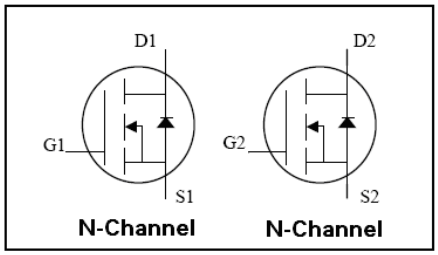
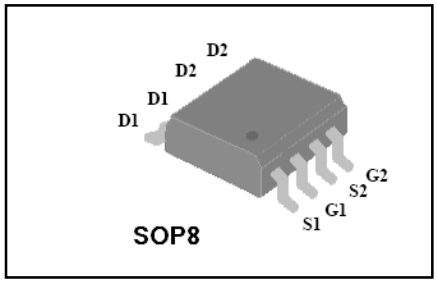
Features

- ♦BVDSS＞30V, $R_{DS(ON)}$=21mΩ(Typ)@V_{GS}=10V
- ♦Low On-Resistance
- ♦Fast Switching
- ♦Lead-Free,Hg-Free, Green Product

PTS4842 designed by the trench processing techniques to achieve extremely low on-resistance. And fast switching speed and improved transfer effective . These features combine to make this design an extremely efficient and reliable device for variety of DC-DC applications.

Pin Description





Absolute Maximum Ratings (T_C=25°C Unless Otherwise Noted)

Symbol	Parameter		Rating	Unit
V_{GS}	Gate-Source Voltage		±20	V
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage		30	V
T_J	Maximum Junction Temperature		150	°C
T_{STG}	Storage Temperature Range		-50 to 150	°C
I_S	Diode Continuous Forward Current	T_C=25°C	5	A
Mounted on Large Heat Sink				
I_{DM}	Pulse Drain Current Tested (Note 1)	T_C=25°C	30	A
I_D	Continuous Drain Current(V_{GS}=10V)	T_C=25°C	7.7	A
		T_C=100°C	6.5	
P_D	Maximum Power Dissipation	T_C=25°C	2	W
$R_{\theta JA}$	Thermal Resistance Junction-Ambient		89	°C/W

Static Electrical Characteristics @ TJ = 25°C (unless otherwise stated)

Symbol	Parameter	Condition	Min	Typ	Max	Unit
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V I_D=250μA	30	--	--	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=30V,V_{GS}=0V	--	--	1	μA
I_{GSS}	Gate-Body Leakage Current	V_{GS}=±20V,V_{DS}=0V	--	--	±100	nA
$V_{GS(TH)}$	Gate Threshold Voltage	V_{DS}=V_{GS},I_D=250μA	1.0	1.6	2.5	V
$R_{DS(ON)}$	Drain-Source On-State Resistance	V_{GS}=10V, I_D=7.7A	--	16	21	mΩ
$R_{DS(ON)}$	Drain-Source On-State Resistance	V_{GS}=5V, I_D=5A	--	20	30	mΩ
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
C_{iss}	Input Capacitance	V_{DS}=15V,V_{GS}=0V, f=1MHz	--	420	--	pF
C_{oss}	Output Capacitance		--	85	--	pF
C_{rss}	Reverse Transfer Capacitance		--	9	--	pF
Q_g	Total Gate Charge	V_{DS}=15V,I_D=4A, V_{GS}=4.5V	--	10.5	--	nC
Q_{gs}	GateSource Charge		--	2.3	--	nC
Q_{gd}	GateDrain Charge		--	3	--	nC
Switching Characteristics						
$t_{d(on)}$	Turnon Delay Time	V_{DD}=15V, I_D=3A, R_G=3.3Ω, V_{GS}=10V	--	4.5	--	ns
t_r	Turnon Rise Time		--	3	--	ns
$t_{d(off)}$	TurnOff Delay Time		-	12	--	ns
t_f	TurnOff Fall Time		--	2	--	ns
Source Drain Diode Characteristics						
I_{SD}	Sourcedrain current(Body Diode) ①	T_c=25℃	.--	--	5	A
V_{SD}	Forward on voltage	T_j=25℃,I_{SD}=4A, V_{GS}=0V	--	0.82	1.2	V

Notes:

① Pulse test ; Pulse width≤300μs, duty cycle≤2%.

② Pulse width limited by maximum allowable junction temperature

Typical Characteristics

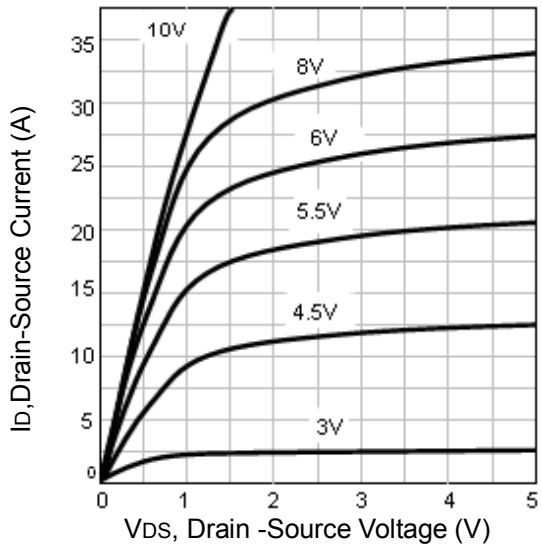


Fig1. Typical Output Characteristics

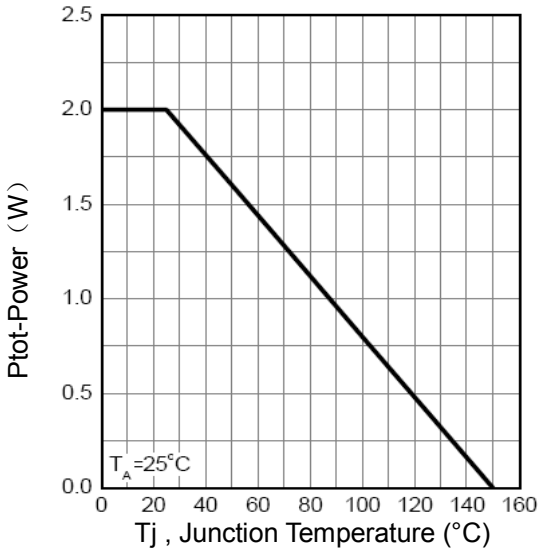


Fig2. Power Dissipation

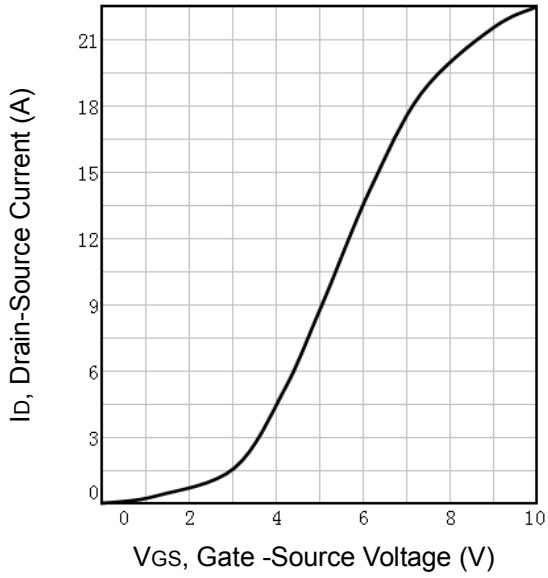


Fig3. Typical Transfer Characteristics

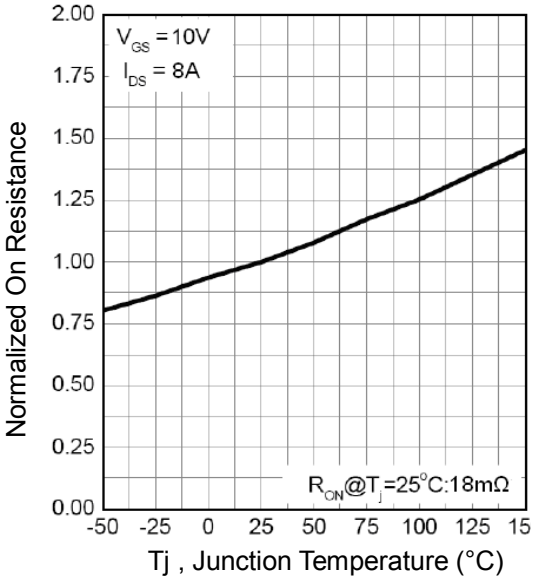


Fig4. Normalized On-Resistance Vs. Temperature

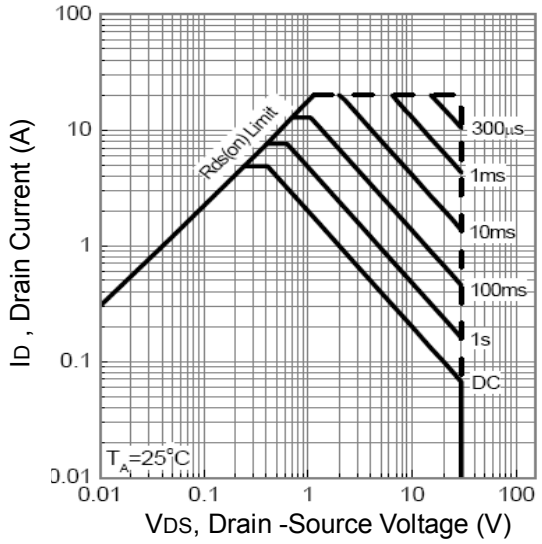


Fig5. Maximum Safe Operating Area

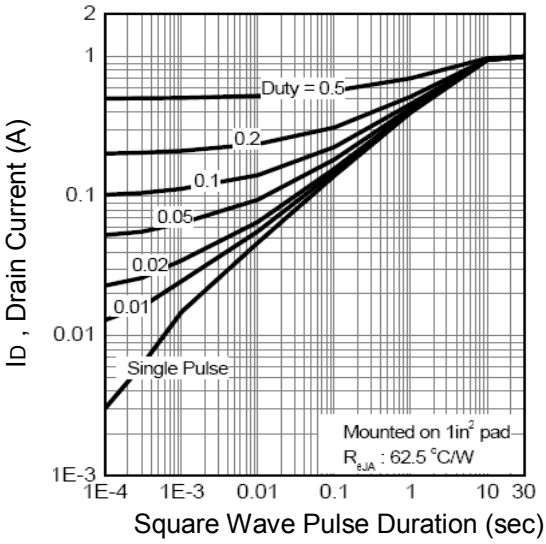


Fig6. Thermal Transient Impedance

Typical Characteristics

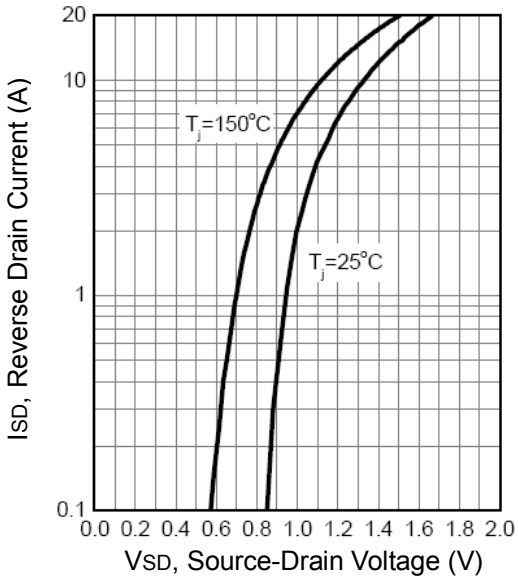


Fig7. Typical Source-Drain Diode Forward Voltage

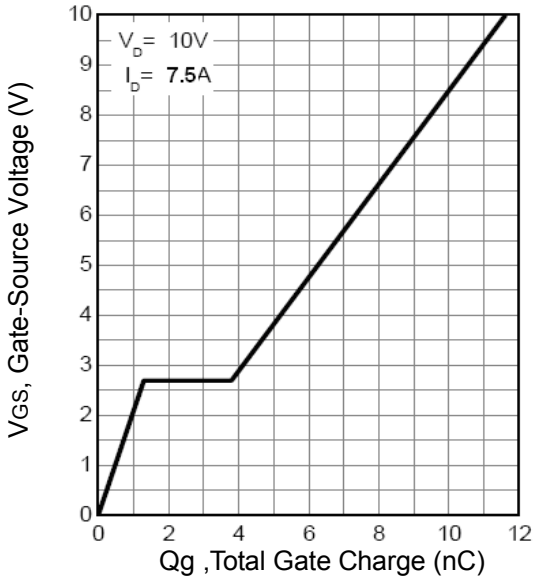


Fig8. Typical Gate Charge Vs.Gate-Source Voltage

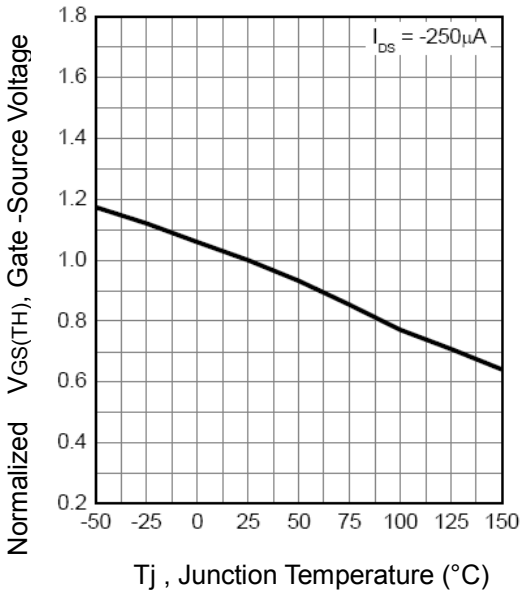


Fig9. Threshold Voltage Vs. Temperature

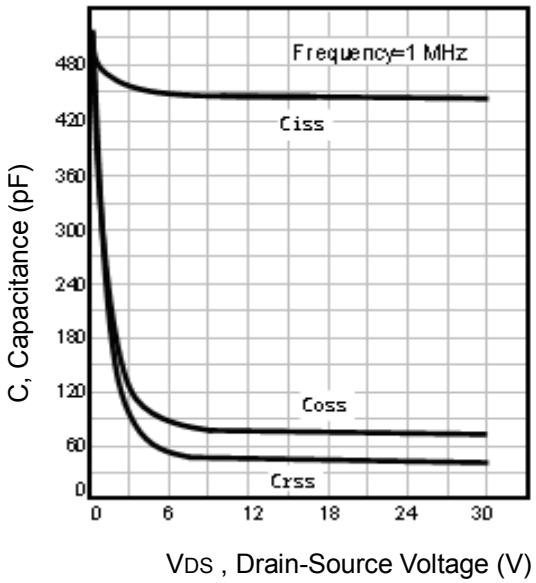


Fig10. Typical Capacitance Vs.Drain-Source Voltage

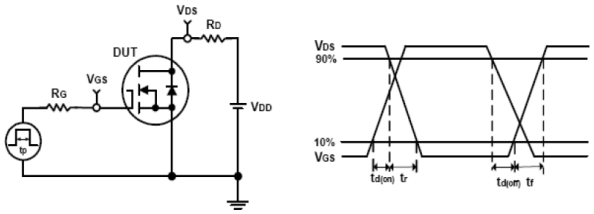


Fig11. Switching Time Test Circuit and waveforms