

## ➤ General Description

This PAN62TY12CSY 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.

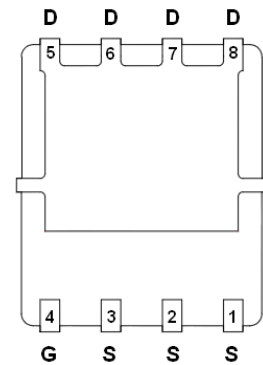
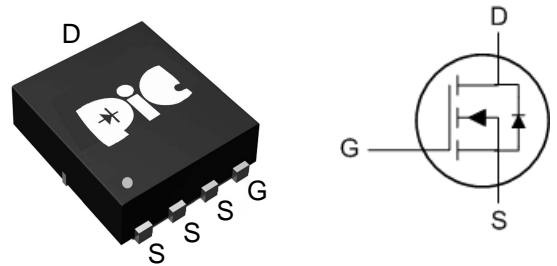
## ➤ Feature

- Super Low Gate Charge
- 100% EAS Guaranteed
- Green Device Available
- Excellent  $CdV/dt$  effect decline
- Advanced high cell density Trench technology
- DFN5x6B-EP1 package design

## ➤ Application

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

## ➤ DFN5X6B-EP1



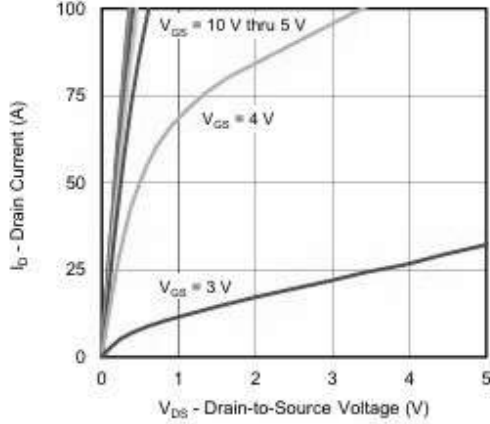
## ➤ Absolute Maximum Ratings

Parameter	Symbol	Typical	Unit
Drain-Source Voltage	$V_{DSS}$	30	V
Gate –Source Voltage	$V_{GSS}$	$\pm 20$	V
Continuous Drain Current ( $T_J=150^\circ C$ )	$I_{DSM}$	$T_C=25^\circ C$   $T_C=70^\circ C$	A
		$T_A=25^\circ C$   $T_A=70^\circ C$	
Pulsed Drain Current ( $t=100\mu s$ )	$I_{DM}$	200	A
Continuous Source Current (Diode Conduction)	$I_S$	$T_C=25^\circ C$	32
		$T_A=25^\circ C$	2.8
Single Pulse Avalanche Current	$I_{AS}$	$L=0.1mH$	16
			$E_{AS}$
Power Dissipation	$P_D$	$T_C=25^\circ C$   $T_C=75^\circ C$	W
		$T_A=25^\circ C$   $T_A=75^\circ C$	
Operating Junction Temperature	$T_J$	150	$^\circ C$
Storage Temperature Range	$T_{STG}$	-55/150	$^\circ C$
Thermal Resistance-Junction to Ambient	$R_{\theta JA}$	30	$^\circ C/W$
Maximum Junction-to-Case (Drain)	$R_{\theta JC}$	2.8	

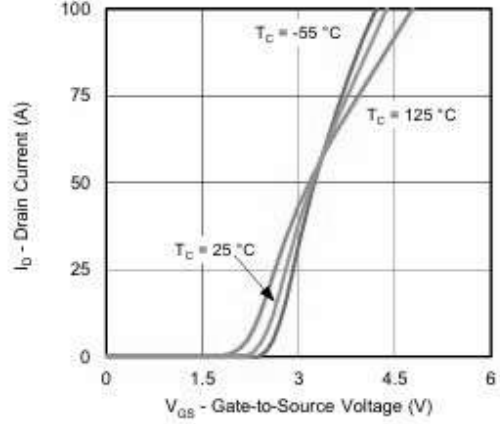
➤ **Electrical Characteristics (T<sub>J</sub>=25°C Unless otherwise noted)**

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	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1.2	1.7	2.5	
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
		$V_{DS}=24V, V_{GS}=0V$ $T_J=85^\circ C$			10	
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=20A$		3.9	4.8	mΩ
		$V_{GS}=4.5V, I_D=15A$		5.8	6.8	
Forward Transconductance	$g_{FS}$	$V_{DS}=10V, I_D=15A$		50		S
Diode Forward Voltage	$V_{SD}$	$I_S=2A, V_{GS}=0V$		0.7	1.2	V
<b>Dynamic</b>						
Total Gate Charge	$Q_g$	$V_{DS}=15V, V_{GS}=10V, I_D\equiv 19A$		11	18	nC
Total Gate Charge	$Q_g$			5.4		
Gate-Source Charge	$Q_{GS}$	$V_{DS}=15V, V_{GS}=4.5V, I_D\equiv 19A$		2.8		
Gate-Drain Charge	$Q_{GD}$			1.4		
Gate Resistance	$R_g$	$f=1MHz$		4.1		Ω
Input Capacitance	$C_{iss}$	$V_{DS}=15V, V_{GS}=0V$		790		pF
Output Capacitance	$C_{oss}$	$f=1MHz$		390		
Reverse Transfer Capacitance	$C_{rss}$			38		
Turn-On Time	$t_{d(on)}$	$V_{DD}=15V, R_L=1.5\Omega$ $I_D\equiv 10A, V_{GEN}=10V$		10	20	ns
	$t_r$			20	40	
Turn-Off Time	$t_{d(off)}$	$R_G=1.0\Omega$		20	40	
	$t_f$			10	20	

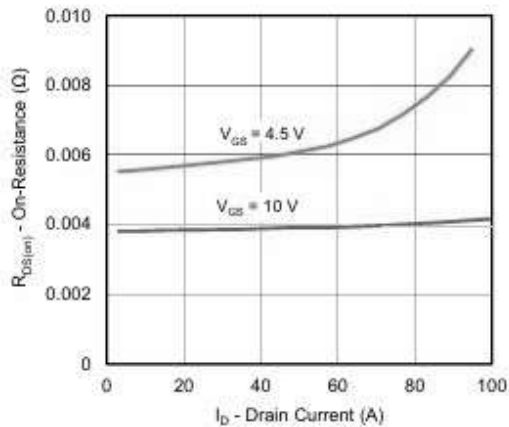
## ➤ Typical Characteristics



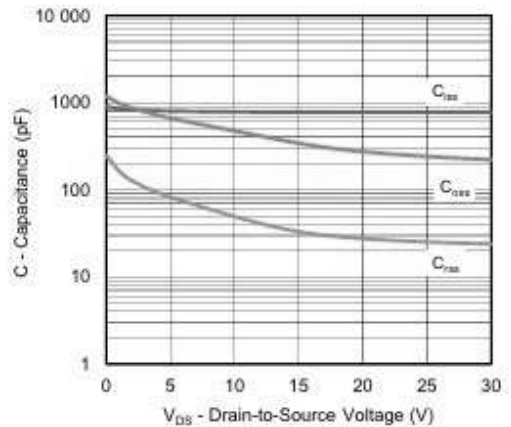
**Output Characteristics**



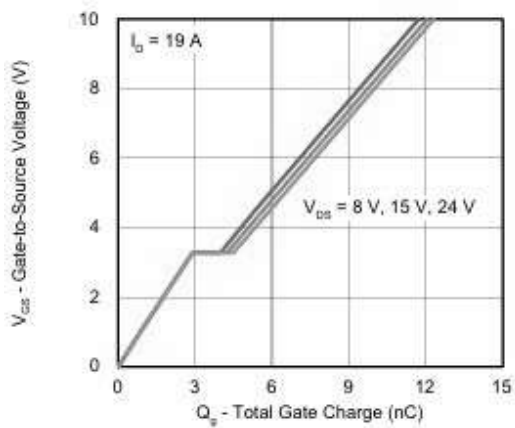
**Transfer Characteristics**



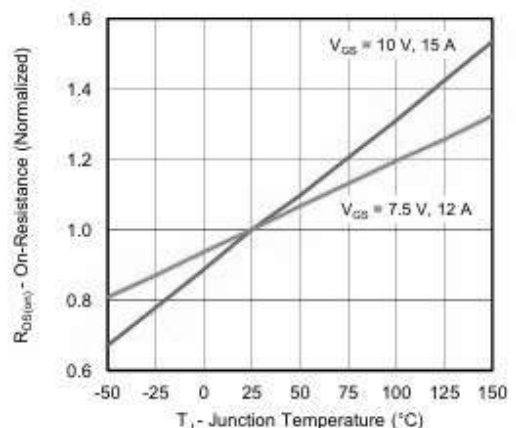
**On-Resistance vs. Drain Current**



**Capacitance**

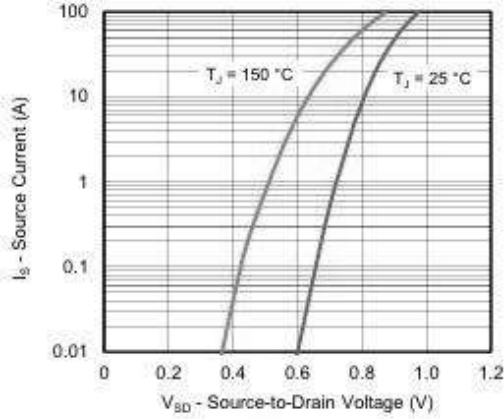


**Gate Charge**

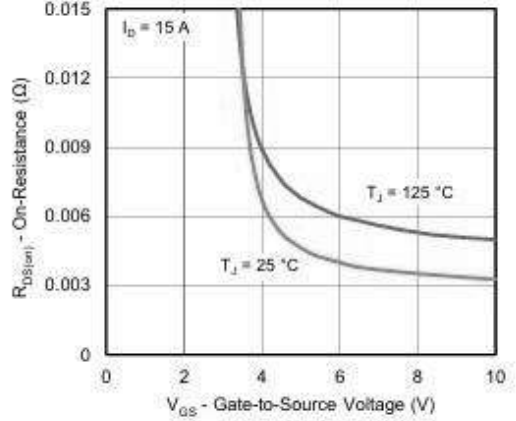


**On-Resistance vs. Junction Temperature**

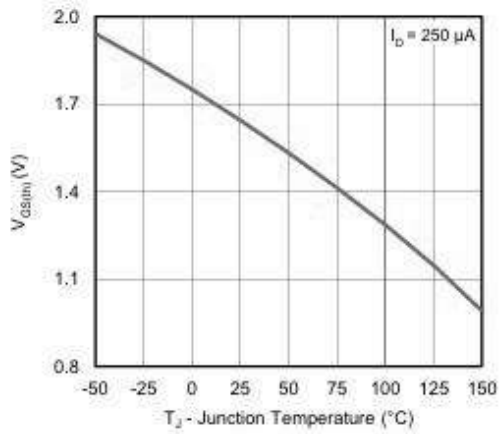
## ➤ Typical Characteristics



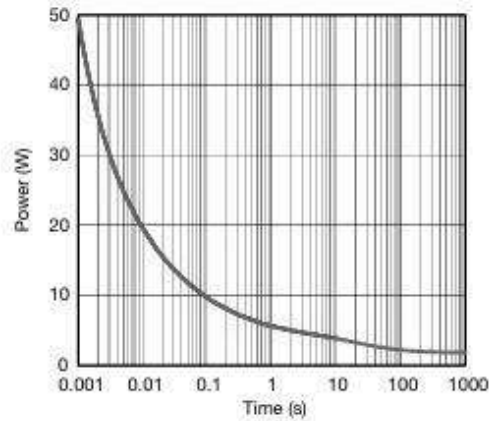
Source-Drain Diode Forward Voltage



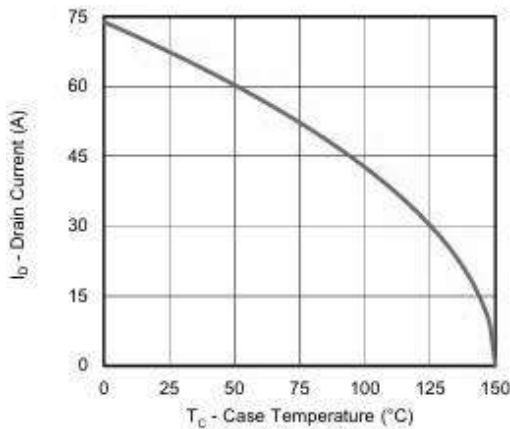
On-Resistance vs. Gate-to-Source Voltage



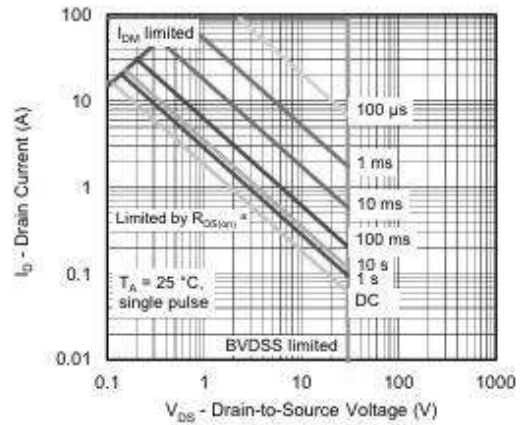
Threshold Voltage



Single Pulse Power, Junction-to-Ambient

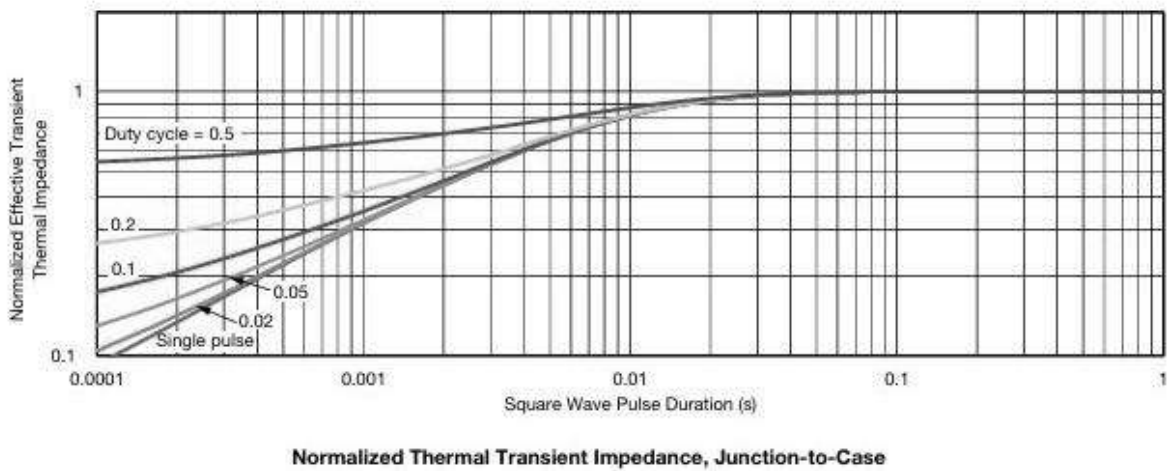
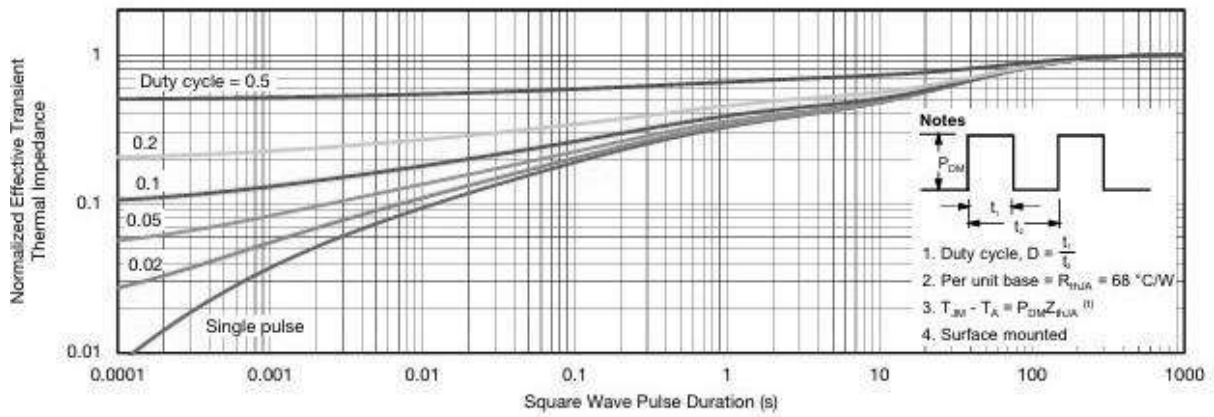
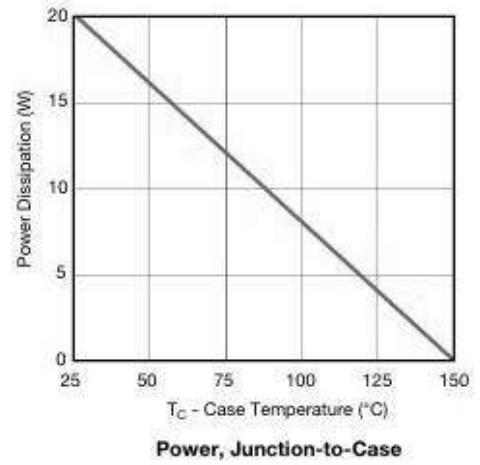
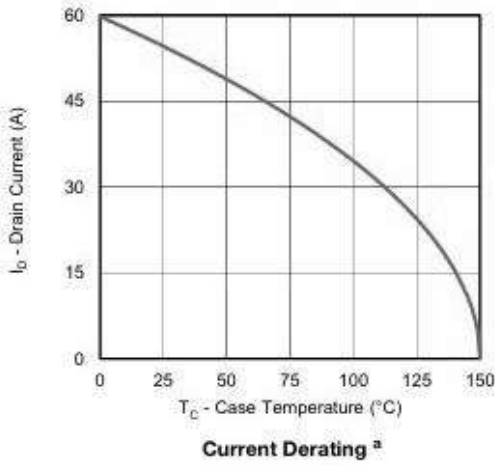


Current Derating <sup>a</sup>

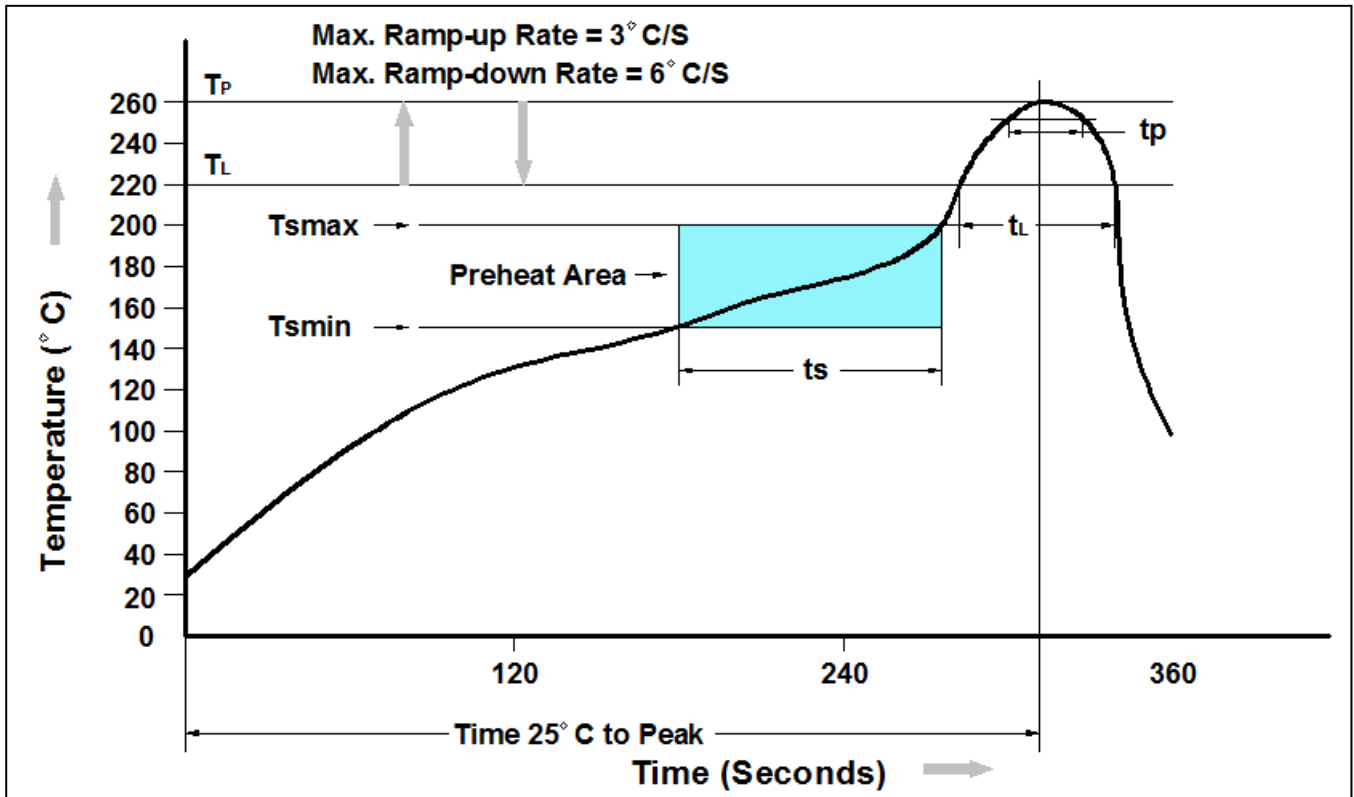


Safe Operating Area, Junction-to-Ambient

## ➤ Typical Characteristics



### ➤ Recommend IR Reflow Soldering Thermal Profile

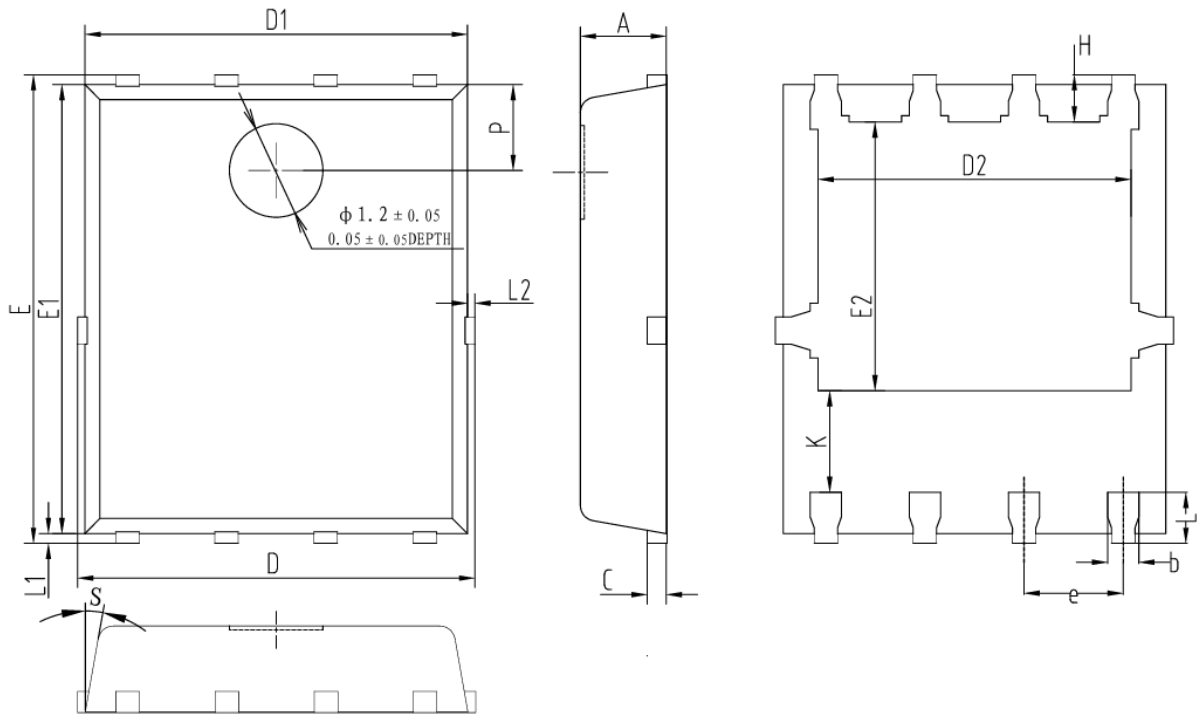


Profile Feature	Pb-Free Assembly Profile
Temperature Min. (T <sub>smin</sub> )	150°C
Temperature Max. (T <sub>smax</sub> )	200°C
Time (t <sub>s</sub> ) from (T <sub>smin</sub> to T <sub>smax</sub> )	60-120 seconds
Average Ramp-up Rate (t <sub>L</sub> to t <sub>P</sub> )	3°C/second max.
Liquidous Temperature (T <sub>L</sub> )	217°C
Time (t <sub>L</sub> ) Maintained Above (T <sub>L</sub> )	60 – 150 seconds
Peak Temperature	260°C +0°C / -5°C
Time (t <sub>P</sub> ) within 5°C of actual Peak Temperature	30 seconds
Ramp-down Rate (T <sub>P</sub> to T <sub>L</sub> )	6°C/second max
Time 25°C to Peak Temperature	8 minutes max.

### ➤ Ordering Information

Part Number	Description	Quantity
PAN62TY12CSY	DFN5X6B-EP1 Reel	2500 pcs

➤ Package Information ( DFN5X6B-EP1 )



COMMON DIMENSIONS (UNIT of MEASURE=MILLIMETER)											
SYMBOL	MIN	NOM	MAX	SYMBOL	MIN	NOM	MAX	SYMBOL	MIN	NOM	MAX
A	1.00	1.10	1.20	e	1.17	1.27	1.37	L	0.55	0.65	0.75
b	0.35	0.40	0.45	E	5.90	6.00	6.10	L1	0	0.10	0.20
c	0.19	0.25	0.30	E1	5.70	5.75	5.80	L2	0	0.10	0.20
D	4.80	5.10	5.20	E2	3.35	3.45	3.55	P	1.00	1.10	1.20
D1	4.80	4.90	5.00	H	0.50	0.60	0.70	S	8°	10°	12°
D2	3.90	4.00	4.10	K	1.20	1.30	1.40				

## DISCLAIMER

- The information in this document and any product described herein are subject to change without notice and should not be construed as a commitment by Paceleader, Paceleader reserve the right to make changes to the information in this document.
- Though Paceleader make effort to improve product quality and reliability, Product can malfunction and fail due to their inherent electrical sensitivity and vulnerability to physical stress, it is the responsibility of the customer, when utilizing Paceleader products, to comply with the standards of safety in making a safe design for entire system and to avoid situation in which a malfunction or failure., In developing a new designs, customer should ensure that the device which shown in this documents are used within specified operating ranges.
- The information contained herein is presented only as a guide for the applications of our products. No responsibility is assumed by Paceleader for any infringements of patents or other rights of the third parties which may result from its use.