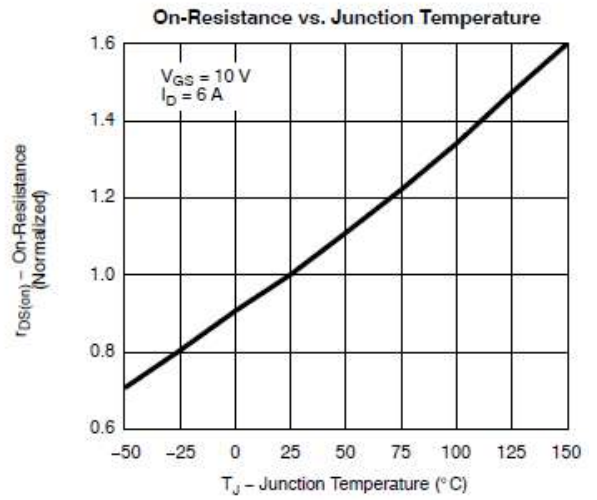
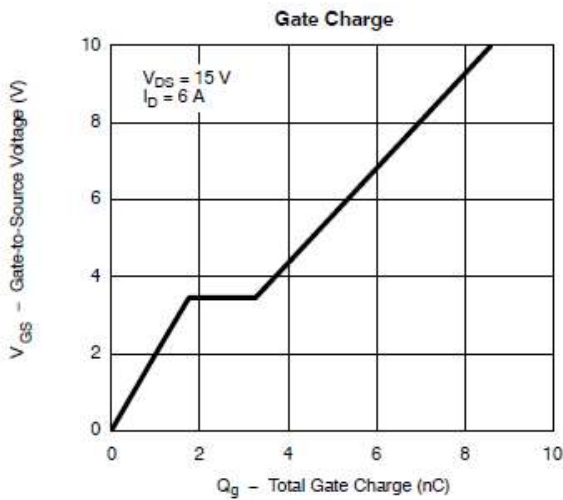
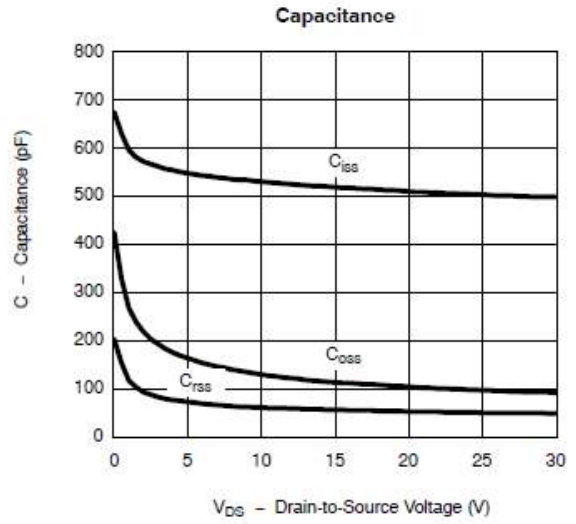
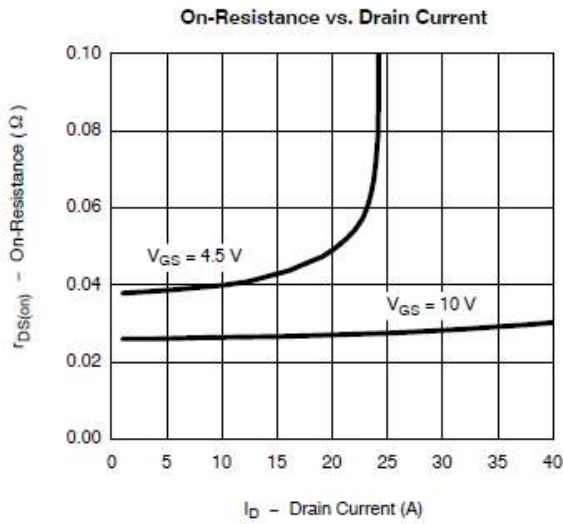
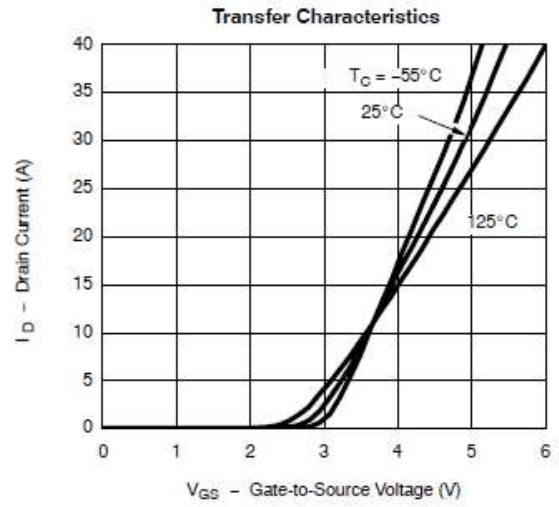
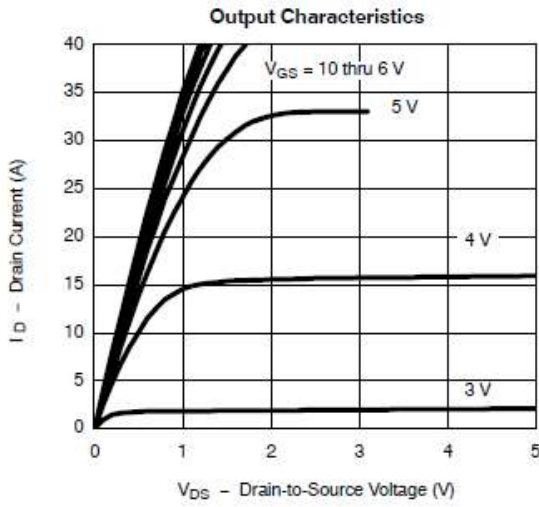
### ➤ Absolute Maximum Ratings

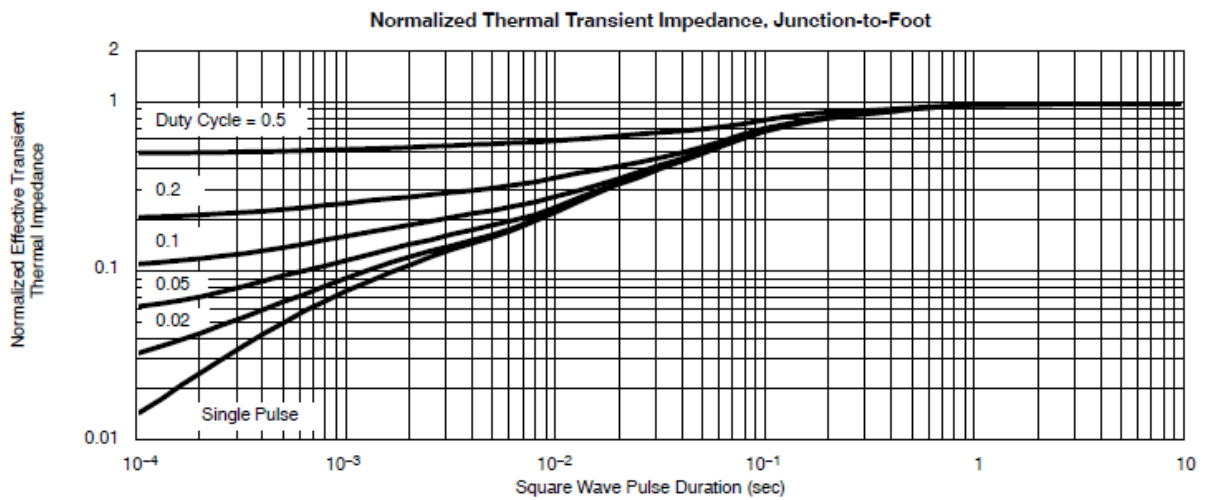
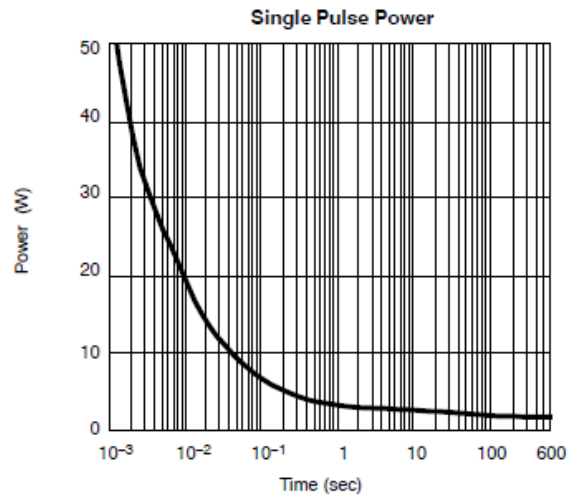
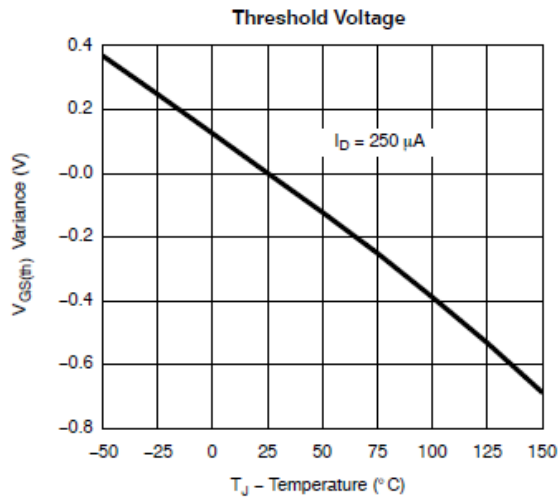
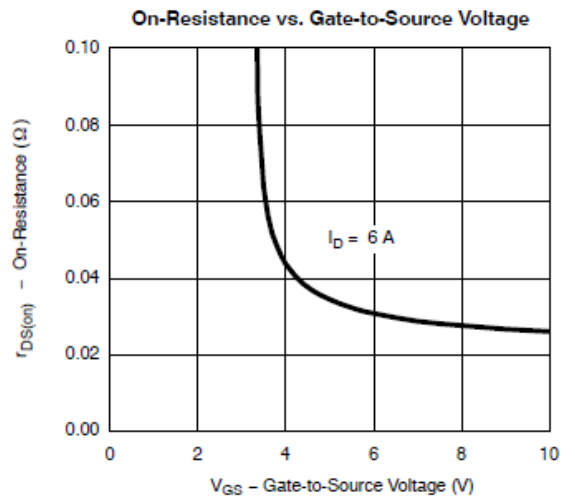
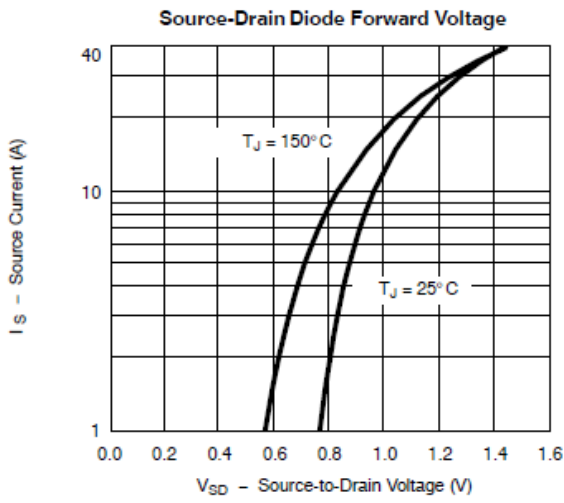
Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DSS}$	30	V
Gate –Source Voltage	$V_{GSS}$	$\pm 20$	V
Continuous Drain Current( $T_J=150^\circ C$ )	$I_D$	$T_A=25^\circ C$	5.4
		$T_A=70^\circ C$	4.8
Pulsed Drain Current	$I_{DM}$	30	A
Continuous Source Current(Diode Conduction)	$I_S$	1.7	A
Power Dissipation	$P_D$	$T_A=25^\circ C$	2.0
		$T_A=70^\circ C$	1.3
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 ( $T_A=25^\circ C$ Unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
<b>Static</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	30			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1.3		2.1	
Gate Leakage Current	$I_{GSS}$	$V_{DS}=0V, V_{GS}=\pm 20V$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=24V, V_{GS}=0V$			1	uA
		$V_{DS}=24V, V_{GS}=0V$ $T_J=85^\circ C$			30	
On-State Drain Current	$I_{D(on)}$	$V_{DS} \geq 4.5V, V_{GS}=10V$	6			A
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=5.4A$		32	40	m $\Omega$
		$V_{GS}=4.5V, I_D=4.8A$		42	50	
Forward Transconductance	$g_{FS}$	$V_{DS}=4.5V, I_D=2.5A$		8		S
Diode Forward Voltage	$V_{SD}$	$I_S=1.6A, V_{GS}=0V$		0.8	1.2	V
<b>Dynamic</b>						
Total Gate Charge	$Q_g$	$V_{DS}=15V, V_{GS}=10V$ $I_D=2.6A$		3.0	4.5	nC
Gate-Source Charge	$Q_{gs}$			1.6		
Gate-Drain Charge	$Q_{gd}$			0.6		
Input Capacitance	$C_{iss}$	$V_{DS}=15V, V_{GS}=0V$ $f=1MHz$		320		pF
Output Capacitance	$C_{oss}$			70		
Reverse Transfer Capacitance	$C_{rss}$			30		
Turn-On Time	$t_{d(on)}$	$V_{DD}=15V, R_L=15\Omega$		8	12	ns
	$t_r$			12	18	
Turn-Off Time	$t_{d(off)}$	$I_D=1.0A, V_{GEN}=10V$ $R_G=6\Omega$		15	30	
	$t_f$			8	15	

### ➤ Typical Characteristics





### ➤ Recommend IR Reflow Soldering Thermal Profile

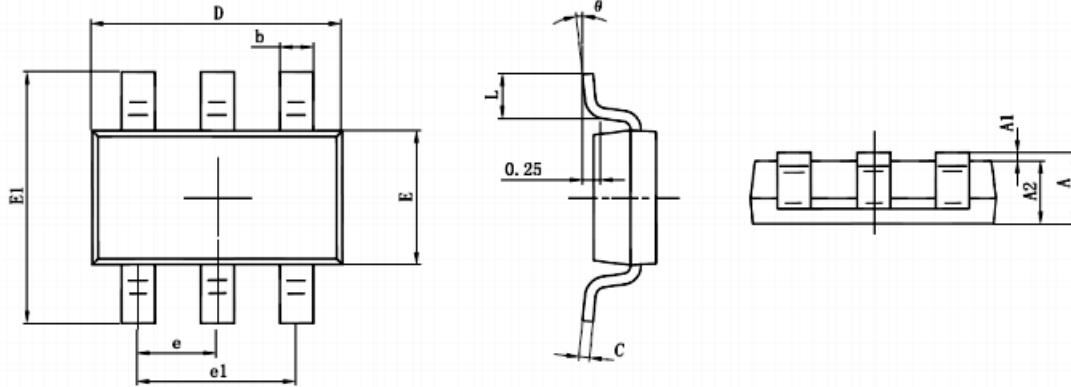


Profile Feature	Pb-Free Assembly Profile
Temperature Min. ( $T_{smin}$ )	150°C
Temperature Max. ( $T_{smax}$ )	200°C
Time ( $t_s$ ) from ( $T_{smin}$ to $T_{smax}$ )	60-120 seconds
Average Ramp-up Rate ( $t_L$ to $t_P$ )	3°C/second max.
Liquidous Temperature ( $T_L$ )	217°C
Time ( $t_L$ ) Maintained 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
PAN3046SQ	TSOT-23-6L Reel	3000 pcs

➤ Package Information (TSOT-23-6L)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.700	0.900	0.028	0.035
A1	0.000	0.100	0.000	0.004
A2	0.700	0.800	0.028	0.031
b	0.350	0.500	0.014	0.020
c	0.080	0.200	0.003	0.008
D	2.820	3.020	0.111	0.119
E	1.600	1.700	0.063	0.067
E1	2.650	2.950	0.104	0.116
e	0.95 (BSC)		0.037(BSC)	
e1	1.90 (BSC)		0.075(BSC)	
L	0.300	0.600	0.012	0.024
theta	0°	8°	0°	8°

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