PAN75TD38CSA

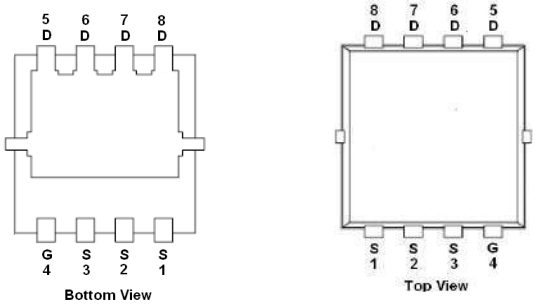
N-CH 30V Fast Switching MOSFET

V_{DS}=30V, I_D=65A, $RDS_{(ON)}$=4.8mΩ

➢ General Description

This PAN75TD38CSA 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.

➢ DFN3.3x3.3-8L

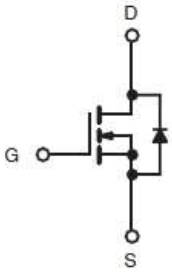


➢ Feature

- ●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



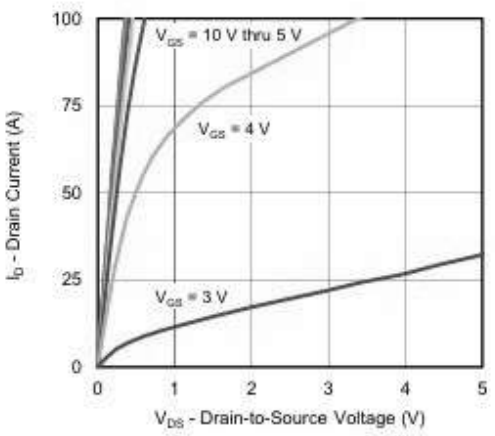
➢ Absolute Maximum Ratings

Parameter			Symbol	Typical		Unit
Drain-Source Voltage			V_{DSS}	30		V
Gate –Source Voltage			V_{GSS}	±20		V
Continuous Drain Current(T_J=150℃)	T_C=25℃	T_C=70℃	I_{DSM}	65	48	A
	T_A=25℃	T_A=70℃		20	16	
Pulsed Drain Current (t=100us)			I_{DM}	200		
Continuous Source Current(Diode Conduction)	T_C=25℃		I_S	32		
	T_A=25℃			2.8		
Single Pulse Avalanche Current	L=0.1mH		I_{AS}	16		
			E_{AS}	12		mJ
Power Dissipation	T_C=25℃	T_C=75℃	P_D	36	22	W
	T_A=25℃	T_A=75℃		3.2	2.0	
Operating Junction Temperature			T_J	150		℃
Storage Temperature Range			T_{STG}	-55/150		℃
Thermal Resistance-Junction to Ambient	t ≤ 10 s		$R_{\theta JA}$	30		℃/W
Maximum Junction-to-Case (Drain)	Steady-State		$R_{\theta JC}$	2.8		

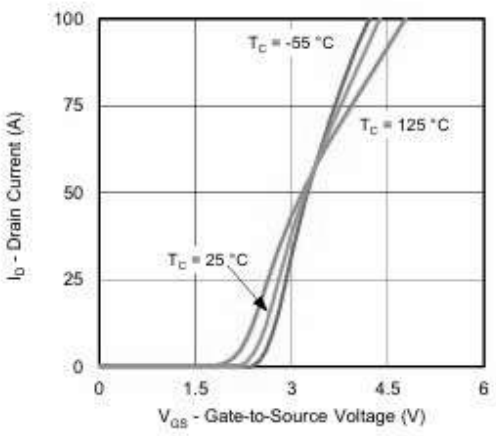
➢ Electrical Characteristics (T_J=25°C Unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V,I_D=250uA	30			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250uA	1.2	1.7	2.5	
Gate Leakage Current	I_{GSS}	V_{DS}=0V,V_{GS}=±20V			±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℃			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	7.2	
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
Dynamic						
Total Gate Charge	Q_g	V_{DS}=15V,V_{GS}=10V,I_D≡19A		11	18	nC
Total Gate Charge	Q_g	V_{DS}=15V,V_{GS}=4.5V, I_D≡19A		5.4		
Gate-Source Charge	Q_{gs}			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 f=1MHz		790		pF
Output Capacitance	C_{oss}			390		
Reverse Transfer Capacitance	C_{rss}			38		
Turn-On Time	$t_{d(on)}$	V_{DD}=15V,R_L=1.5Ω I_D≡10A,V_{GEN}=10V R_G=1.0Ω		10	20	ns
	t_r			20	40	
Turn-Off Time	$t_{d(off)}$			20	40	
	t_f			10	20	

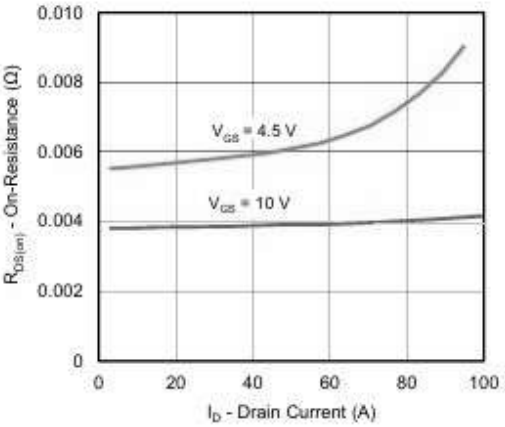
➢ Typical Characteristics



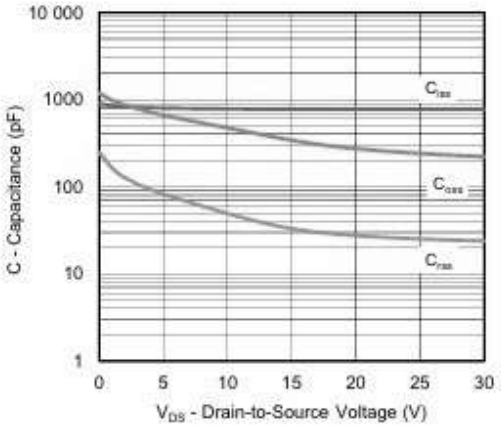
Output Characteristics



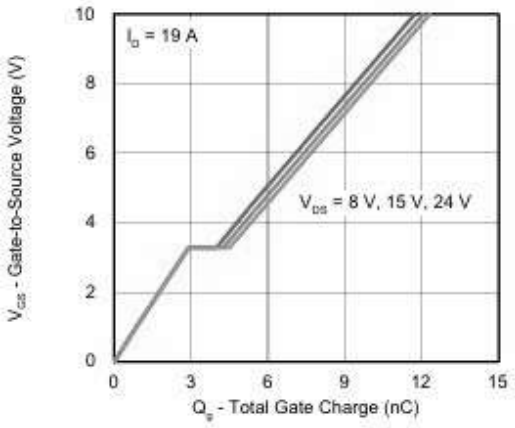
Transfer Characteristics



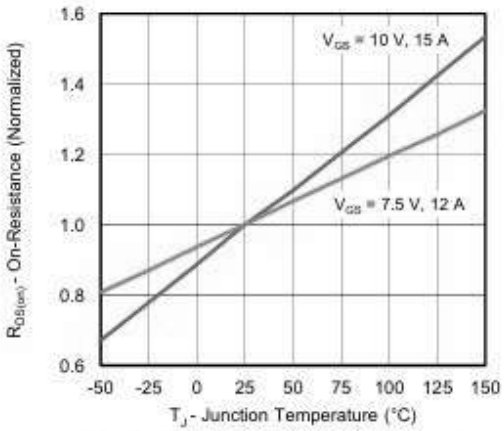
On-Resistance vs. Drain Current



Capacitance

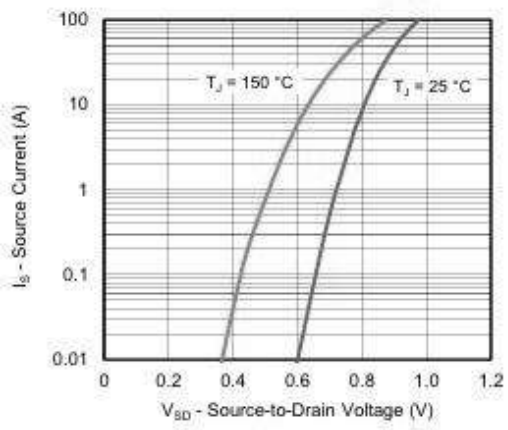


Gate Charge

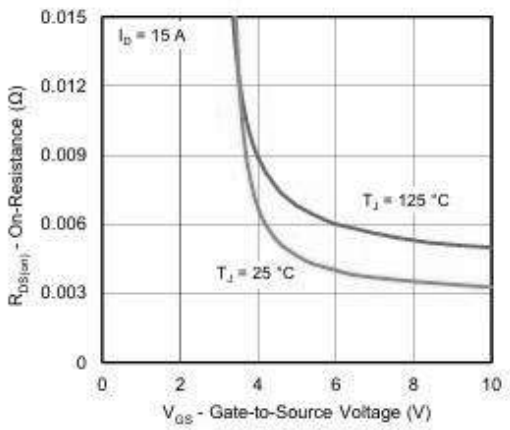


On-Resistance vs. Junction Temperature

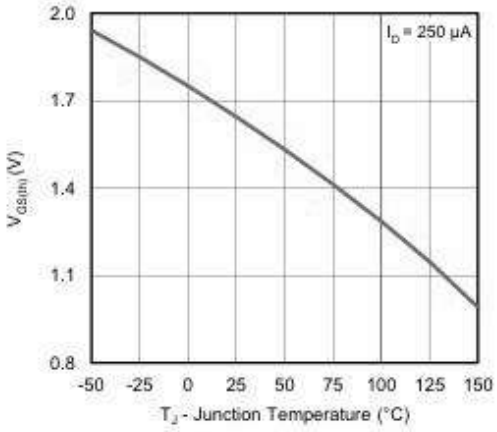
➢ Typical Characteristics



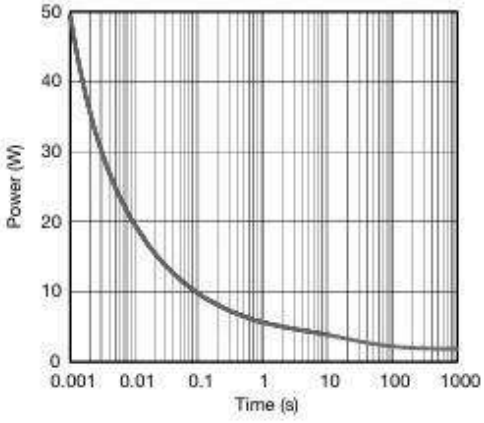
Source-Drain Diode Forward Voltage



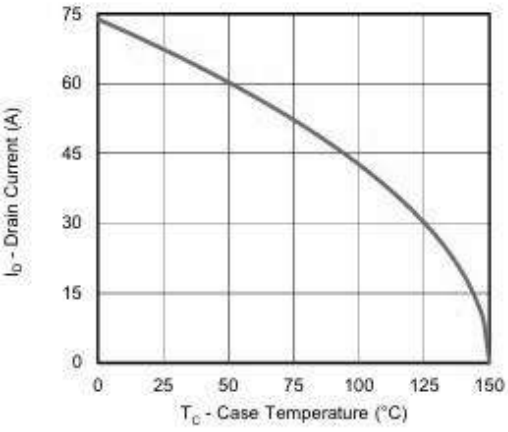
On-Resistance vs. Gate-to-Source Voltage



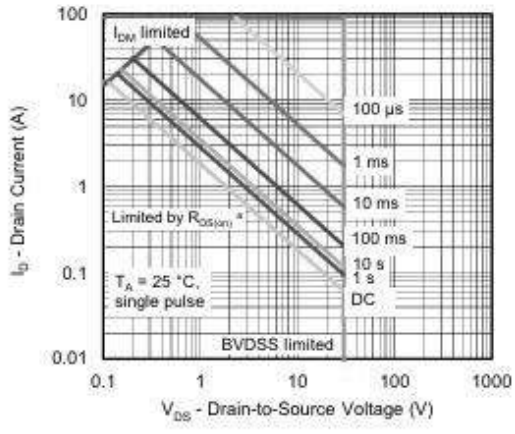
Threshold Voltage



Single Pulse Power, Junction-to-Ambient

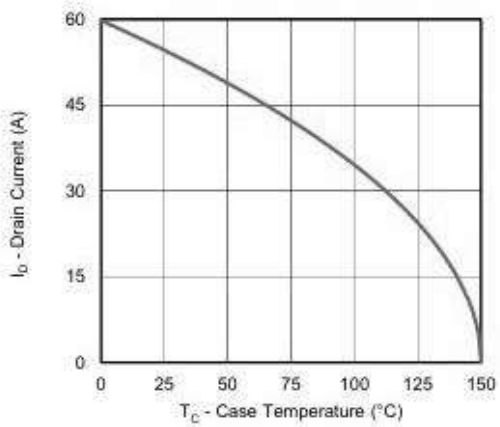


Current Derating [a]

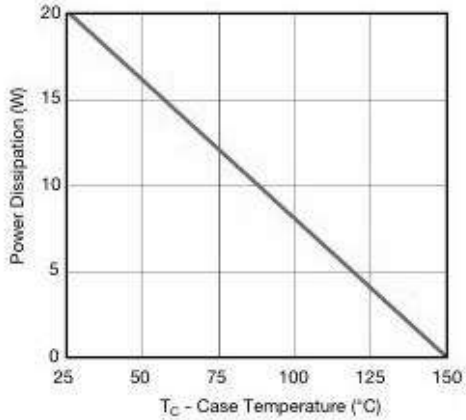


Safe Operating Area, Junction-to-Ambient

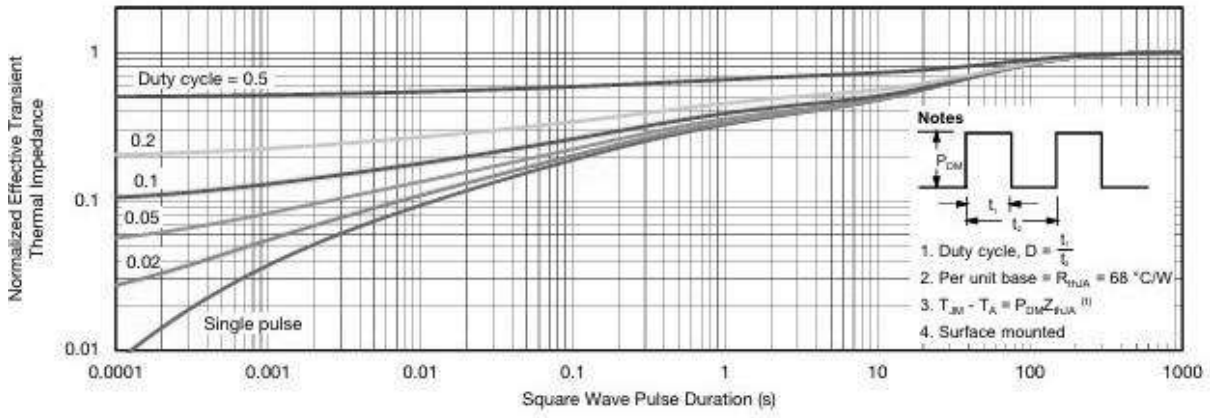
➢ Typical Characteristics



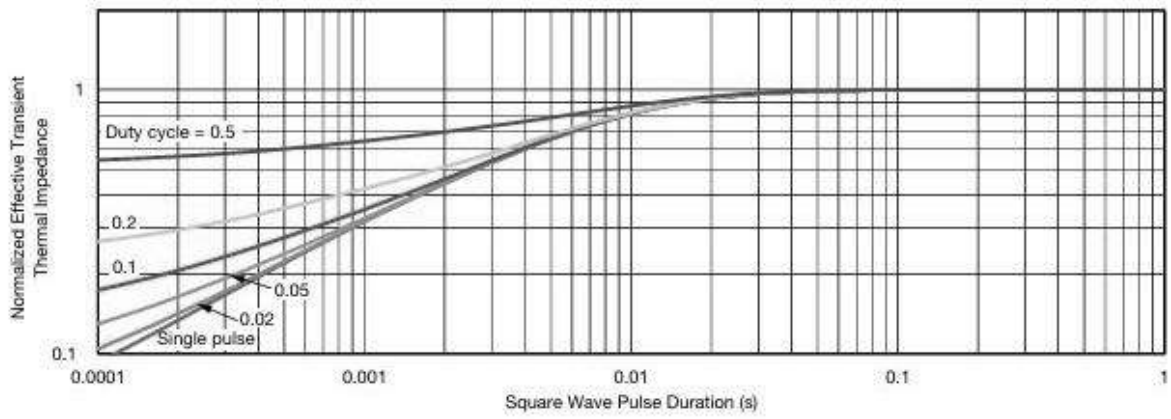
Current Derating [a]



Power, Junction-to-Case

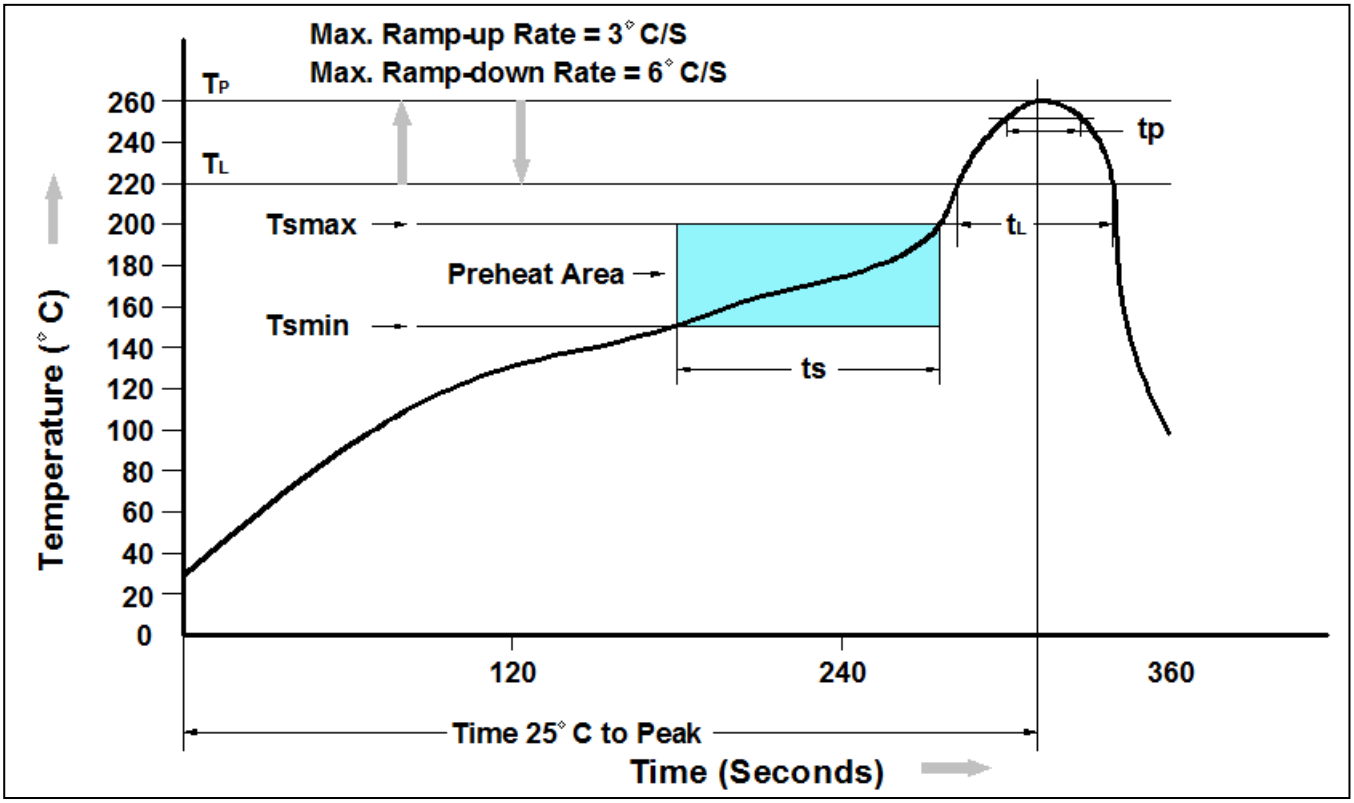


Normalized Thermal Transient Impedance, Junction-to-Ambient



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
PAN75TY38CSA	DFN3.3x3.3-8L Reel	5000 pcs

➢ Package Information (DFN3.3X3.3-8L)

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