

PPAK5X6 Pin Configuration

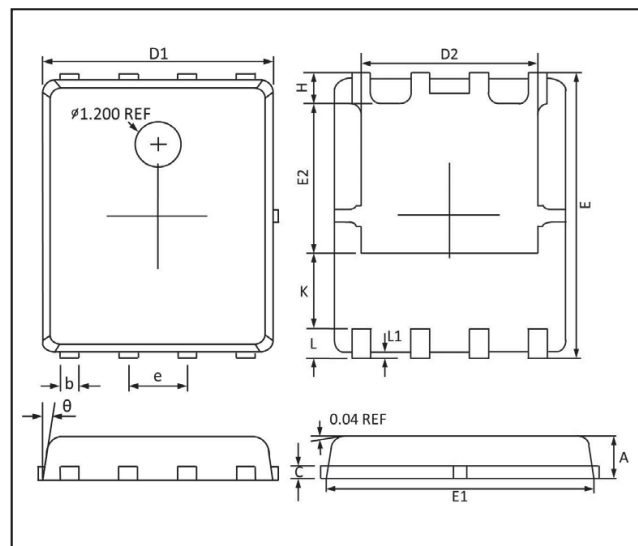
BVDSS	RDS(ON)	ID
150V	19mΩ	65A

FEATURES

- 150V,65A, RDS(ON) =19mΩ @VGS = 10V
- Improved dv/dt capability
- Fast switching
- 100% EAS Guaranteed
- Green Device Available
- N-Channel MOSFETS

APPLICATIONS

- Networking
- Load Switch
- LED applications
- Quick Charger



MAXIMUM RATINGS AND CHARACTERISTICS

@ 25°C Ambient Temperature (unless otherwise noted)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V _{DS}	150	V
Gate-Source Voltage	V _{GS}	±20	V
Drain Current – Continuous (T _C =25°C)	I _D	65	A
Drain Current – Continuous (T _C =100°C)		41	A
Drain Current – Pulsed ¹	I _{DM}	260	A
Single Pulse Avalanche Energy ²	EAS	153	mJ
Single Pulse Avalanche Current ²	IAS	17.5	A
Power Dissipation (T _C =25°C)	P _D	192	W
Power Dissipation – Derate above 25°C		1.54	W/°C
Storage Temperature Range	T _{STG}	-55 to +150	°C
Operating Junction Temperature Range	T _J	-55 to +150	°C

Parameter	Symbol	Typ.	Max.	Unit
Thermal Resistance Junction to ambient	R _{θJA}	---	62	°C/W
Thermal Resistance Junction to Case	R _{θJC}	---	0.65	°C/W

Off Characteristics

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	150	---	---	V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=120V, V_{GS}=0V, T_J=25^\circ C$	---	---	1	μA
		$V_{DS}=120V, V_{GS}=0V, T_J=85^\circ C$	---	---	10	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	---	---	± 100	nA

On Characteristics

Static Drain-Source On-Resistance ³	$R_{DS(ON)}$	$V_{GS}=10V, I_D=25A$	---	16	19	m Ω
Gate Threshold Voltage	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=250\mu A$	2	3	4	V
Forward Transconductance	g_{fs}	$V_{DS}=10V, I_D=3A$	---	11	---	S

Dynamic and switching Characteristics

Total Gate Charge ^{3, 4}	Q_g	$V_{DS}=75V, V_{GS}=10V, I_D=30A$	---	39	60	nC
Gate-Source Charge ^{3, 4}	Q_{gs}		---	9.5	15	
Gate-Drain Charge ^{3, 4}	Q_{gd}		---	15	23	
Turn-On Delay Time ^{3, 4}	$T_{d(on)}$	$V_{DD}=75V, V_{GS}=10V, R_G=6\Omega, I_D=30A$	---	15	23	ns
Rise Time ^{3, 4}	T_r		---	28	42	
Turn-Off Delay Time ^{3, 4}	$T_{d(off)}$		---	45	68	
Fall Time ^{3, 4}	T_f		---	32	48	
Input Capacitance	C_{iss}	$V_{DS}=75V, V_{GS}=0V, F=1MHz$	---	2300	3450	pF
Output Capacitance	C_{oss}		---	220	330	
Reverse Transfer Capacitance	C_{rss}		---	10	15	
Gate Resistance	R_g	$V_{GS}=0V, V_{DS}=0V, F=1MHz$	---	1.5	---	Ω

Drain-Source Diode Characteristics and Maximum Ratings

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Continuous Source Current	I_S	$V_G=V_D=0V, \text{Force Current}$	---	---	65	A
Pulsed Source Current	I_{SM}		---	---	130	A
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=1A, T_J=25^\circ C$	---	---	1	V
Reverse Recovery Time ³	t_{rr}	$V_R=100V, I_S=10A, di/dt=100A/\mu s, T_J=25^\circ C$	---	90	---	ns
Reverse Recovery Charge ³	Q_{rr}		---	355	---	nC

Note :

1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. $V_{DD}=50V, V_{GS}=10V, L=1mH, I_{AS}=17.5A, R_G=25\Omega, \text{Starting } T_J=25^\circ C$.
3. The data tested by pulsed , pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
4. Essentially independent of operating temperature.

RATINGS AND CHARACTERISTIC CURVES

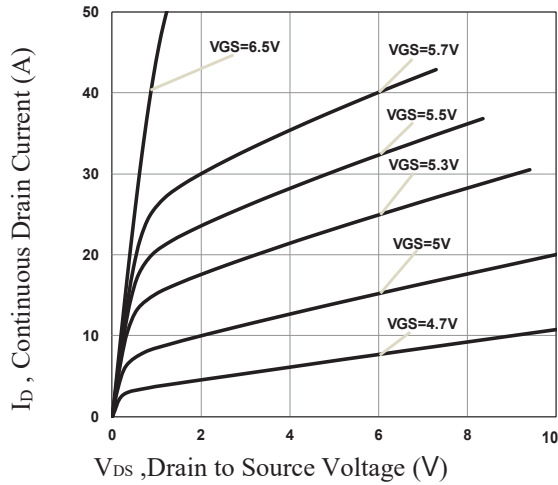


Fig.1 Typical Output Characteristics

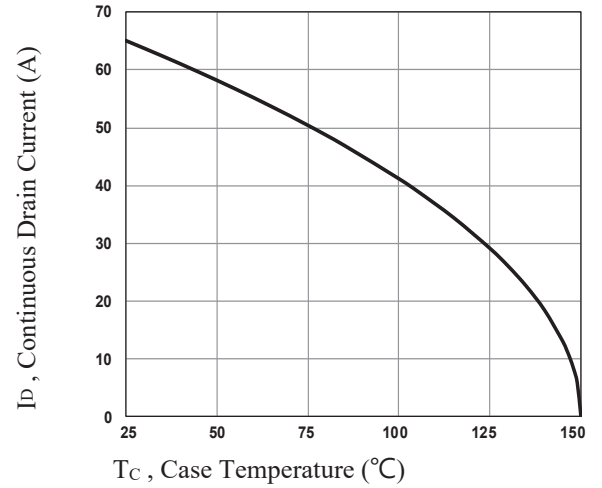


Fig.2 Continuous Drain Current vs. T_C

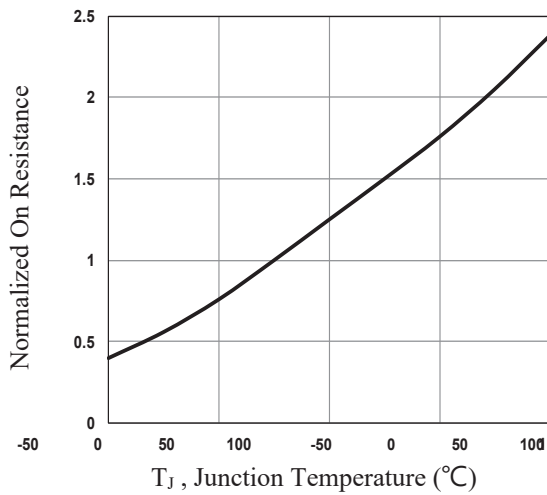


Fig.3 Normalized $R_{DS(on)}$ vs. T_J

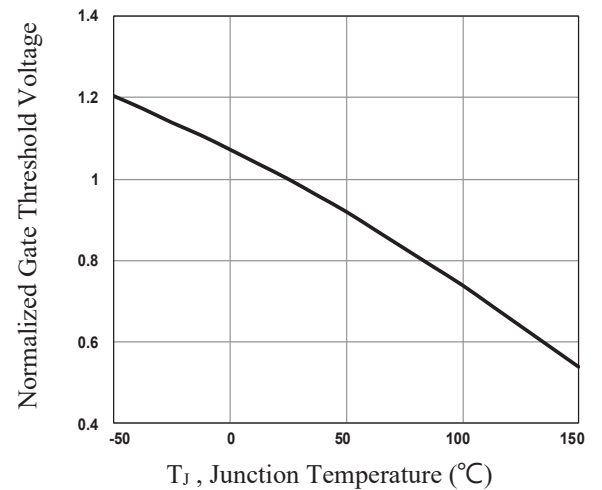


Fig.4 Normalized V_{th} vs. T_J

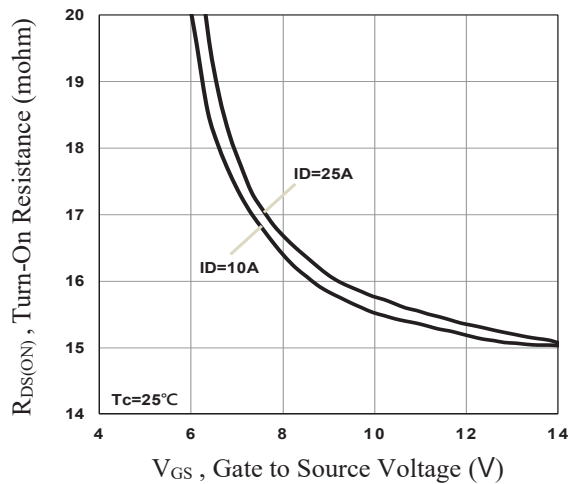


Fig.5 Turn-On Resistance vs. V_{GS}

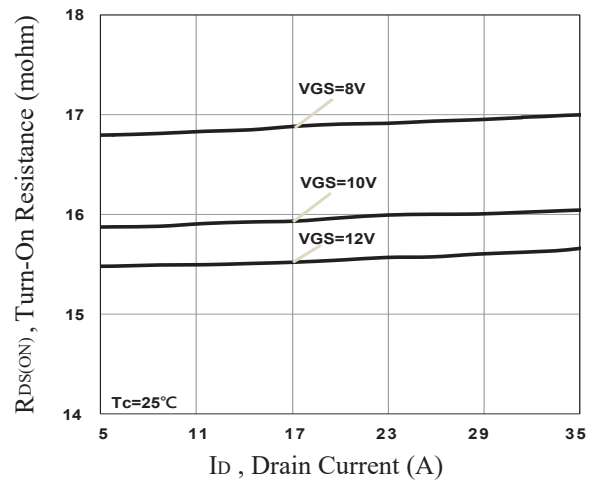


Fig.6 Turn-On Resistance vs. I_D

RATINGS AND CHARACTERISTIC CURVES

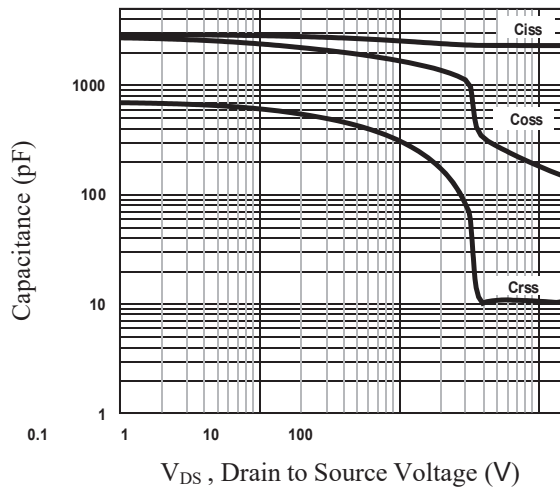


Fig.7 Capacitance Characteristics

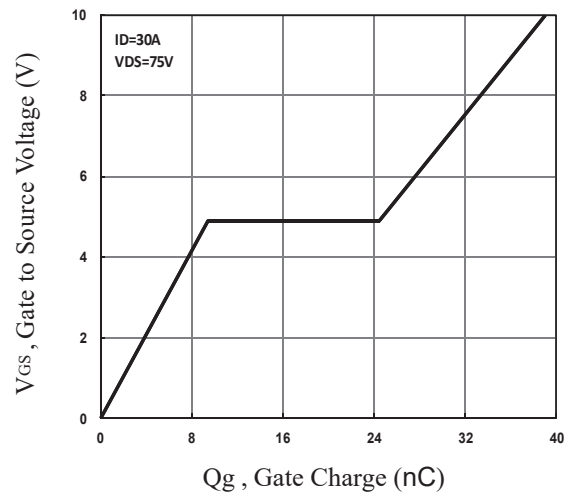


Fig.8 Gate Charge Characteristics

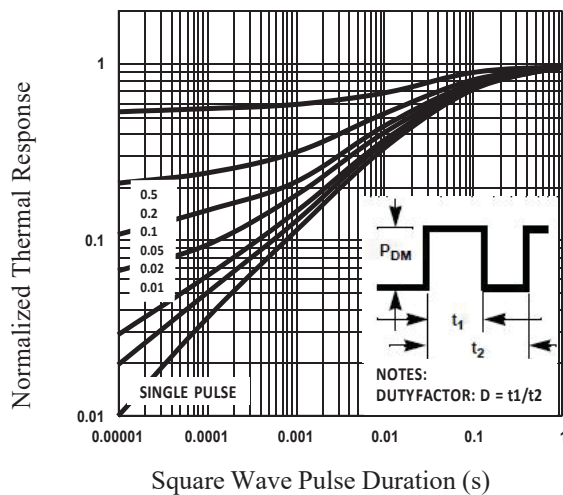


Fig.9 Normalized Transient Impedance

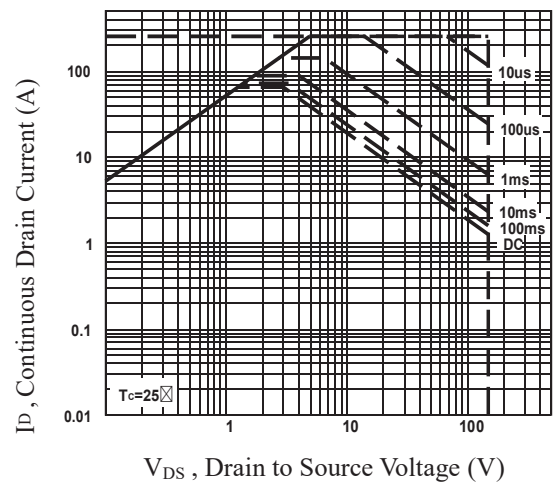


Fig.10 Maximum Safe Operation Area

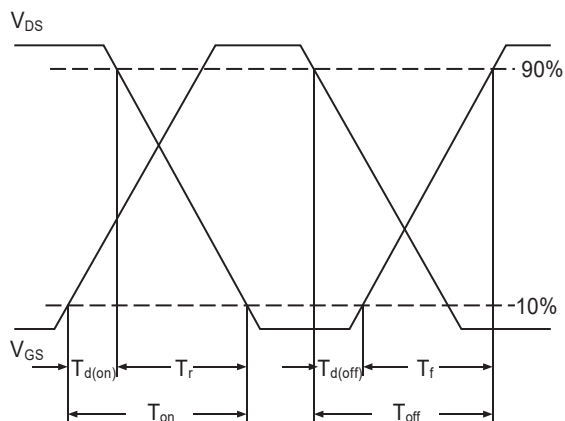


Fig.11 Switching Time Waveform

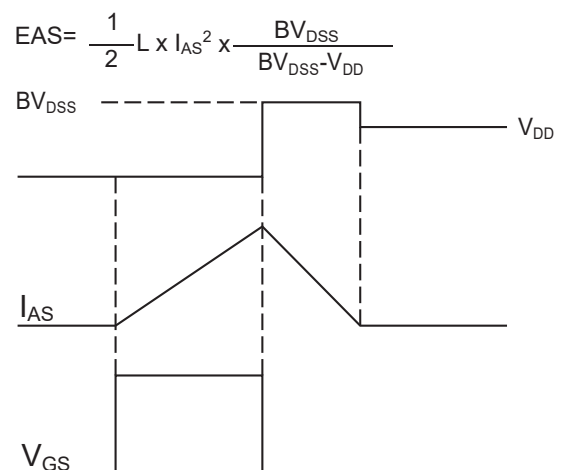


Fig.12 EAS Waveform