

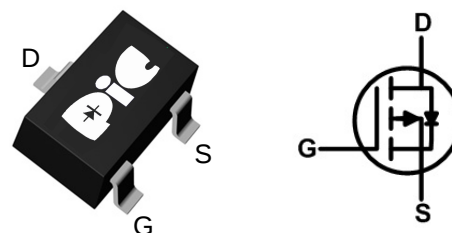
➤ General Description

This PAP0037SN P-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 $R_{DS(ON)}$
- SOT-23 package design

➤ SOT-23



➤ Application

- Active Clamp Circuits in DC/DC Power Supplies

➤ Absolute Maximum Ratings

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DSS}	-100	V
Gate –Source Voltage		V_{GSS}	± 20	V
Continuous Drain Current($T_J=150^\circ C$)	$T_A=25^\circ C$	I_D	-3.8	A
	$T_A=70^\circ C$		-2.6	
Pulsed Drain Current		I_{DM}	-15	A
Continuous Source Current(Diode Conduction)		I_S	-5	A
Power Dissipation	$T_A=25^\circ C$	P_D	2.8	W
	$T_A=70^\circ C$		1.2	
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	$^\circ C / W$

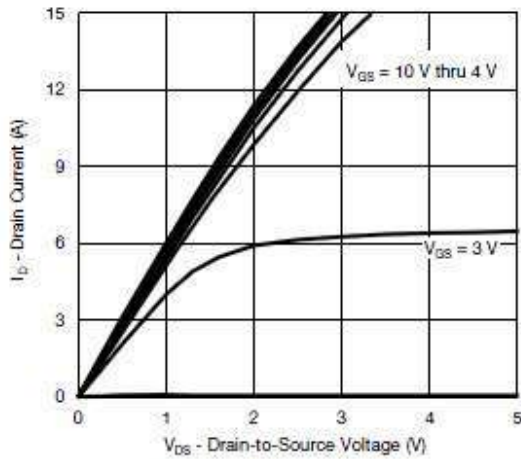
P-Ch -100V Fast Switching MOSFET
 $V_{DS}=-100V$, $I_D=-3.8A$, $R_{DS(on)}=200m\Omega$

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

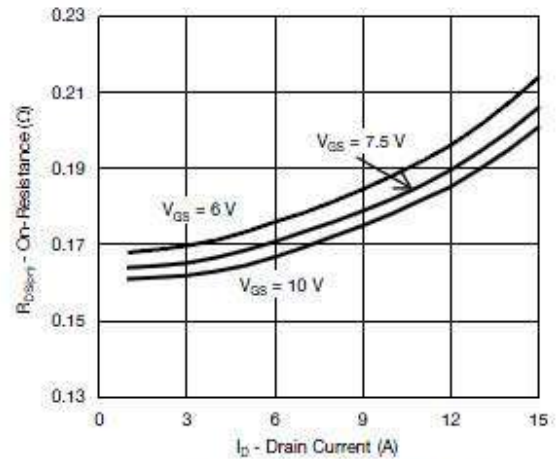
Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D = -250\mu A$	-100			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D = -250\mu A$	-1.0		-2.5	
Gate Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}= \pm 20V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}= -80V, V_{GS}=0V$			-1	uA
		$V_{DS}= -80V, V_{GS}=0V$ $T_J=85^\circ C$			-30	
On-State Drain Current	$I_{D(on)}$	$V_{DS} \geq -10V, V_{GS}= -10V$	-8			A
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = -10V, I_D=-3.8A$		177	200	mΩ
		$V_{GS} = -4.5V, I_D=-2.6A$		196	220	
Forward Transconductance	g_{FS}	$V_{DS}= -15V, I_D= -3.2A$		12		S
Diode Forward Voltage	V_{SD}	$I_S= -2A, V_{GS}=0V$		-0.8	-1.3	V
Dynamic						
Total Gate Charge	Q_g	$V_{DS}=-50V, V_{GS}=-4.5V$ $I_D= -2.6A$		12	20	nC
Gate-Source Charge	Q_{gs}			3.0		
Gate-Drain Charge	Q_{gd}			4.5		
Input Capacitance	C_{iss}	$V_{DS}=-50V, V_{GS}=0V$ $f=1MHz$		1100		pF
Output Capacitance	C_{oss}			70		
Reverse Transfer Capacitance	C_{rss}			45		
Turn-On Time	$t_{d(on)}$	$V_{DD}=-50V, R_L=17\Omega$ $I_D=-2.6A, V_{GEN}=-$ $10V R_G=1\Omega$		8	15	ns
	t_r			15	20	
Turn-Off Time	$t_{d(off)}$			35	50	
	t_f			10	25	

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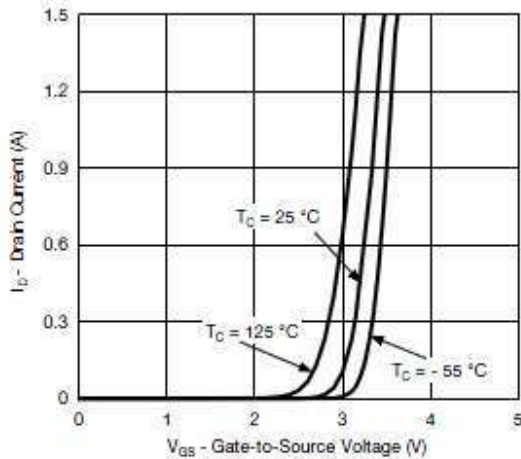
➤ Typical Characteristics



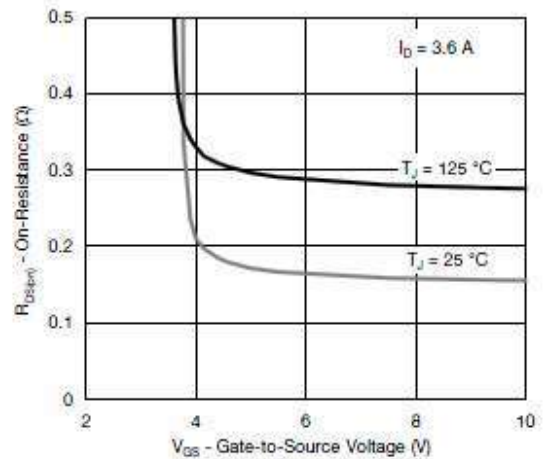
Output Characteristics



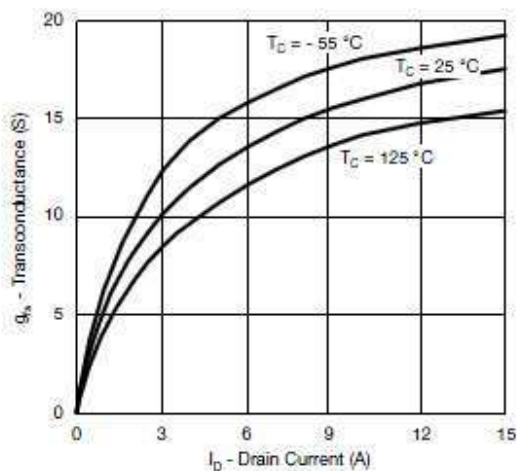
On-Resistance vs. Drain Current



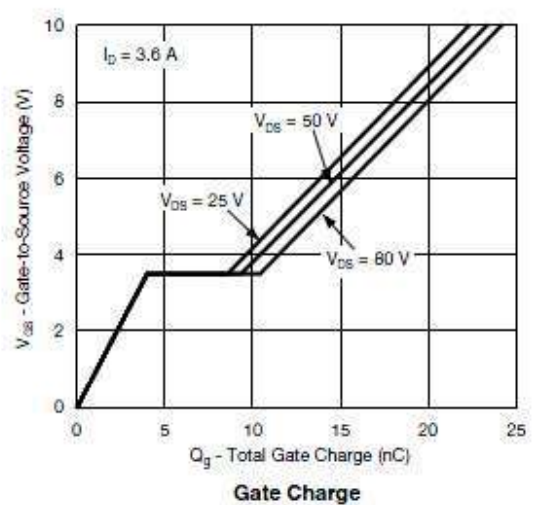
Transfer Characteristics



On-Resistance vs. Gate-to-Source Voltage

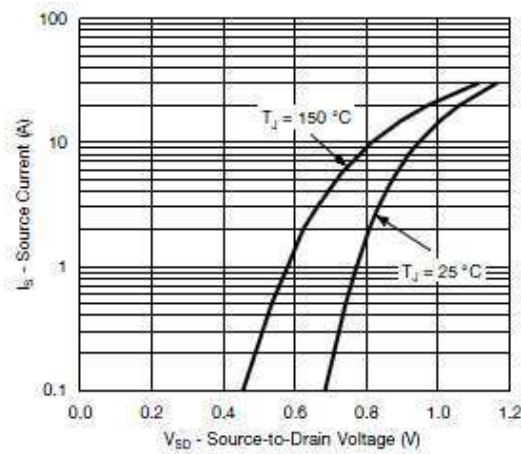


Transconductance

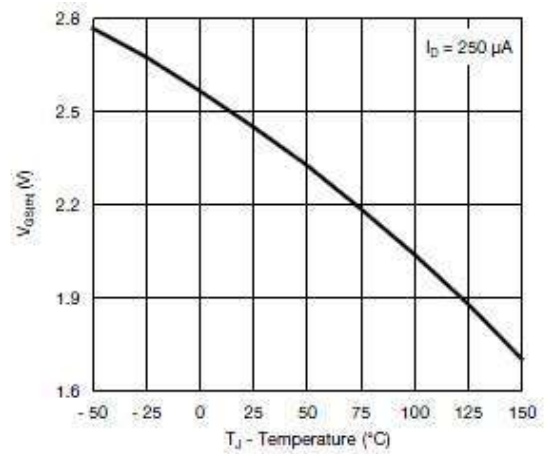


Gate Charge

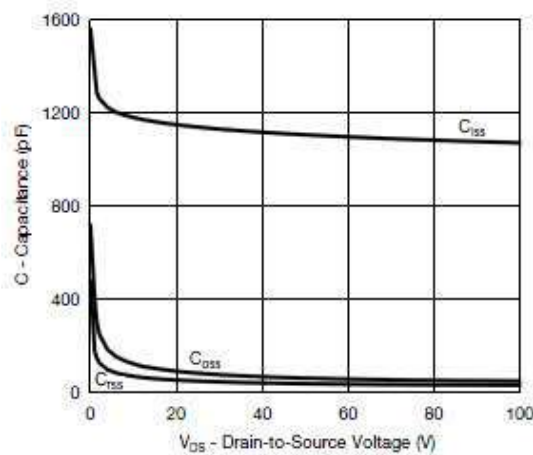
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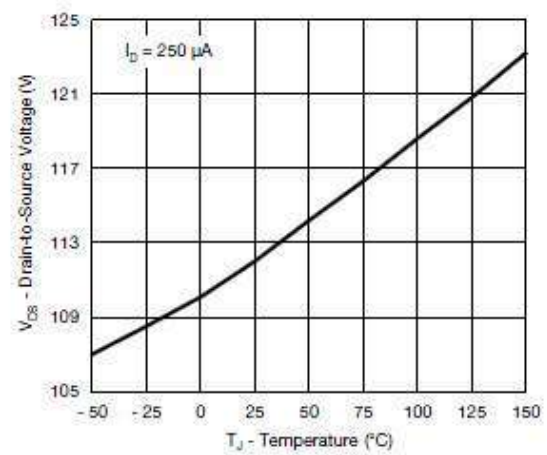
Source-Drain Diode Forward Voltage



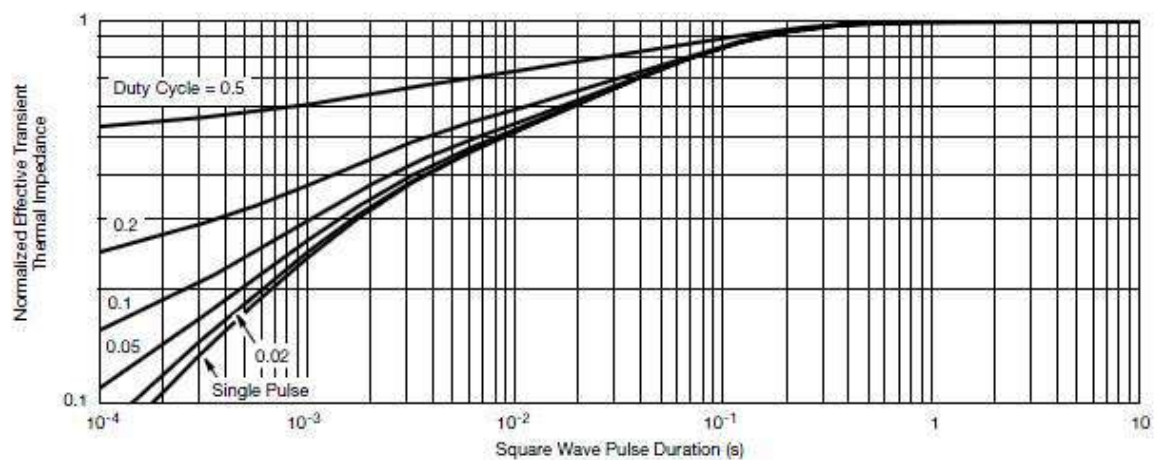
Threshold Voltage



Capacitance

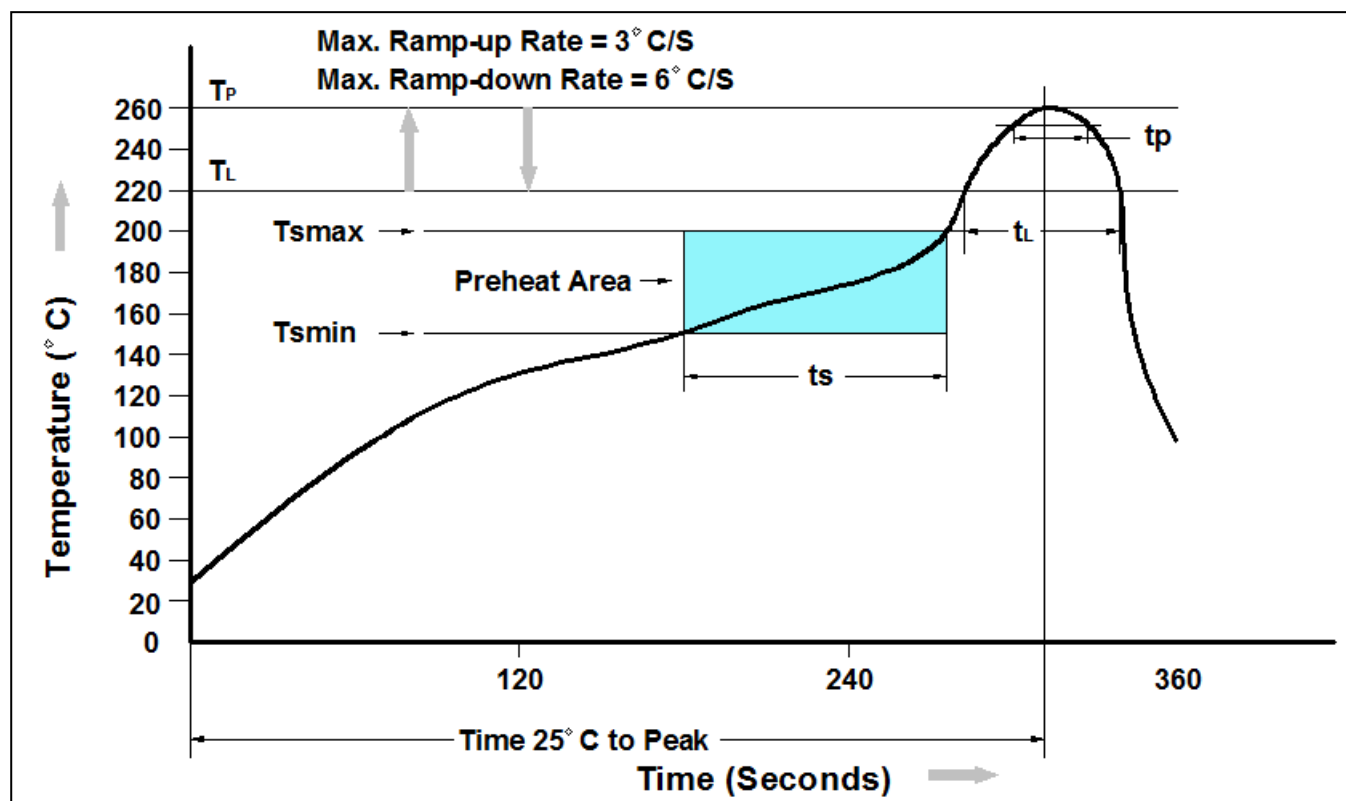


Drain Source Breakdown vs. Junction Temperature



Normalized Thermal Transient Impedance, Junction-to-Case

➤ Recommend IR Reflow Soldering Thermal Profile



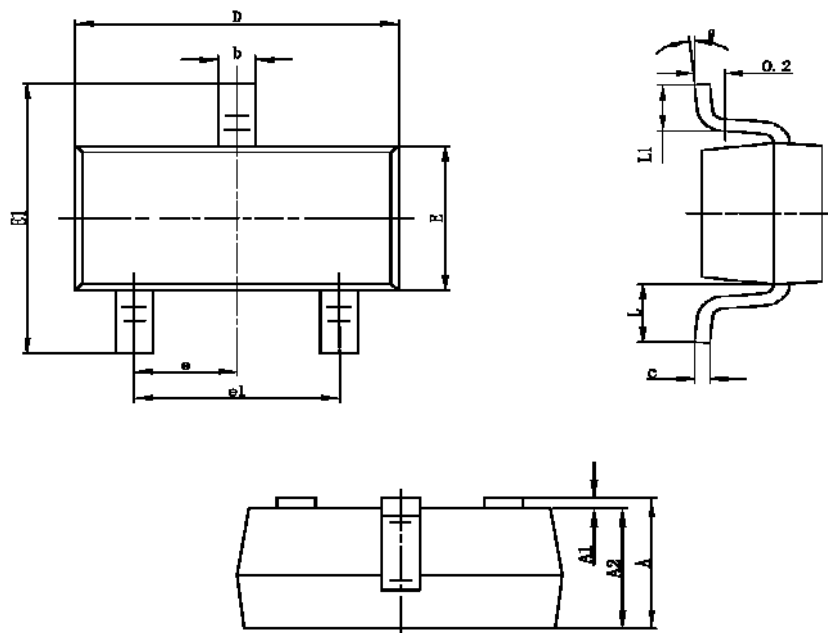
Profile Feature	Pb-Free Assembly Profile
Temperature Min. (T_{smin})	150°C
Temperature Max. (T_{smax})	200°C
Time (t_s) from (T_{smin} to T_{smax})	60-120 seconds
Average Ramp-up Rate (t_L to t_P)	3°C/second max.
Liquidous Temperature (T_L)	217°C
Time (t_L) Maintained Above (T_L)	60 – 150 seconds
Peak 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
PAP0037SN	SOT-23 Reel	3000 pcs

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➤ Package Information (SOT-23)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.400	0.012	0.016
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950TYP		0.037TYP	
e1	1.800	2.000	0.071	0.079
L	0.700REF		0.028REF	
L1	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

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