PAN79TY38AY

Dual N-Ch 40V Fast Switching MOSFET

V_{DS}=40V, I_D=20A, $R_{DS(ON)}$=14mΩ

➢ General Description

This PAN79TY38AY Dual N-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.

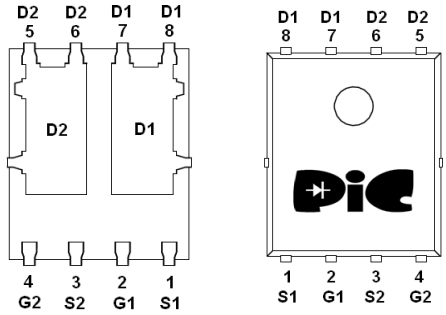
➢ Feature

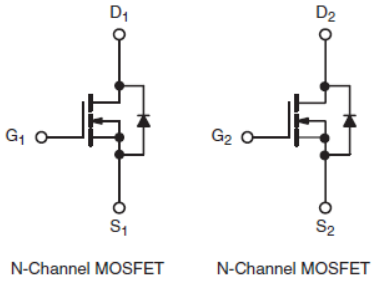
- ●Super Low Gate Charge
- ●100% EAS Guaranteed
- ●Green Device Available
- ●Excellent CdV/dt effect decline
- ●Advanced high cell density Trench technology
- ●DFN5x6B-EP2 package design

➢ Application

- ●DC/DC Primary Side Switch
- ●Industrial Synchronous
- ●Rectification Load Switch
- ●DC/DC Converters

➢ DFN5X6B-EP2





N-Channel MOSFET N-Channel MOSFET

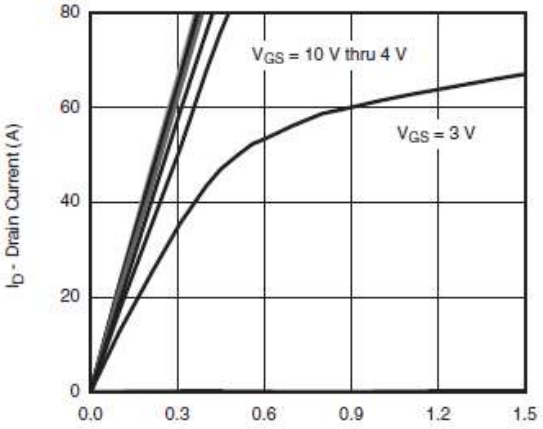
➢ Absolute Maximum Ratings

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DSS}	40	V
Gate –Source Voltage		V_{GSS}	±20	V
Continuous Drain Current(T_J=150℃)	T_C=25℃	I_D	60	A
	T_C=85℃		60	
	T_A=25℃		20	
	T_A=85℃		16	
Pulsed Drain Current		I_{DM}	80	A
Continuous Source Current(Diode Conduction)	T_C=25℃	I_S	38	A
	T_A=25℃		2.9	
Power Dissipation	T_C=25℃	P_D	46	W
	T_C=85℃		29	
	T_A=25℃		3.5	
	T_A=70℃		2.2	
Operating Junction Temperature		T_J	150	℃
Storage Temperature Range		T_{STG}	-55/150	℃
Thermal Resistance-Junction to Ambient		$R_{\theta JA}$	62.5	℃/W

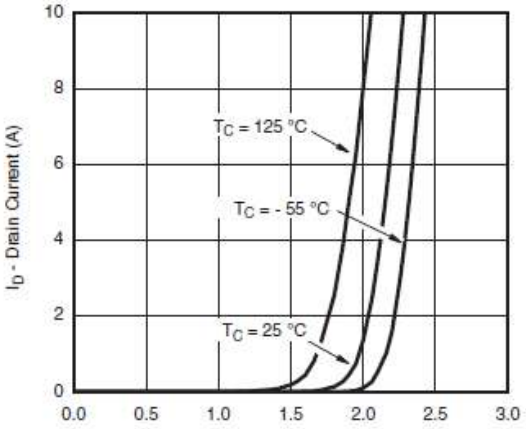
➢ Electrical Characteristics (T_A=25°C Unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V,I_D=250uA	40			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250uA	1.0		2.5	
Gate Leakage Current	I_{GSS}	V_{DS}=0V,V_{GS}=±20V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=32V,V_{GS}=0V			1	uA
		V_{DS}=32V,V_{GS}=0V T_J=85°C			10	
On-State Drain Current	$I_{D(on)}$	V_{DS}≧5V,V_{GS}=10V	20			A
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V,I_D=18A		12.5	14	mΩ
		V_{GS}=4.5V,I_D=15A		13.5	16	
Forward Transconductance	g_{FS}	V_{DS}=15V,I_D=20A		70		S
Diode Forward Voltage	V_{SD}	I_S=5A,V_{GS}=0V		0.8	1.3	V
Dynamic						
Total Gate Charge	Q_g	V_{DS}=20V,V_{GS}=4.5V I_D≡18.5A		21	32	nC
Gate-Source Charge	Q_{gs}			6.2		
Gate-Drain Charge	Q_{gd}			6.2		
Input Capacitance	C_{iss}	V_{DS}=20V,V_{GS}=0V f=1MHz		2300		pF
Output Capacitance	C_{oss}			340		
Reverse Transfer Capacitance	C_{rss}			140		
Turn-On Time	$t_{d(on)}$	V_{DD}=20V,R_L=2.0Ω I_D≡10A,V_{GEN}=10V R_G=1.0Ω		10	20	ns
	t_r			10	20	
Turn-Off Time	$t_{d(off)}$			30	55	
	t_f			10	20	

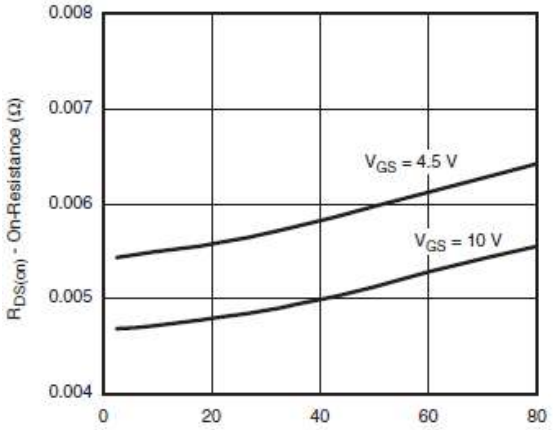
➢ Typical Characteristics



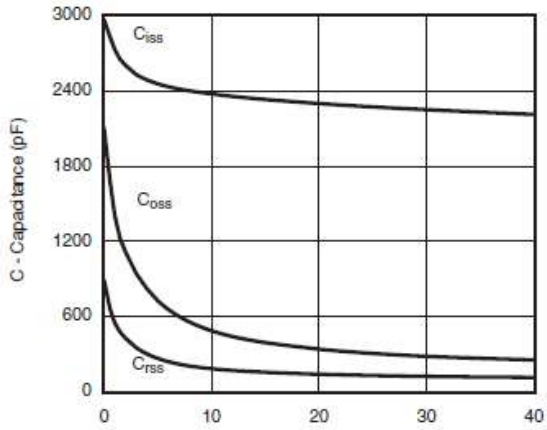
Output Characteristics



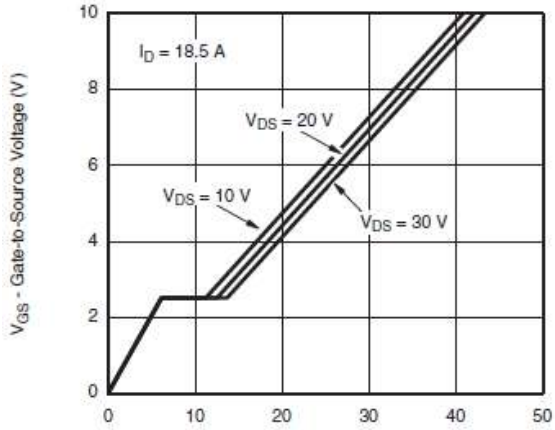
Transfer Characteristics



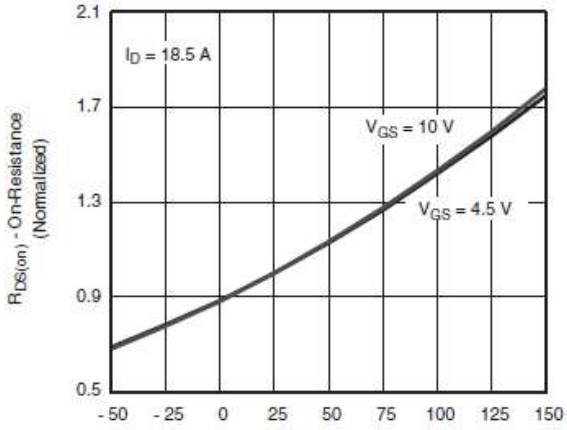
On-Resistance vs. Drain Current and Gate Voltage



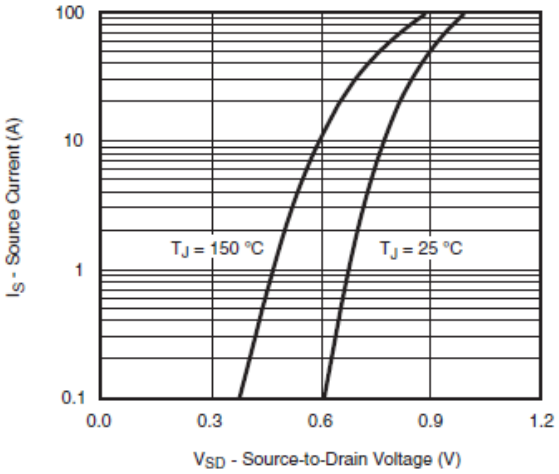
Capacitance



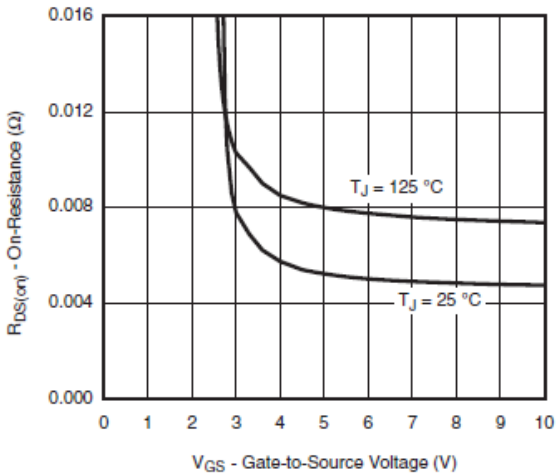
Gate Charge



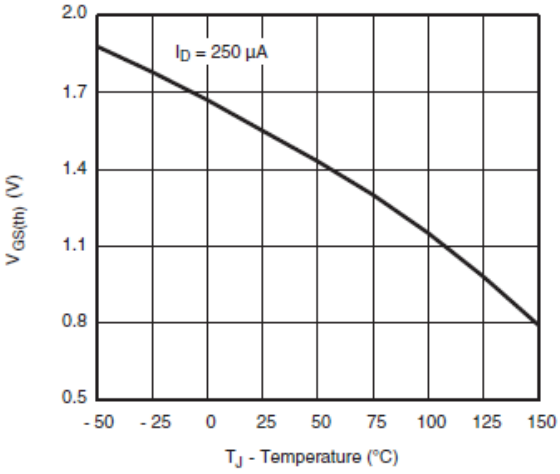
On-Resistance vs. Junction Temperature



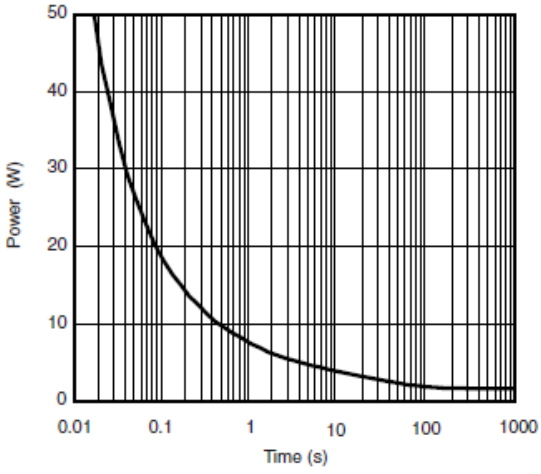
Source-Drain Diode Forward Voltage



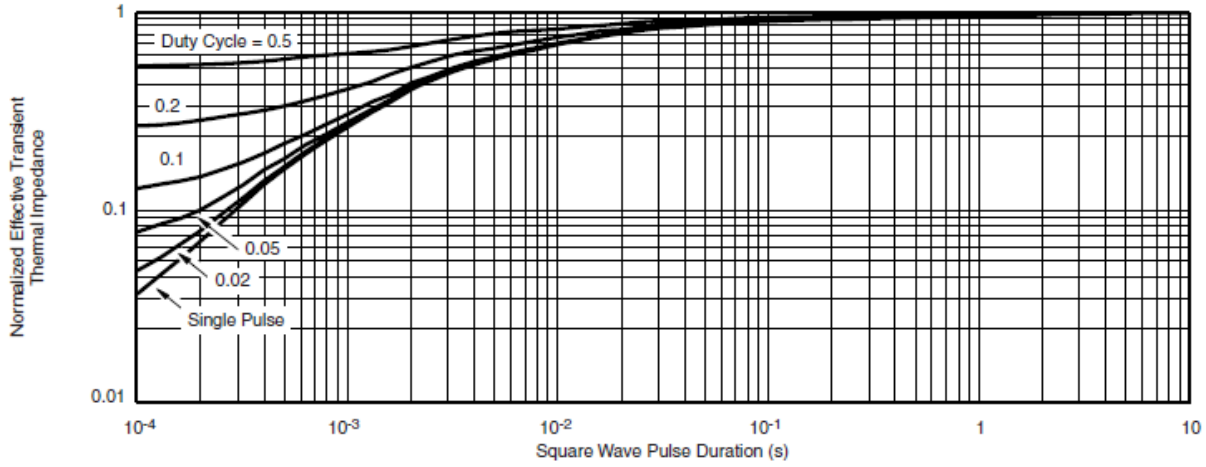
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage

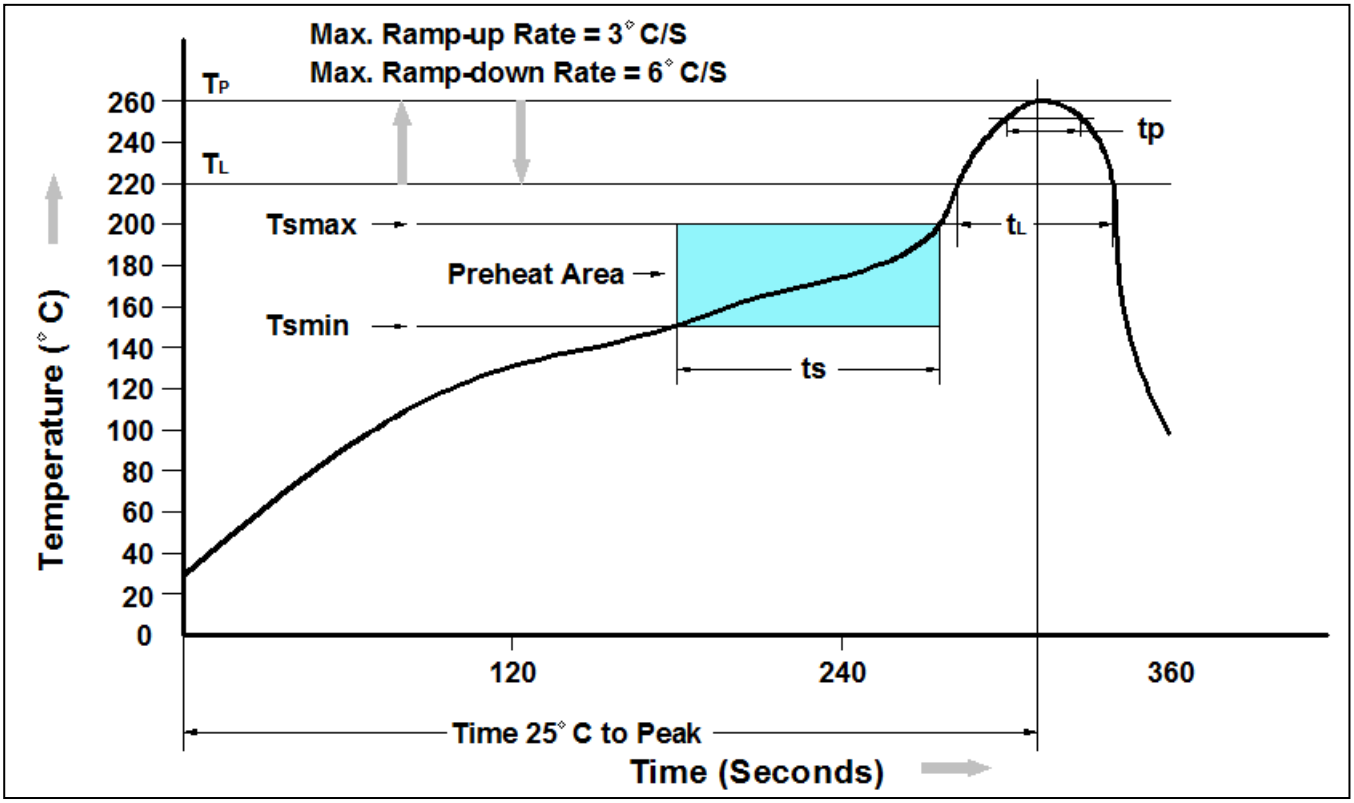


Single Pulse Power (Junction-to-Ambient)



Normalized Thermal Transient Impedance, Junction-to-Case

➢ Recommand IR Reflow Soldering Thermal Profile

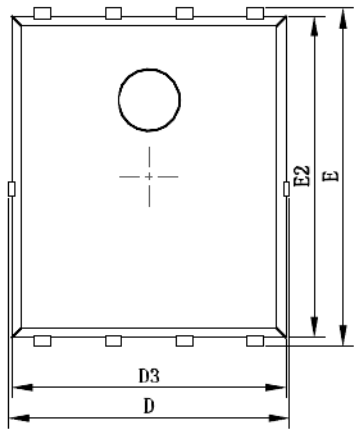


Profile Feature	Pb-Free Assembly Profile
Temperature Min. (Tsmin)	150°C
Temperature Max. (Tsmax)	200°C
Time (ts) from (Tsmin to Tsmax)	60-120 seconds
Average Ramp-up Rate (tL to tP)	3°C/second max.
Liquidous Temperature (TL)	217°C
Time (tL) Maintained Above (TL)	60 – 150 seconds
Peak Temperature	260°C +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.

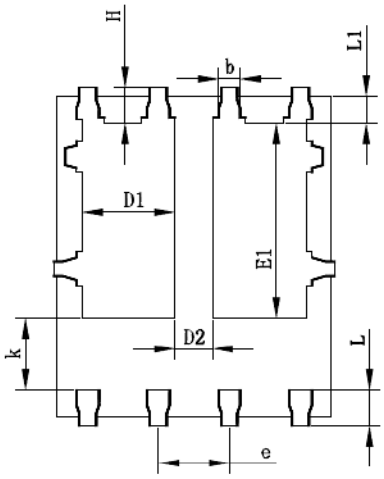
➢ Ordering Information

Part Number	Description	Quantity
PAN79TY38AY	DFN5X6B-EP2 Reel	2500 pcs

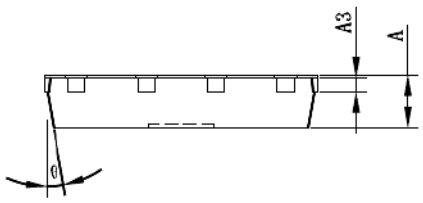
➢ Package Information (DFN5X6B-EP2)



Top View



Bottom View



Side View

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.000	0.035	0.039
A3	0.254 REF.		0.010REF.	
D	4.944	5.096	0.195	0.201
E	5.974	6.126	0.235	0.241
D1	1.470	1.870	0.058	0.074
D2	0.470	0.870	0.019	0.034
E1	3.375	3.575	0.133	0.141
D3	4.824	4.976	0.190	0.196
E2	5.674	5.826	0.223	0.229
k	1.190	1.390	0.047	0.055
b	0.350	0.450	0.014	0.018
e	1.270TYP.		0.050TYP.	
L	0.559	0.711	0.022	0.028
L1	0.424	0.576	0.017	0.023
H	0.574	0.726	0.023	0.029
θ	10°	12°	10°	12°

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