

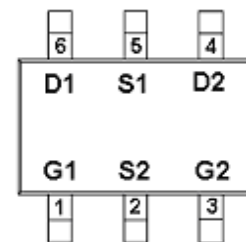
➤ General Description

This PAC3001C N&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

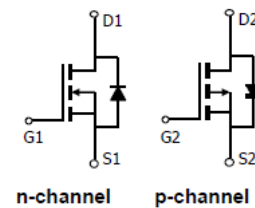
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- TSOP-6 package design

➤ TSOP-6



➤ Application

- Power Management in Note book
- Portable Equipment
- Battery Powered System
- DC/DC Converter
- Load Switch
- DSC
- LCD Display inverter



➤ Absolute Maximum Ratings

Parameter	Symbol	Rating		Unit	
		N-Channel	P-Channel		
Drain-Source Voltage	V_{DSS}	30	-30	V	
Gate –Source Voltage	V_{GSS}	± 20	± 12	V	
Continuous Drain Current($T_J=150^\circ C$)	I_D	$T_A=25^\circ C$	3.4	-2.9	A
		$T_A=70^\circ C$	2.8	-2.3	
Pulsed Drain Current	I_{DM}	15	-15	A	
Continuous Source Current(Diode Conduction)	I_S	1.5	-1.5	A	
Power Dissipation	P_D	$T_A=25^\circ C$	2.0		W
		$T_A=70^\circ C$	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		$^\circ C/W$	

N-Ch and P-Ch Fast Switching MOSFET

$V_{DS}=30V, I_D=3.4A, R_{DS(on)}=46m\Omega$

$V_{DS}=-30V, I_D=-2.9A, R_{DS(on)}=110m\Omega$

➤ N-Channel Electrical Characteristics (T_A=25°C Unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	30			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.6		1.4	
Gate Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 12V$			± 100	nA
Zero Gate Voltage Drain Current	I_{BSS}	$V_{DS}=24V, V_{GS}=0V$			1	uA
		$V_{DS}=24V, V_{GS}=0V$ $T_J=85^\circ C$			30	
On-State Drain Current	$I_{D(on)}$	$V_{DS} \geq 5V, V_{GS}=4.5V$	30			A
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=3.4A$		36	46	mΩ
		$V_{GS}=4.5V, I_D=3.0A$		42	58	
		$V_{GS}=2.5V, I_D=2.0A$		105	125	
Forward Transconductance	g_{FS}	$V_{DS}=10V, I_D=1.6A$		20		S
Diode Forward Voltage	V_{SD}	$I_S=1.7A, V_{GS}=0V$		0.8	1.2	V
Dynamic						
Total Gate Charge	Q_g	$V_{DS}=15V, V_{GS}=4.5V$ $I_D \equiv 3.6A$		2.3	3	nC
Gate-Source Charge	Q_{gs}			1.0		
Gate-Drain Charge	Q_{gd}			0.6		
Input Capacitance	C_{iss}	$V_{DS}=15V, V_{GS}=0V$ $f=1MHz$		280		pF
Output Capacitance	C_{oss}			40		
Reverse Transfer Capacitance	C_{rss}			20		
Turn-On Time	$t_{d(on)}$	$V_{DD}=15V, R_L=15\Omega$ $I_D \equiv 1.0A, V_{GEN}=10V$ $R_G=6\Omega$		10	15	ns
	t_r			12	20	
Turn-Off Time	$t_{d(off)}$			15	25	
	t_f			10	15	

N-Ch and P-Ch Fast Switching MOSFET

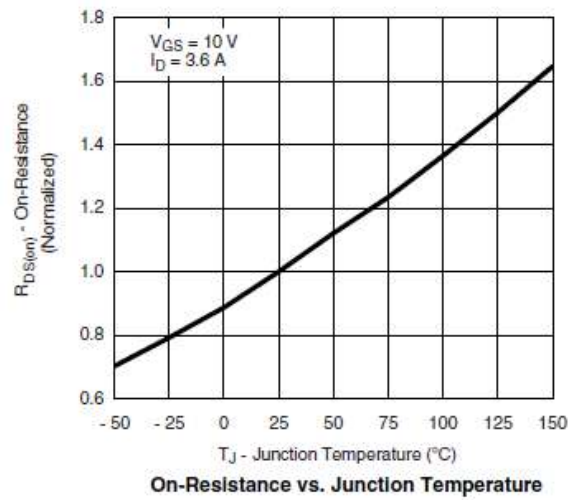
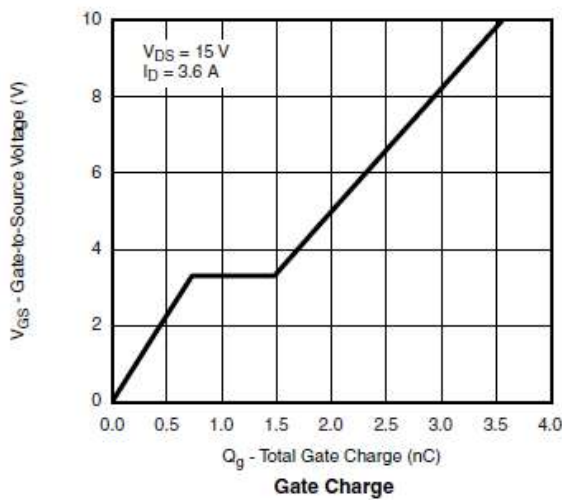
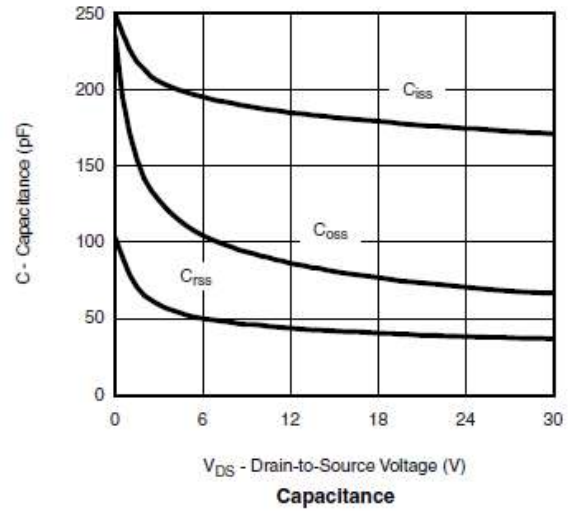
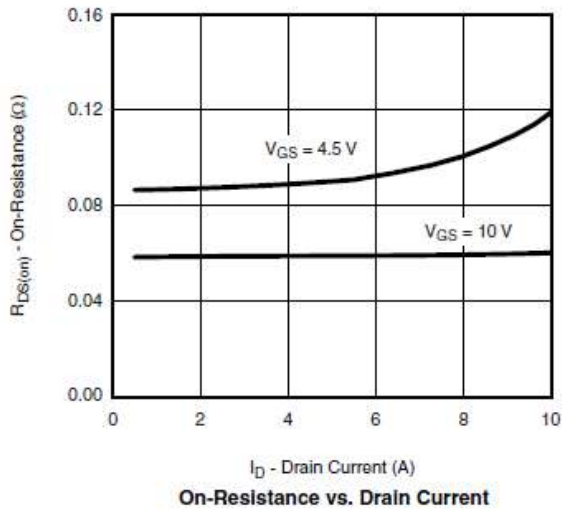
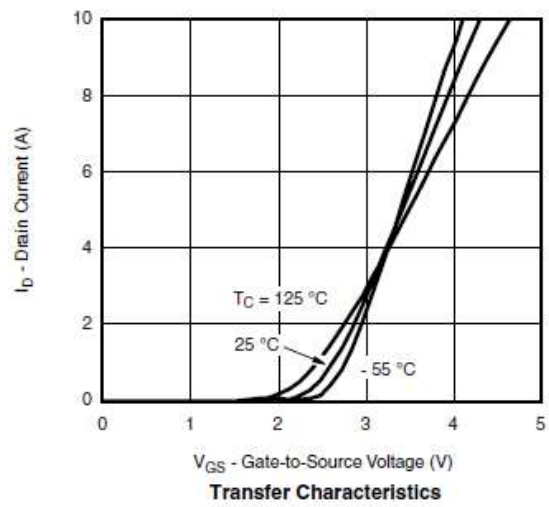
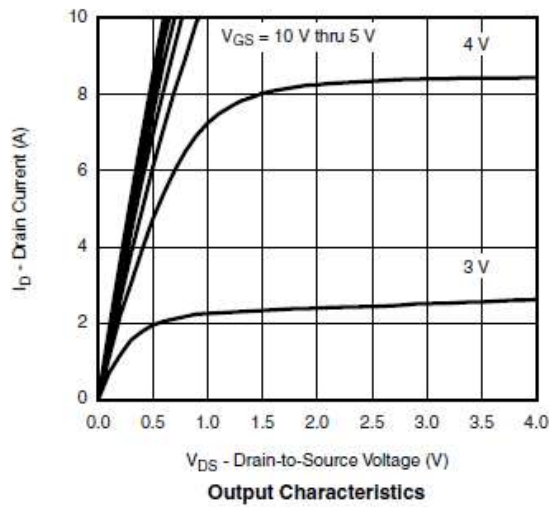
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$V_{DS}=-30V, I_D=-2.9A, R_{DS(ON)}=110m\Omega$

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

Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-30			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.6		-1.4	
Gate Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 12V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-24V, V_{GS}=0V$			-1	uA
		$V_{DS}=-24V, V_{GS}=0V$ $T_A=85^\circ C$			-30	
On-State Drain Current	$I_{D(on)}$	$V_{DS} \leq -5V, V_{GS}=-10V$	-10			A
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=-10V, I_D=-2.6A$		90	110	m Ω
		$V_{GS}=-4.5V, I_D=-2.0A$		100	125	
		$V_{GS}=-2.5V, I_D=-1.2A$		135	150	
Forward Transconductance	g_{FS}	$V_{DS}=-5V, I_D=-4.0A$		10		S
Diode Forward Voltage	V_{SD}	$I_S=-1.7A, V_{GS}=0V$		-0.7	-1.3	V
Dynamic						
Total Gate Charge	Q_g	$V_{DS}=-15V, V_{GS}=-4.5V$ $I_D=-2.0A$		4	6	nC
Gate-Source Charge	Q_{gs}			0.6		
Gate-Drain Charge	Q_{gd}			1.5		
Input Capacitance	C_{iss}	$V_{DS}=-15V, V_{GS}=0V$ $f=1MHz$		230		pF
Output Capacitance	C_{oss}			40		
Reverse Transfer Capacitance	C_{rss}			25		
Turn-On Time	$t_{d(on)}$	$V_{DD}=-15V, R_L=15\Omega$ $I_D=-1.0A, V_{GEN}=-10V$ $R_G=6\Omega$		5	10	ns
	t_r			8	15	
Turn-Off Time	$t_{d(off)}$			15	30	
	t_f			15	30	

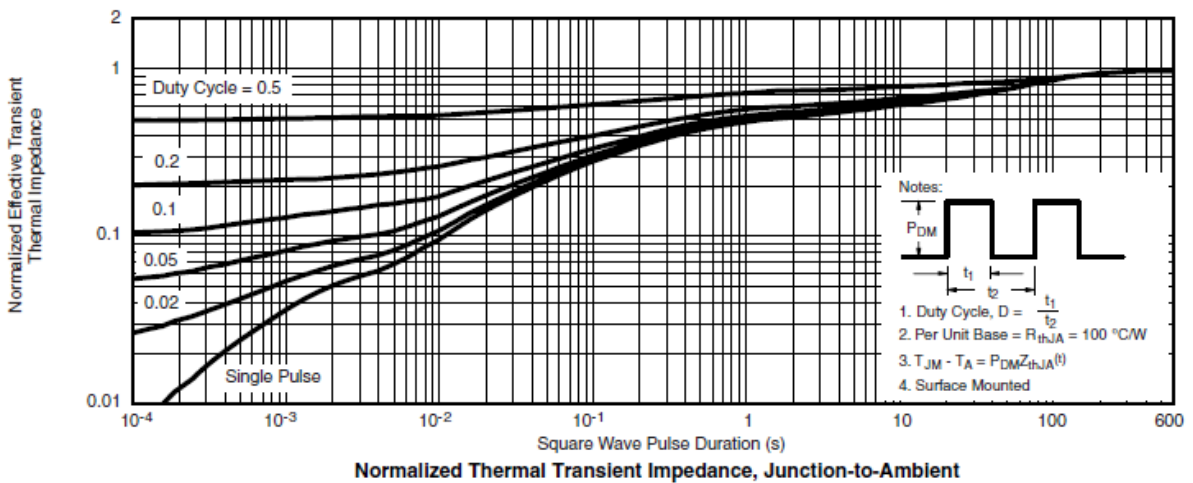
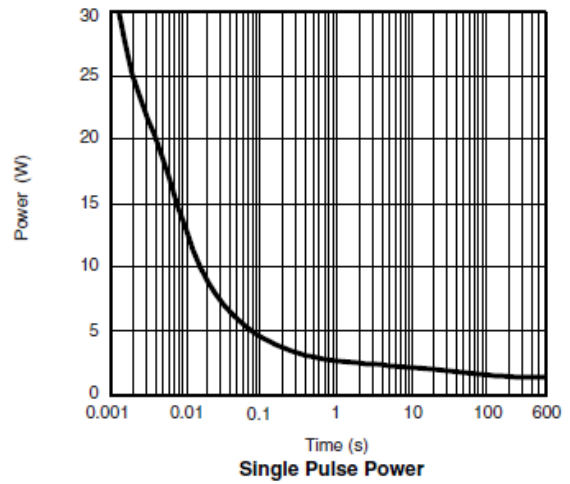
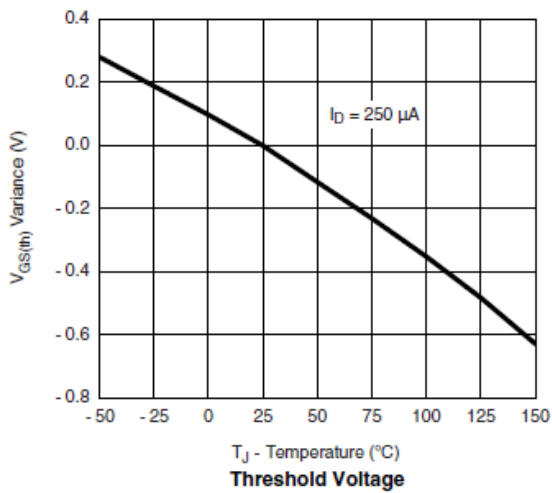
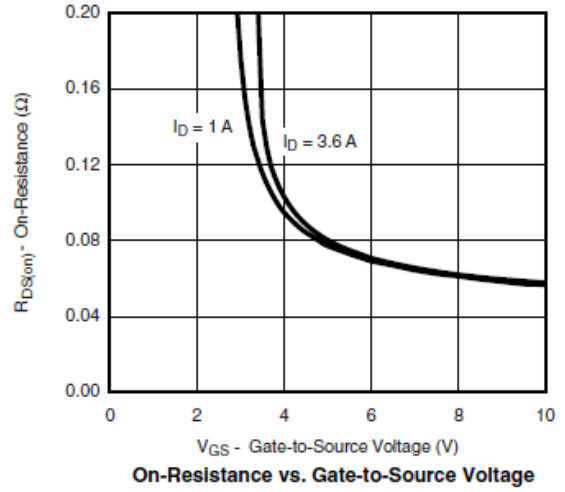
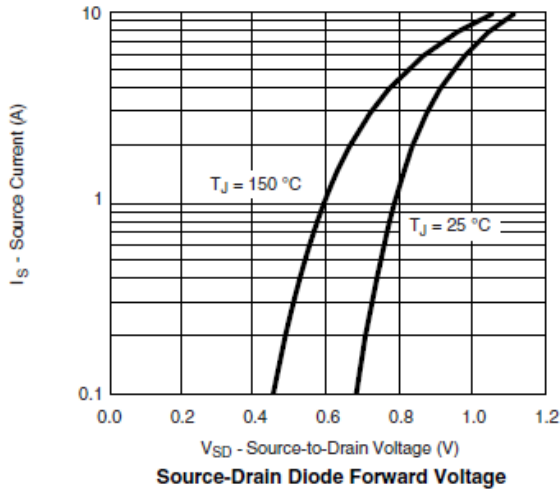
➤ N-Channel Typical Characteristics



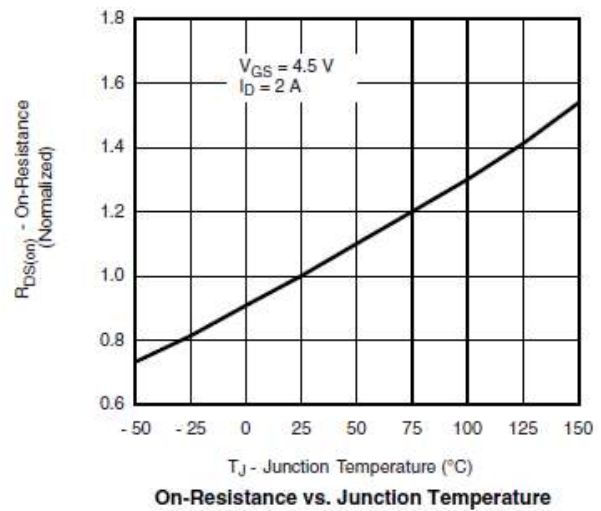
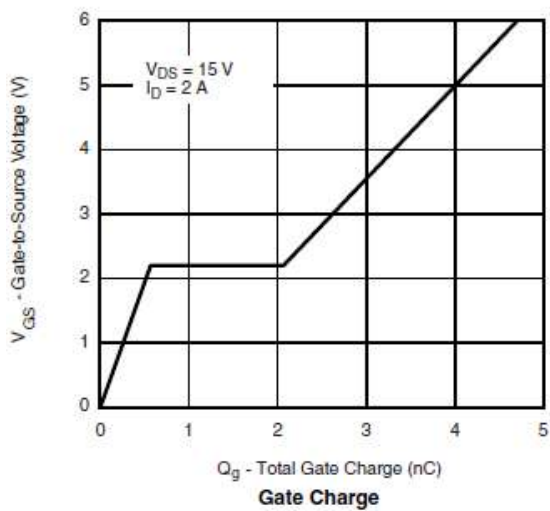
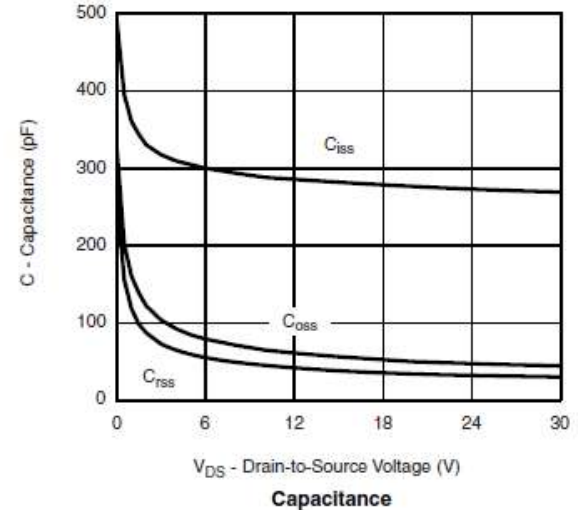
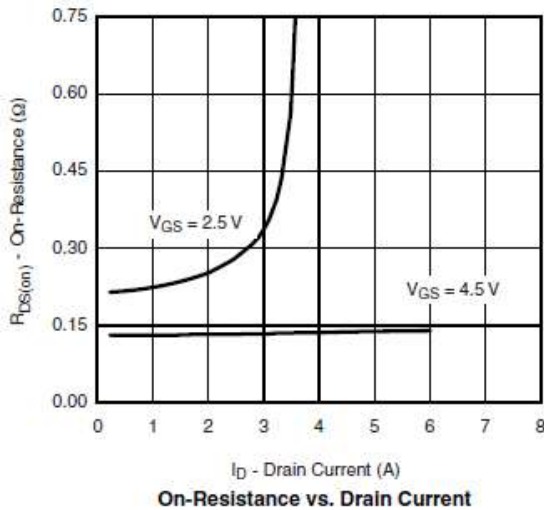
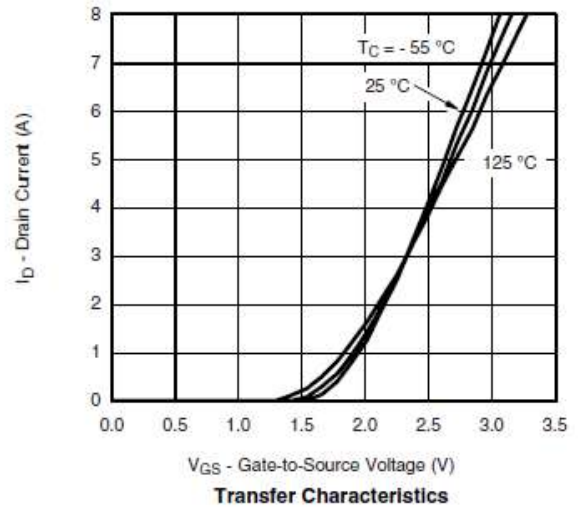
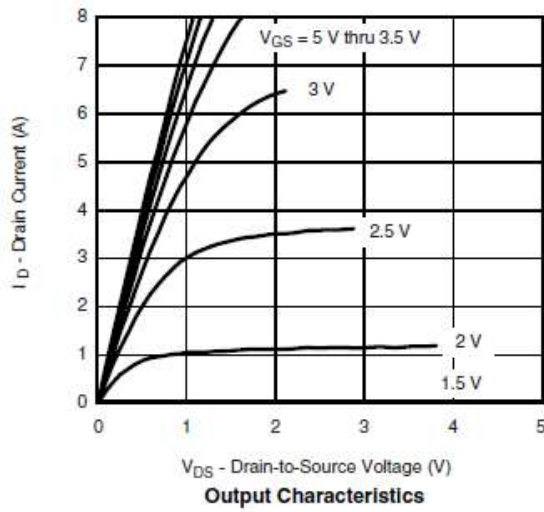
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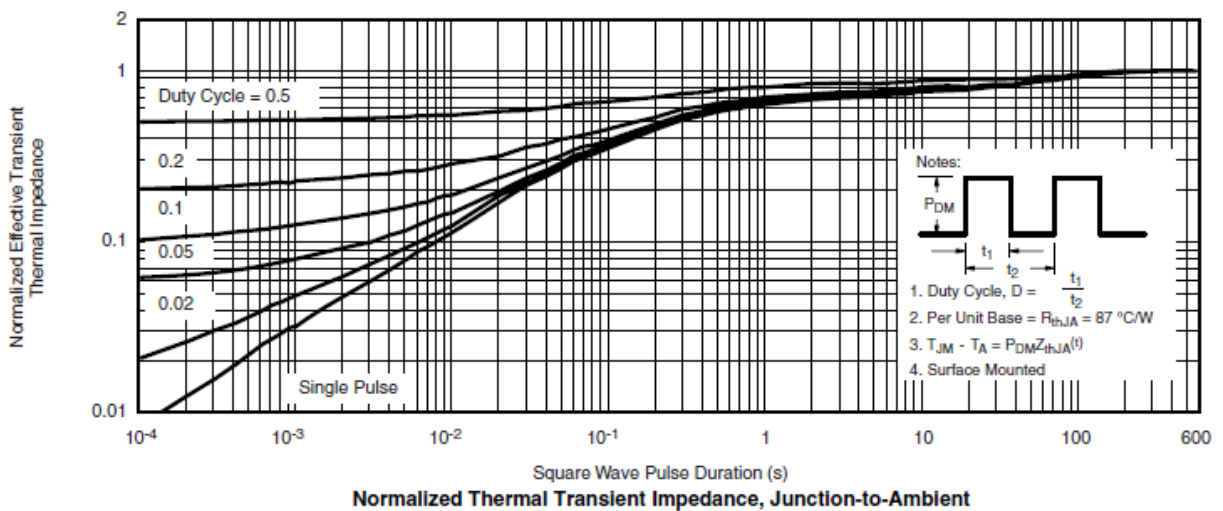
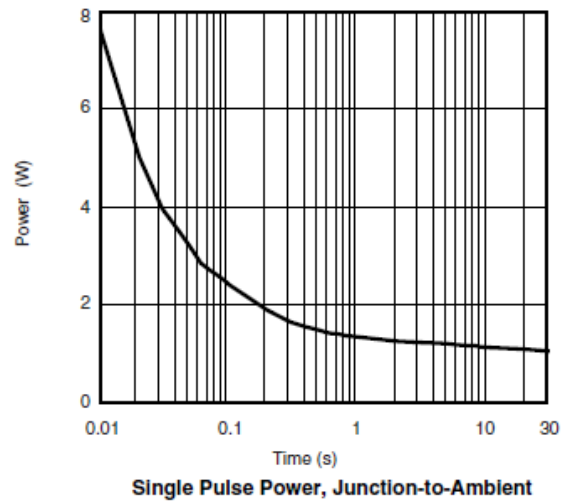
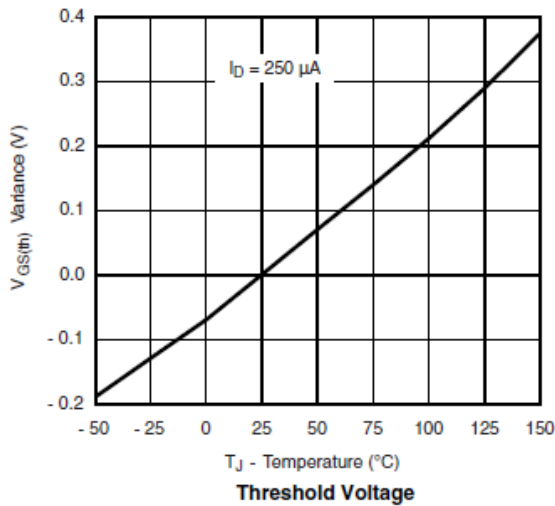
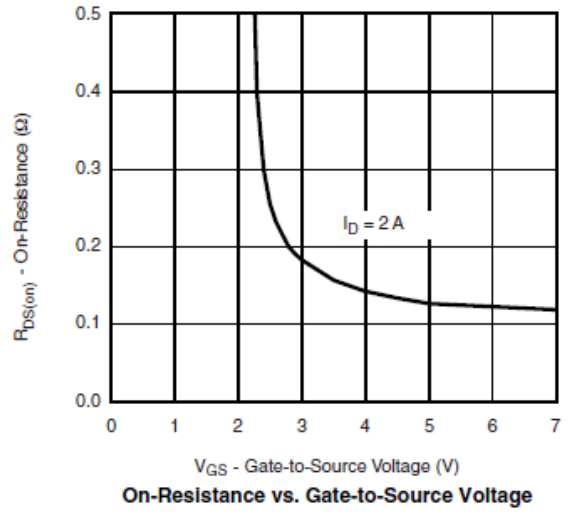
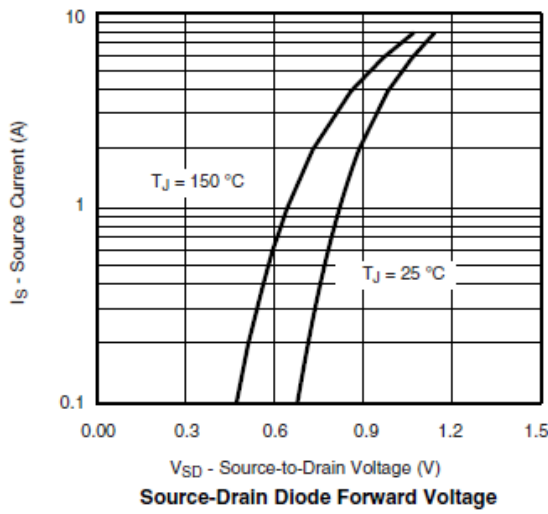
➤ P-Channel Typical Characteristics



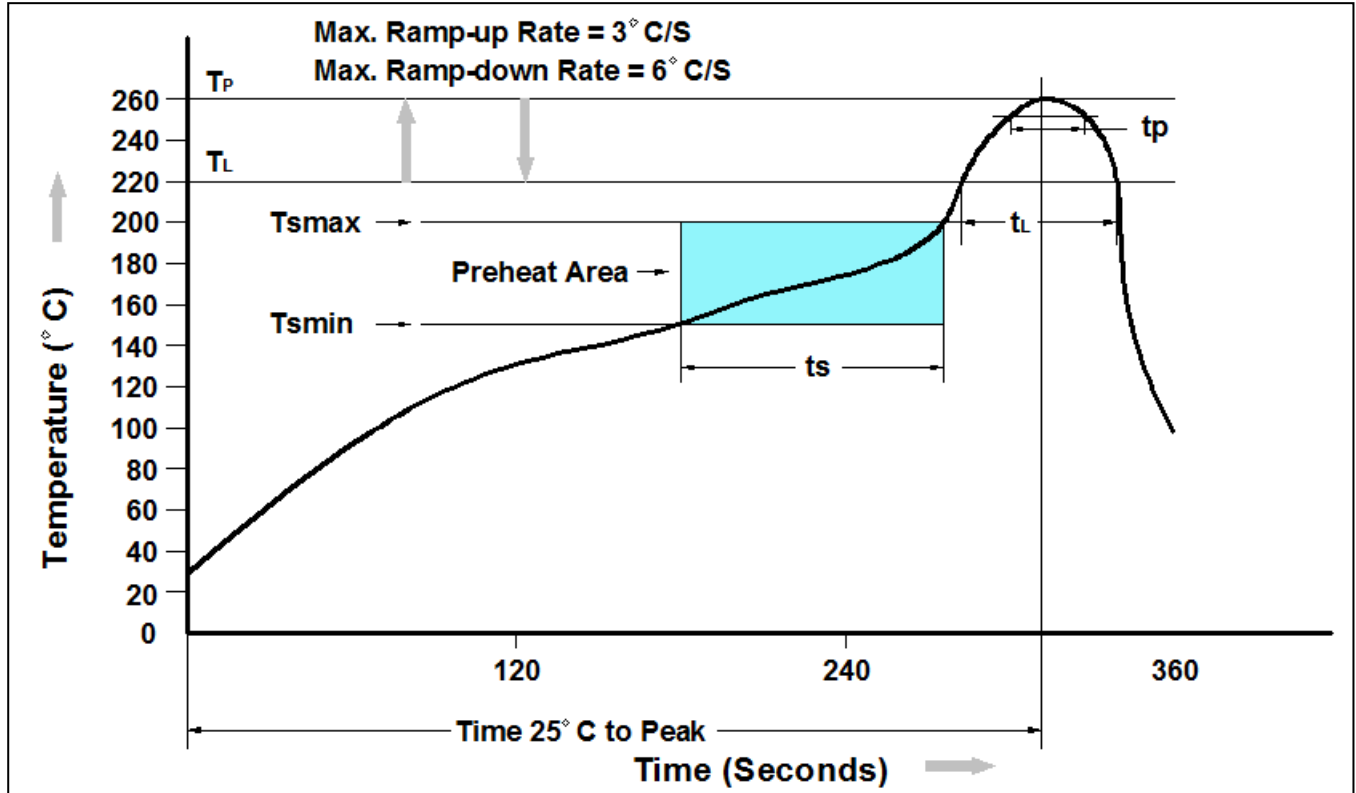
N-Ch and P-Ch Fast Switching MOSFET

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➤ Recommand IR Reflow Soldering Thermal Profile

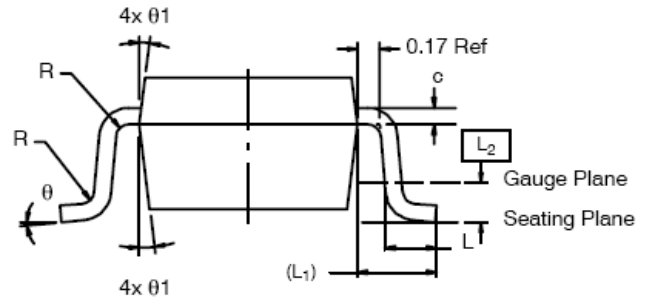
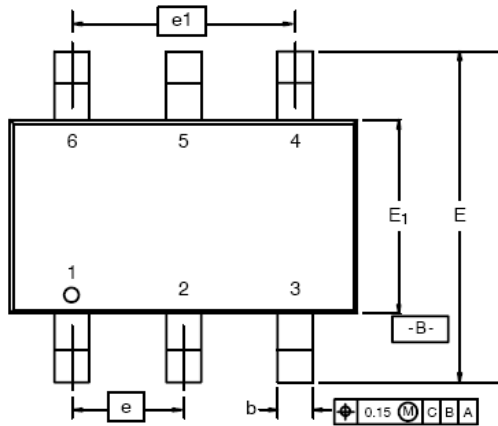


Profile Feature	Pb-Free Assembly Profile
Temperature Min. (T _{smin})	150°C
Temperature Max. (T _{smax})	200°C
Time (t _s) from (T _{smin} to T _{smax})	60-120 seconds
Average Ramp-up Rate (t _L to t _P)	3°C/second max.
Liquidous Temperature (T _L)	217°C
Time (t _L) Maintained Above (T _L)	60 – 150 seconds
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
PAC3001C	TSOP-6 Reel	3000 pcs

➤ Package Information (TSOP-6)



Dim	MILLIMETERS			INCHES		
	Min	Nom	Max	Min	Nom	Max
A	0.91	-	1.10	0.036	-	0.043
A ₁	0.01	-	0.10	0.0004	-	0.004
A ₂	0.90	-	1.00	0.035	0.038	0.039
b	0.30	0.32	0.45	0.012	0.013	0.018
c	0.10	0.15	0.20	0.004	0.006	0.008
D	2.95	3.05	3.10	0.116	0.120	0.122
E	2.70	2.85	2.96	0.106	0.112	0.117
E ₁	1.55	1.65	1.70	0.061	0.065	0.067
e	1.00 BSC			0.0394 BSC		
e ₁	1.90	2.00	2.10	0.075	0.080	0.085
L	0.35	-	0.50	0.014	-	0.020
L ₁	0.60 Ref			0.024 Ref		
L ₂	0.25 BSC			0.010 BSC		
R	0.10	-	-	0.004	-	-
θ	0°	4°	8°	0°	4°	8°
θ ₁	7° Nom			7° Nom		

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