

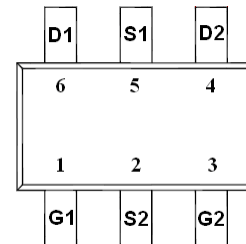
➤ General Description

This PAC6006WM N&P Channel enhancement mode power field effect transistor is the high density trench technology and this advanced technology can provide excellent Rds(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

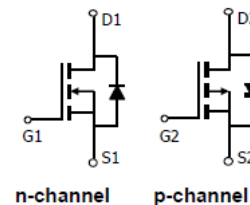
- Super high density cell design for extremely low RDS (ON)
- Exceptional on-resistance and maximum DC current capability
- SOT-23-6L package design

➤ SOT-23-6L



➤ Application

- LED Backlight
- DC/DC Converter
- Load Switch for Portable Applications



➤ Absolute Maximum Ratings

Parameter	Symbol	Rating		Unit	
		N-Channel	P-Channel		
Drain-Source Voltage	V_{DSS}	60	-60	V	
Gate –Source Voltage	V_{GSS}	± 20	± 20	V	
Continuous Drain Current($T_J=150^\circ C$)	I_D	$T_A=25^\circ C$	2.8	-1.8	A
		$T_A=70^\circ C$	2.0	-1.4	
Pulsed Drain Current	I_{DM}	8	-8	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

$V_{DS}=60V, I_D=2.8A, R_{DS(on)}=135m\Omega$

$V_{DS}=-60V, I_D=-1.8A, R_{DS(on)}=310m\Omega$

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

Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	60			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.7		2.5	V
Gate Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=48V, V_{GS}=0V$			1	uA
		$V_{DS}=48V, V_{GS}=0V$ $T_J=85^\circ C$			10	
On-State Drain Current	$I_{D(on)}$	$V_{DS} \geq 5V, V_{GS}=10V$	5			A
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=2.8A$		115	135	m Ω
		$V_{GS}=4.5V, I_D=2.0A$		125	145	
Forward Transconductance	g_{FS}	$V_{DS}=15V, I_D=2.0A$		5		S
Diode Forward Voltage	V_{SD}	$I_S=2.5A, V_{GS}=0V$		0.85	1.2	V
Dynamic						
Total Gate Charge	Q_g	$V_{DS}=30V, V_{GS}=4.5V$ $I_D=2.0A$		2.5	3.5	nC
Gate-Source Charge	Q_{gs}			0.8		
Gate-Drain Charge	Q_{gd}			1.0		
Input Capacitance	C_{iss}	$V_{DS}=30V, V_{GS}=0V$ $f=1MHz$		200		pF
Output Capacitance	C_{oss}			20		
Reverse Transfer Capacitance	C_{rss}			10		
Turn-On Time	$t_{d(on)}$	$V_{DD}=30V, R_L=20\Omega$ $I_D=1.5A, V_{GEN}=10V$ $R_G=1\Omega$		4	8	ns
	t_r			10	20	
Turn-Off Time	$t_{d(off)}$			10	40	
	t_f			6	10	

N-Ch and P-Ch Fast Switching MOSFET

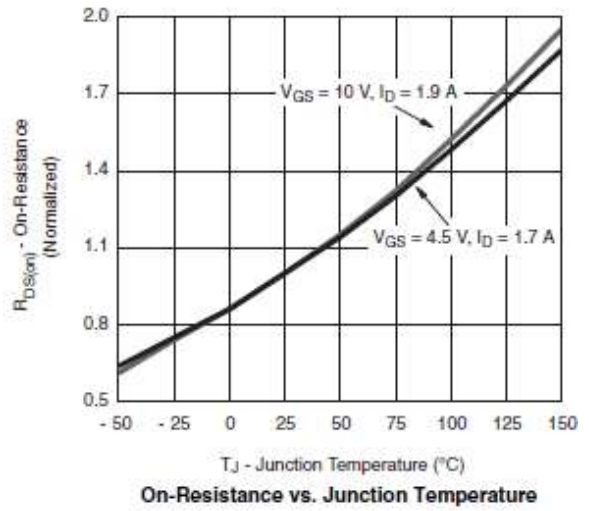
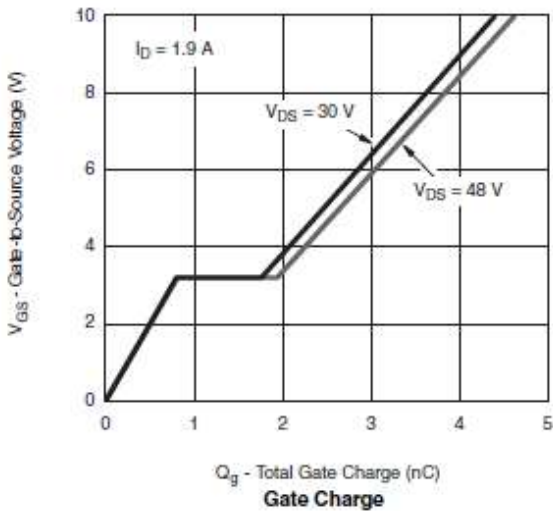
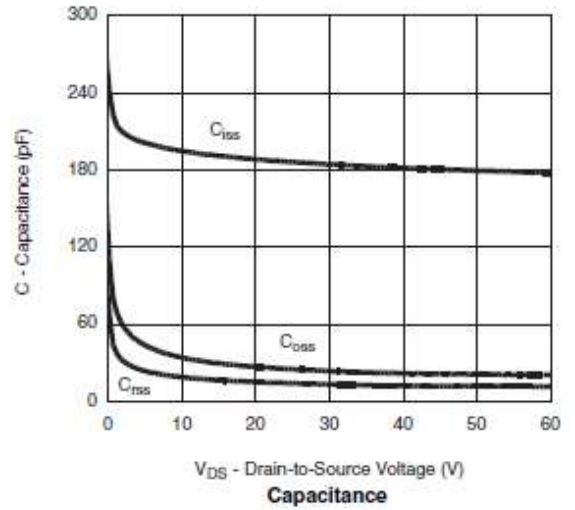
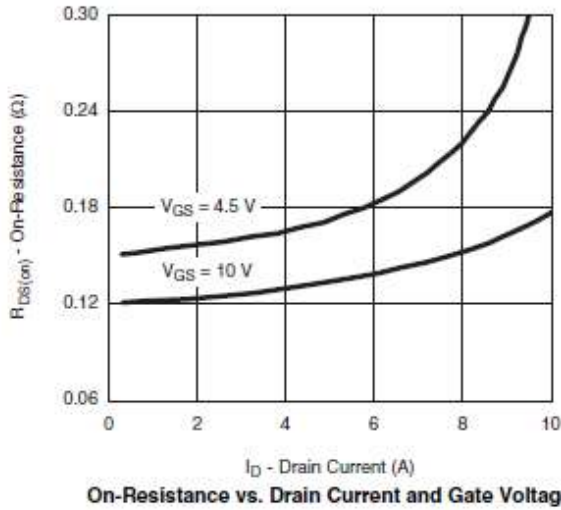
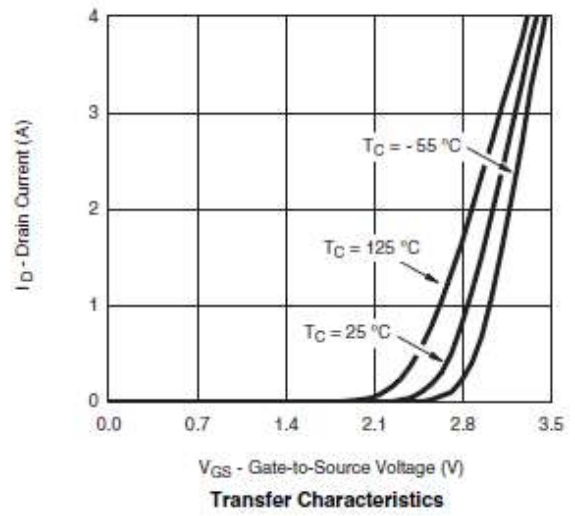
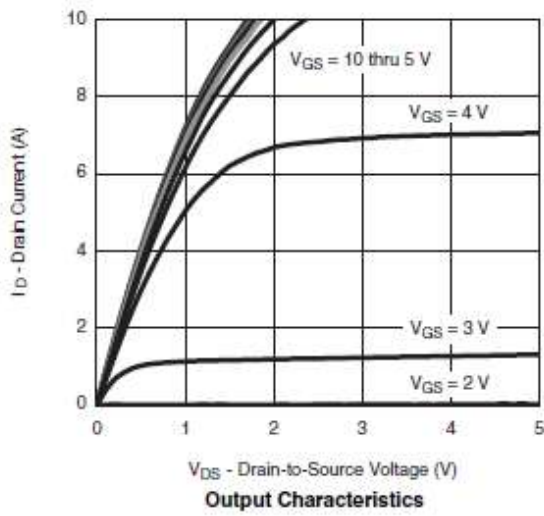
$V_{DS}=60V, I_D=2.8A, R_{DS(on)}=135m\Omega$

$V_{DS}=-60V, I_D=-1.8A, R_{DS(on)}=310m\Omega$

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

Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-60			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1.0		-2.0	
Gate Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 12V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-48V, V_{GS}=0V$			-1	uA
		$V_{DS}=-48V, V_{GS}=0V$			-30	
		$T_J=85^\circ C$				
On-State Drain Current	$I_{D(on)}$	$V_{DS}\leq -5V, V_{GS}=-10V$	-6			A
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=-10V, I_D=-1.8A$		280	310	m Ω
		$V_{GS}=-4.5V, I_D=-1.4A$		295	340	
Forward Transconductance	g_{FS}	$V_{DS}=-10V, I_D=-1.0A$		2.8		S
Diode Forward Voltage	V_{SD}	$I_S=-1.0A, V_{GS}=0V$		-0.75	-1.3	V
Dynamic						
Total Gate Charge	Q_g	$V_{DS}=-30V, V_{GS}=-4.5V$ $I_D=-1.25A$		2.7	4.5	nC
Gate-Source Charge	Q_{gs}			0.7		
Gate-Drain Charge	Q_{gd}			1.2		
Input Capacitance	C_{iss}	$V_{DS}=-30V, V_{GS}=0V$ $f=1MHz$		210		pF
Output Capacitance	C_{oss}			25		
Reverse Transfer Capacitance	C_{rss}			18		
Turn-On Time	$t_{d(on)}$	$V_{DD}=-30V, R_L=30\Omega$ $I_D=-1.0A, V_{GEN}=-10V$		5	10	ns
	t_r			10	20	
Turn-Off Time	$t_{d(off)}$	$R_G=1.0\Omega$		15	30	ns
	t_f			10	20	

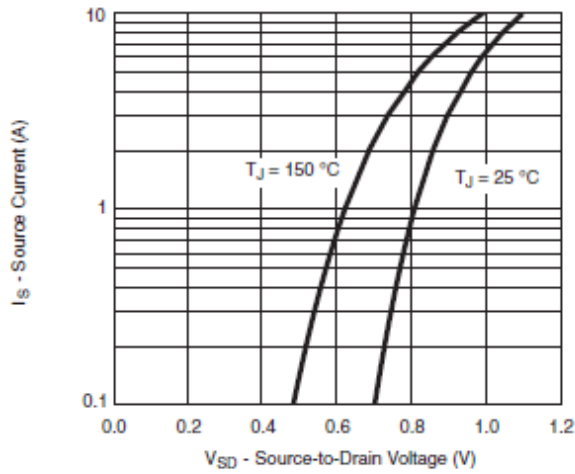
➤ N-Channel Typical Characteristics



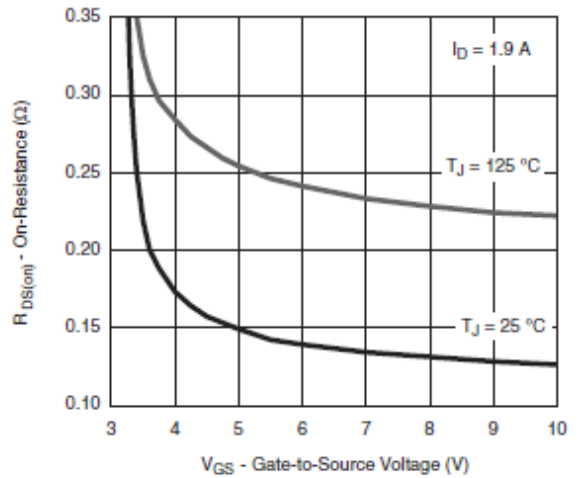
N-Ch and P-Ch Fast Switching MOSFET

$V_{DS}=60V$, $I_D=2.8A$, $R_{DS(on)}=135m\Omega$

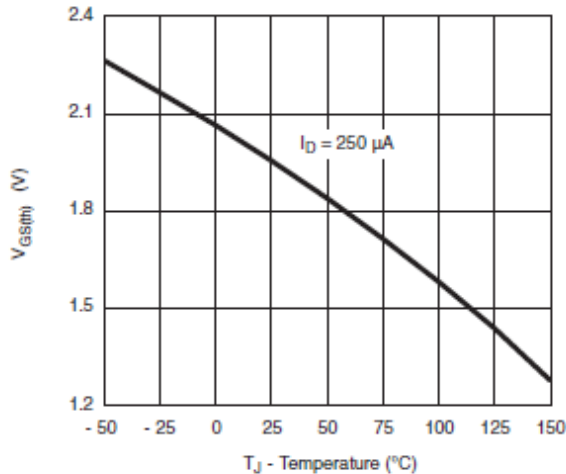
$V_{DS}=-60V$, $I_D=-1.8A$, $R_{DS(on)}=310m\Omega$



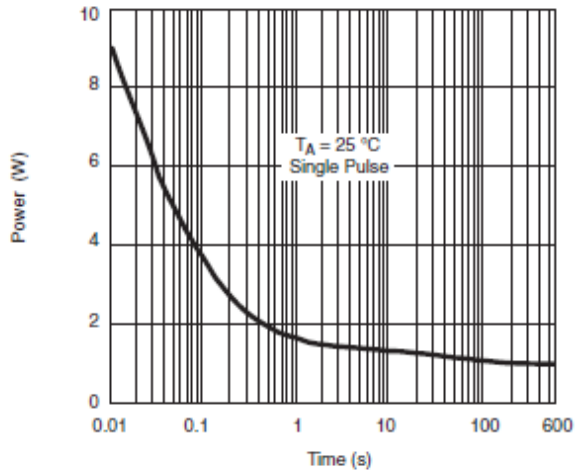
Source-Drain Diode Forward Voltage



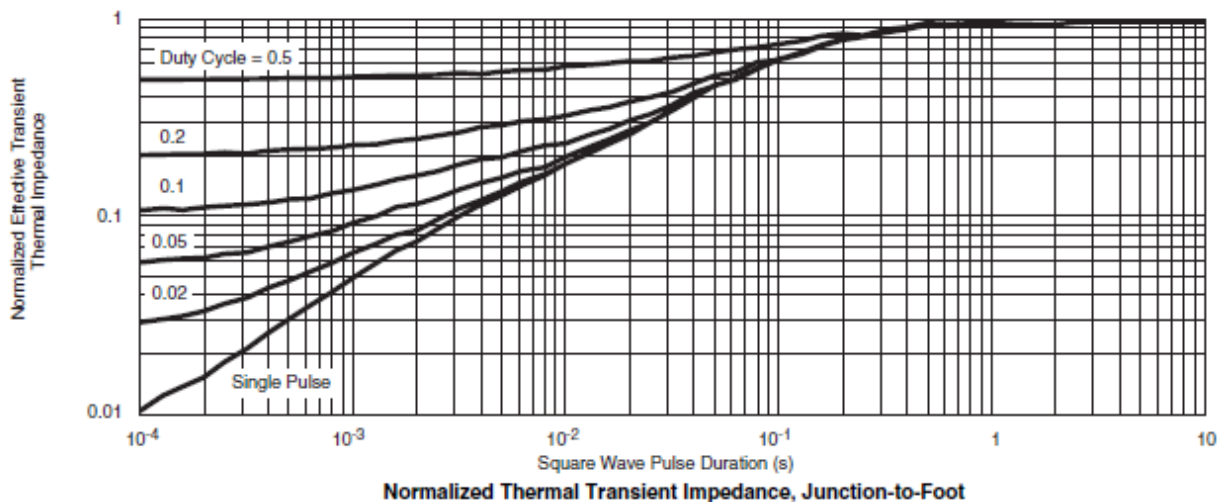
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage

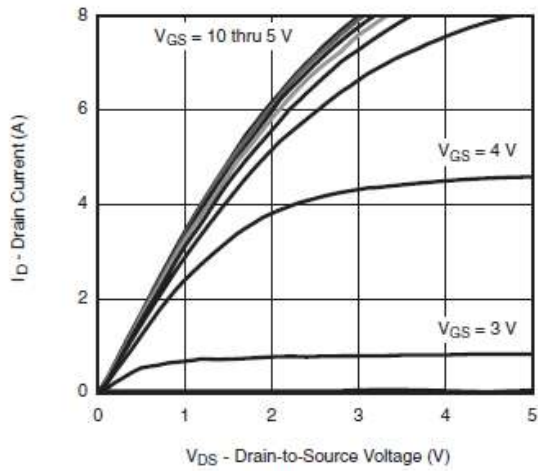


Single Pulse Power

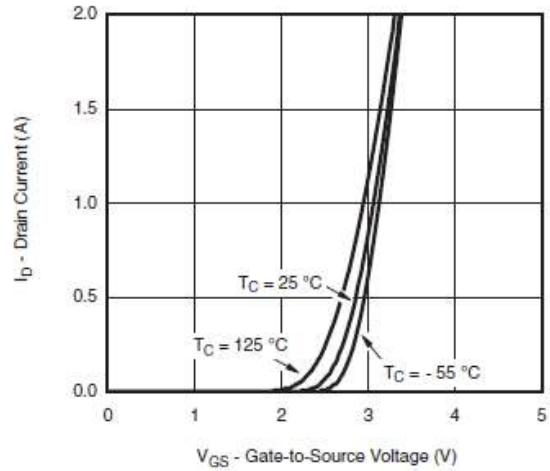


Normalized Thermal Transient Impedance, Junction-to-Foot

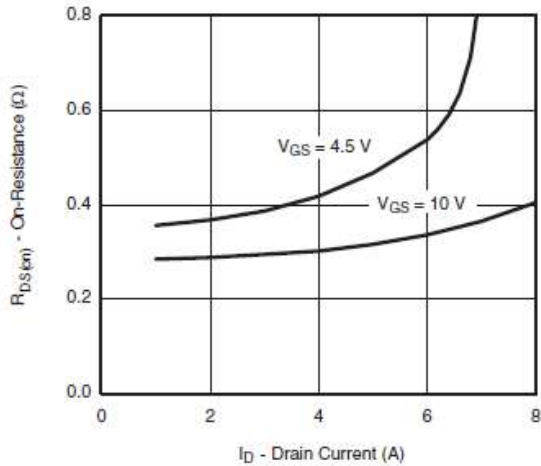
➤ P-Channel Typical Characteristics



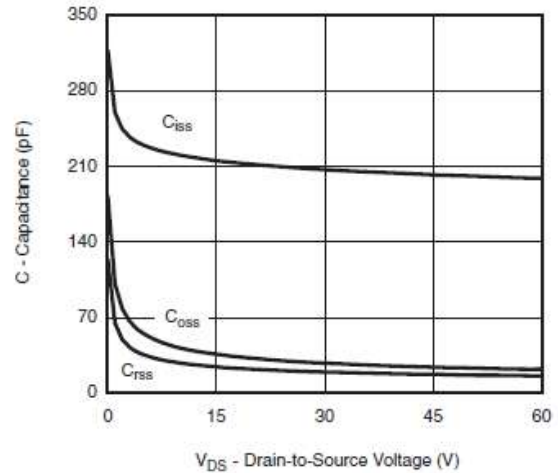
Output Characteristics



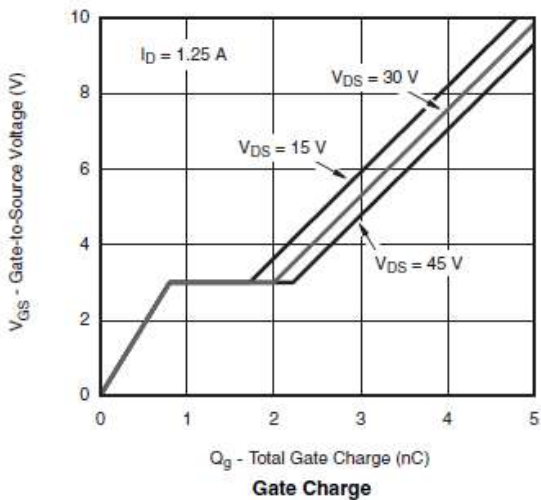
Transfer Characteristics



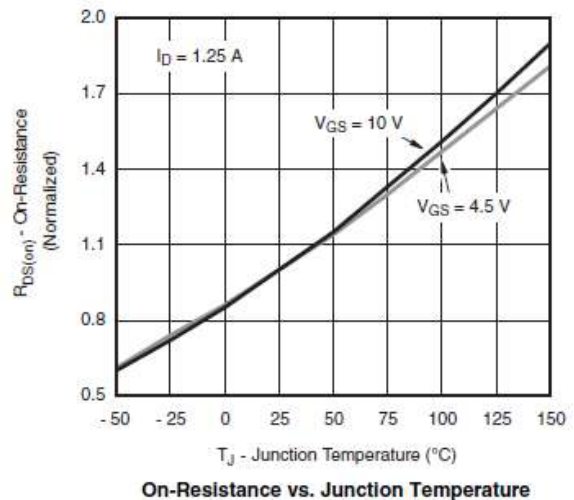
On-Resistance vs. Drain Current and Gate Voltage



Capacitance



Gate Charge

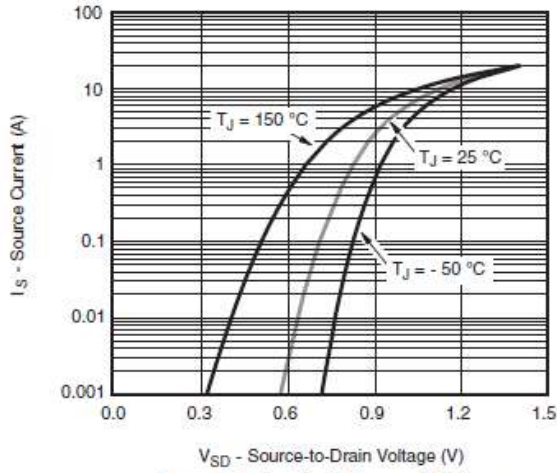


On-Resistance vs. Junction Temperature

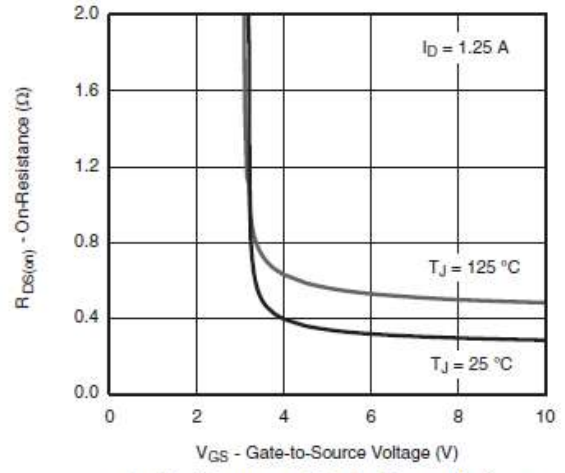
N-Ch and P-Ch Fast Switching MOSFET

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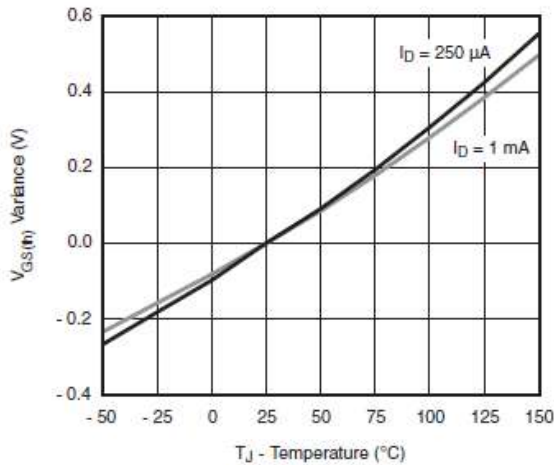
$V_{DS}=-60V$, $I_D=-1.8A$, $R_{DS(ON)}=310m\Omega$



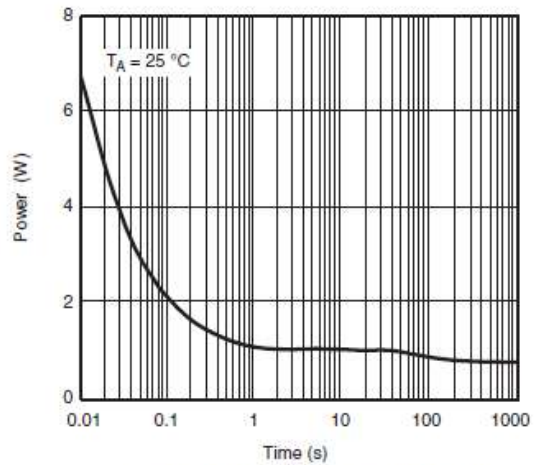
Source-Drain Diode Forward Voltage



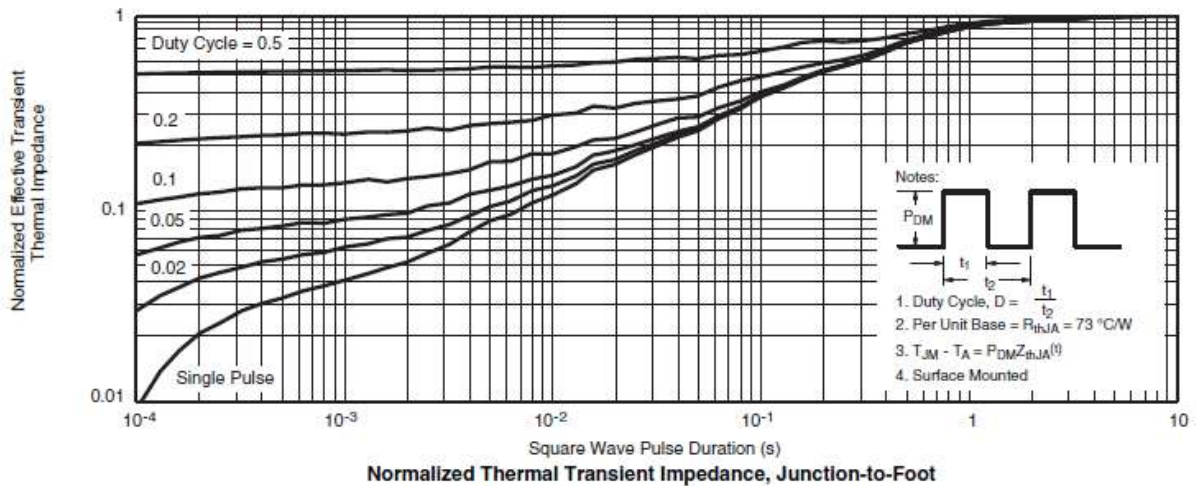
On-Resistance vs. Gate-to-Source Voltage



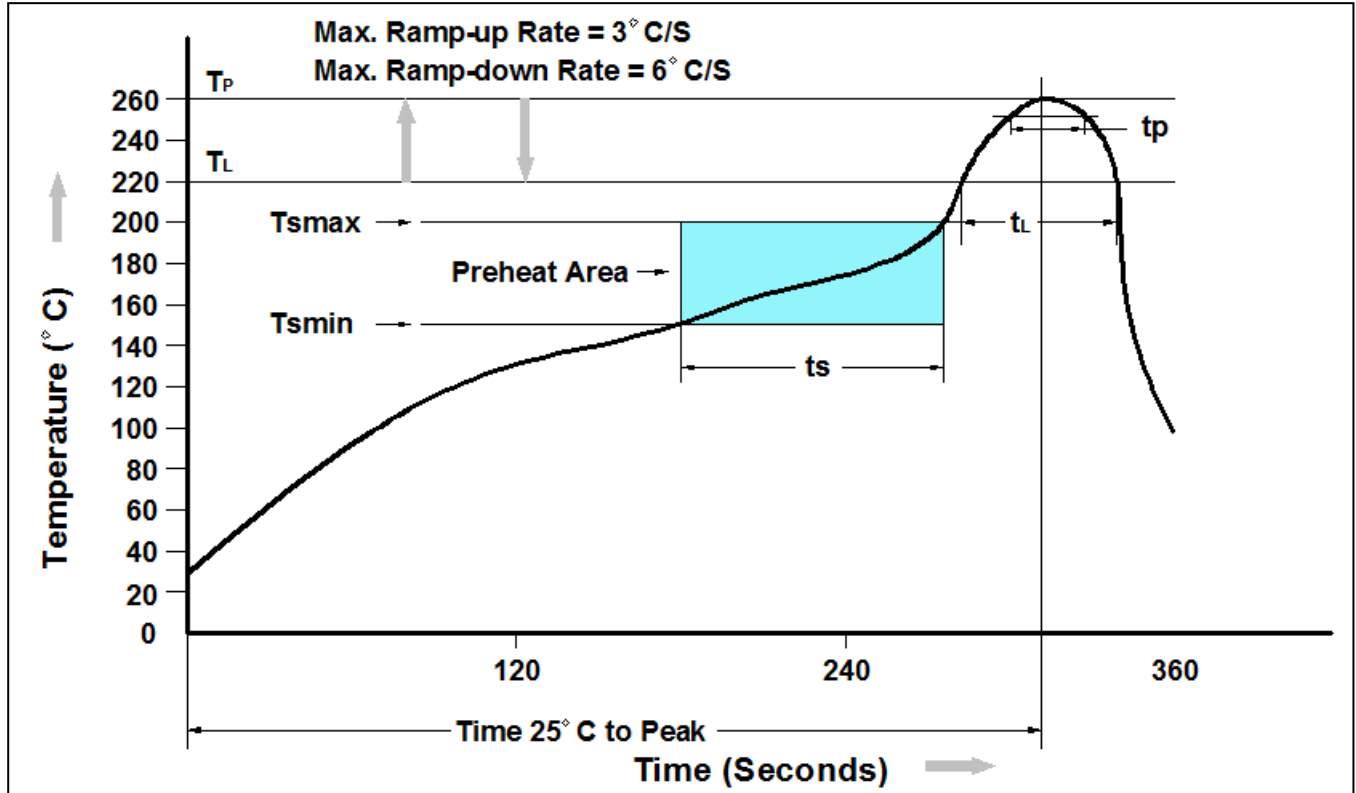
Threshold Voltage



Single Pulse Power, Junction-to-Ambient



➤ Recommand IR Reflow Soldering Thermal Profile

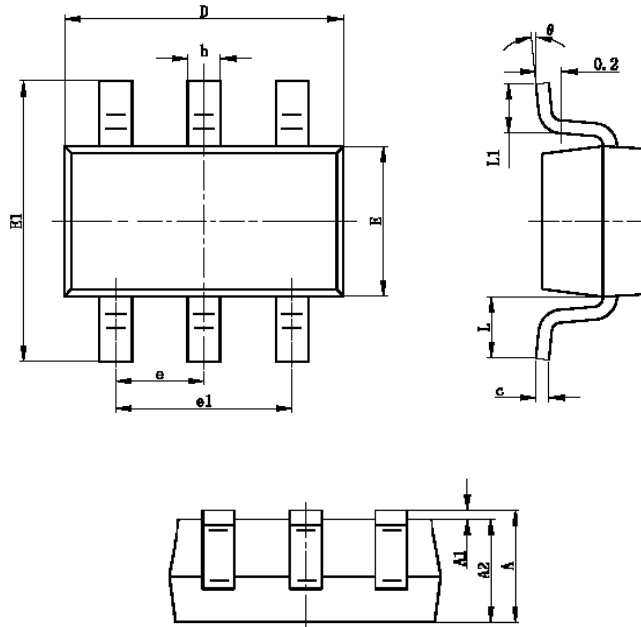


Profile Feature	Pb-Free Assembly Profile
Temperature Min. (Tsmin)	150°C
Temperature Max. (Tsmax)	200°C
Time (ts) from (Tsmin to Tsmax)	60-120 seconds
Average Ramp-up Rate (tL to tP)	3°C/second max.
Liquidous Temperature (TL)	217°C
Time (tL) Maintained Above (TL)	60 – 150 seconds
Peak Temperature	260°C +0°C / -5°C
Time (tP) within 5°C of actual Peak Temperature	30 seconds
Ramp-down Rate (TP to TL)	6°C/second max
Time 25°C to Peak Temperature	8 minutes max.

➤ Ordering Information

Part Number	Description	Quantity
PAC6006WM	SOT-23-6L	3000 pcs

➤ Package Information (SOT-23-6L)



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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