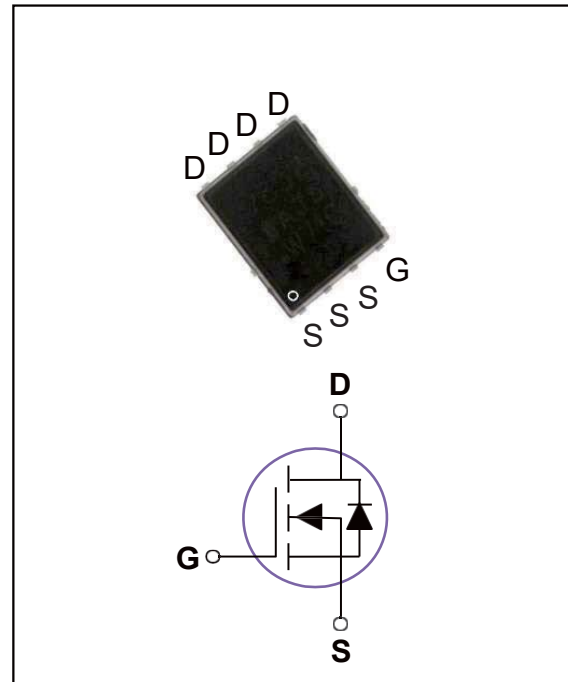


## PPAK5X6 Pin Configuration

BVDSS	RDS(ON)	ID
65V	2.8mΩ	100A

<p><b>Features</b></p> <ul style="list-style-type: none"> <li>● 65V, 100A, <math>R_{DS(ON)} = 2.8m\Omega @ V_{GS} = 10V</math></li> <li>● Improved <math>dv/dt</math> capability</li> <li>● Fast switching</li> <li>● 100% EAS Guaranteed</li> <li>● Green Device Available</li> </ul> <p><b>Applications</b></p> <ul style="list-style-type: none"> <li>● Networking</li> <li>● Load Switch</li> <li>● LED applications</li> <li>● Quick Charger</li> </ul>
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### MAXIMUM RATINGS AND CHARACTERISTICS

@ 25°C Ambient Temperature (unless otherwise noted)

Parameter	Symbol	Rating	Units
Drain-Source Voltage	$V_{DS}$	65	V
Gate-Source Voltage	$V_{GS}$	+20/-12	V
Drain Current – Continuous ( $T_C=25C$ )	$I_D$	100	A
Drain Current – Continuous ( $T_C=100C$ )		63	A
Drain Current – Pulsed <sup>1</sup>	$I_{DM}$	400	A
Single Pulse Avalanche Energy <sup>2</sup>	EAS	245	mJ
Single Pulse Avalanche Current <sup>2</sup>	IAS	70	A
Power Dissipation ( $T_C=25C$ )	$P_D$	142	W
Power Dissipation – Derate above 25C		1.14	W/C
Storage Temperature Range	$T_{STG}$	-50 to 150	C
Operating Junction Temperature Range	$T_J$	-50 to 150	C

#### Thermal Characteristics

Parameter	Symbol	Typ.	Max.	Unit
Thermal Resistance Junction to ambient	$R_{\theta JA}$	---	62	C/W
Thermal Resistance Junction to Case	$R_{\theta JC}$	---	0.88	C/W

**MOSFET ELECTRICAL CHARACTERISTICS**  $T_A=25^{\circ}\text{C}$  unless otherwise specified

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS}=0V, I_D=250\mu A$	65	---	---	V
$BV_{DSS}$ Temperature Coefficient	$L; BV_{DSS}/L; T_J$	Reference to $25^{\circ}\text{C}, I_D=1\text{mA}$	---	0.05	---	V/C
Drain-Source Leakage Current	$I_{DSS}$	$V_{DS}=60V, V_{GS}=0V, T_J=25^{\circ}\text{C}$	---	---	1	$\mu A$
		$V_{DS}=48V, V_{GS}=0V, T_J=85^{\circ}\text{C}$	---	---	10	$\mu A$
Gate-Source Leakage Current	$I_{GSS}$	$V_{GS}=20V, V_{DS}=0V$	---	---	100	nA

**On Characteristics**

Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=20A$	---	2.3	2.8	m $\Omega$
		$V_{GS}=4.5V, I_D=10A$	---	4.2	5.4	m $\Omega$
Gate Threshold Voltage	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=250\mu A$	1	1.6	2.5	V
$V_{GS(th)}$ Temperature Coefficient	$L; V_{GS(th)}$		---	-5	---	mV/C
Forward Transconductance	$g_{fs}$	$V_{DS}=10V, I_D=5A$	---	11	---	S

**Dynamic and switching Characteristics**

Total Gate Charge <sup>3,4</sup>	$Q_g$	$V_{DS}=48V, V_{GS}=10V, I_D=10A$	---	59	120	nC
Gate-Source Charge <sup>3,4</sup>	$Q_{gs}$		---	10.4	20	
Gate-Drain Charge <sup>3,4</sup>	$Q_{gd}$		---	19.6	38	
Turn-On Delay Time <sup>3,4</sup>	$T_{d(on)}$	$V_{DD}=30V, V_{GS}=10V, R_G=6\Omega$ $I_D=1A$	---	22	44	ns
Rise Time <sup>3,4</sup>	$T_r$		---	14	28	
Turn-Off Delay Time <sup>3,4</sup>	$T_{d(off)}$		---	40	80	
Fall Time <sup>3,4</sup>	$T_f$		---	20	40	
Input Capacitance	$C_{iss}$	$V_{DS}=25V, V_{GS}=0V, F=1\text{MHz}$	---	4780	9500	pF
Output Capacitance	$C_{oss}$		---	1365	2700	
Reverse Transfer Capacitance	$C_{rss}$		---	51	102	
Gate resistance	$R_g$	$V_{GS}=0V, V_{DS}=0V, F=1\text{MHz}$	---	1.8	3.6	$\Omega$

**Drain-Source Diode Characteristics and Maximum Ratings**

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Continuous Source Current	$I_S$	$V_G=V_D=0V, \text{Force Current}$	---	---	100	A
Pulsed Source Current	$I_{SM}$		---	---	200	A
Diode Forward Voltage	$V_{SD}$	$V_{GS}=0V, I_S=1A, T_J=25^{\circ}\text{C}$	---	---	1	V

Note :

1. Repetitive Rating : Pulsed width limited by maximum junction temperature.  
 $V_{DD}=25V, V_{GS}=10V, L=0.1\text{mH}, I_{AS}=70A, R_G=25\Omega, \text{Starting } T_J=25^{\circ}\text{C}.$
2. The data tested by pulsed , pulse width  $\diamond 300\mu s$  , duty cycle  $\diamond 2\%$ .
3. Essentially independent of operating temperature.

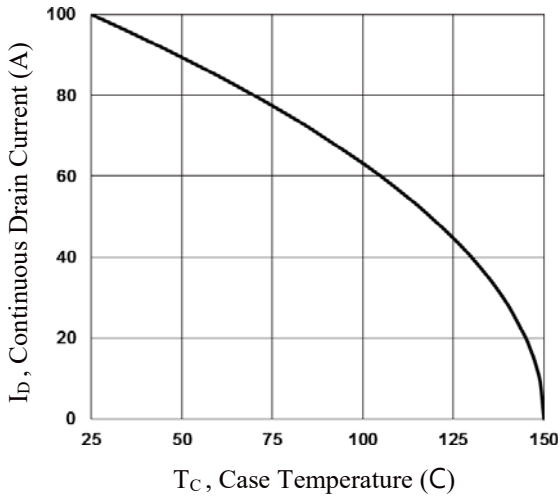
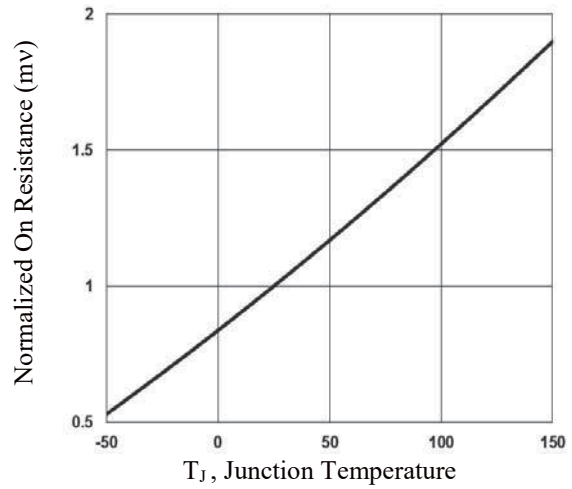
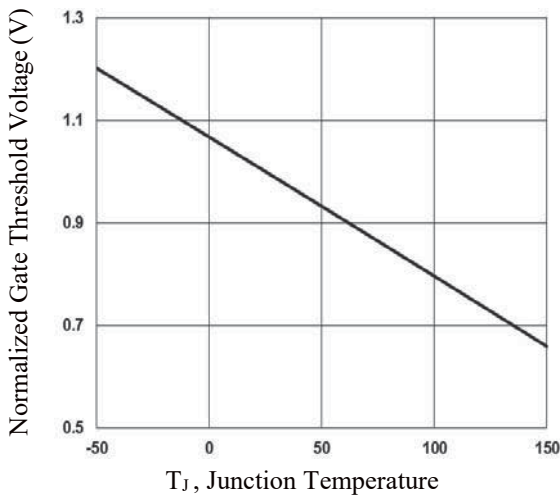


Fig.1 Continuous Drain Current vs.  $T_c$



(C) Fig.2 Normalized  $R_{DS(on)}$  vs.  $T_j$



(C) Fig.3 Normalized  $V_{th}$  vs.  $T_j$

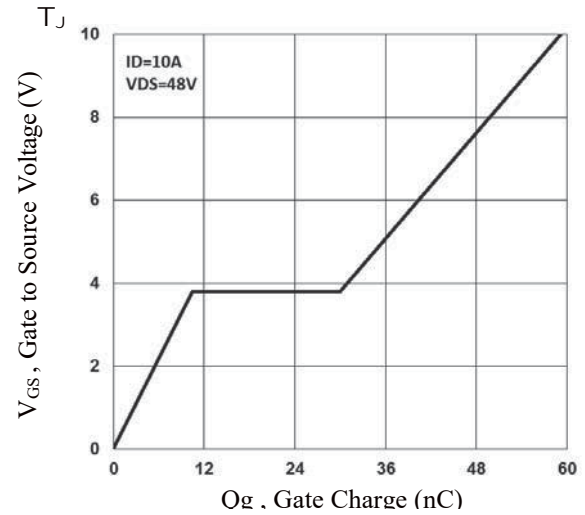


Fig.4 Gate Charge Characteristics

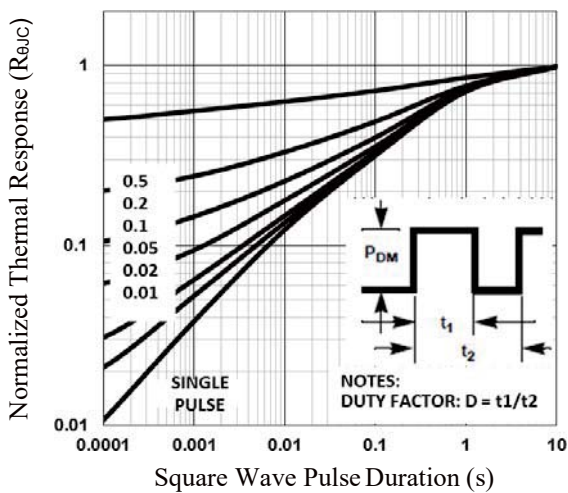


Fig.5 Normalized Transient Impedance

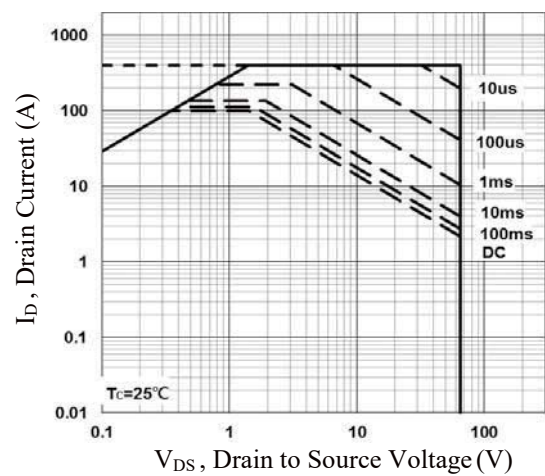


Fig.6 Maximum Safe Operation Area

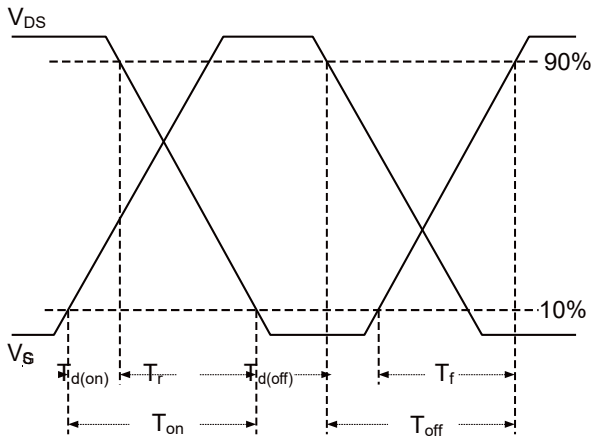


Fig.7 Switching Time Waveform

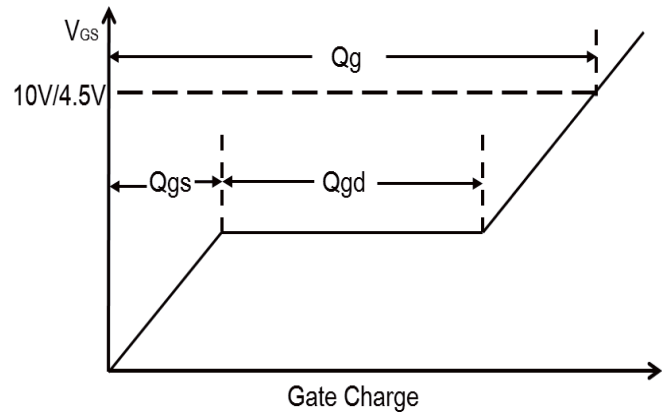
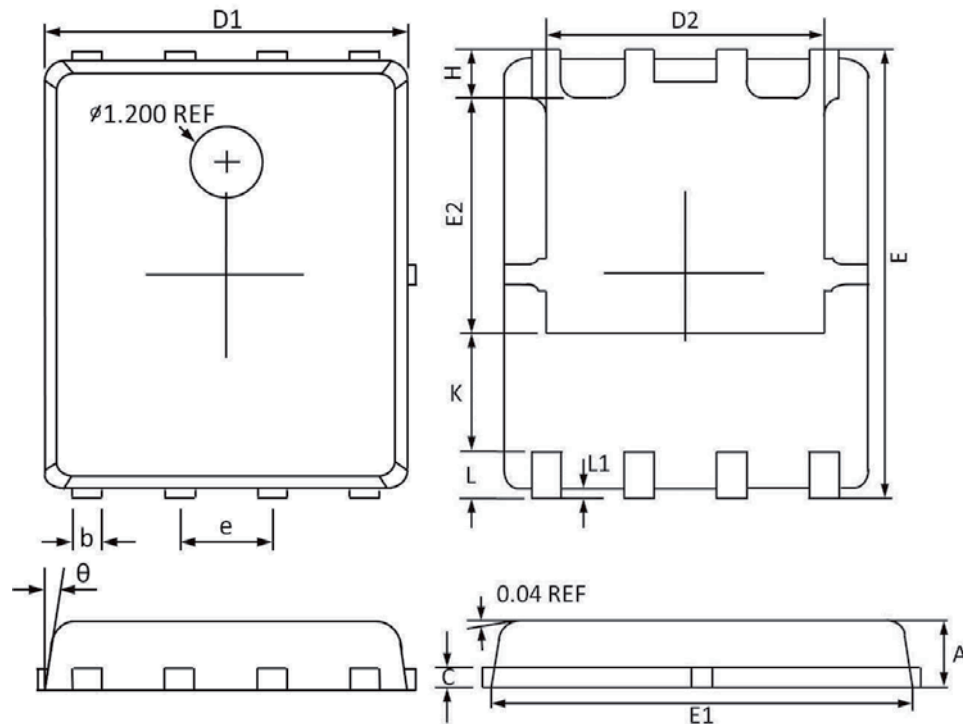


Fig.8 Gate Charge Waveform

## PPAK5x6 PACKAGE INFORMATION



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MAX	MIN	MAX	MIN
A	1.100	0.800	0.043	0.031
b	0.510	0.330	0.020	0.013
C	0.300	0.200	0.012	0.008
D1	5.100	4.800	0.201	0.189
D2	4.100	3.610	0.161	0.142
E	6.200	5.900	0.244	0.232
E1	5.900	5.700	0.232	0.224
E2	3.780	3.350	0.149	0.132
e	1.27BSC		0.05BSC	
H	0.700	0.410	0.028	0.016
K	1.500	1.100	0.059	0.043
L	0.710	0.510	0.028	0.020
L1	0.200	0.060	0.008	0.002
$\theta$	12°	0°	12°	0°