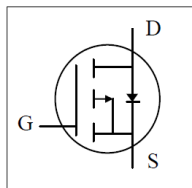
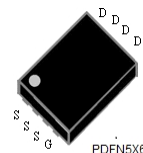


- Fast Switching Characteristic
- Simple Drive Requirement
- Low On-resistance
- RoHS Compliant & Halogen-Free



BVDSS	-30V
RDS(ON)typ	11mΩ
ID	-42A



Description

KE8304 is from Kingeavy innovated design and silicon process technology to achieve the lowest possible on- resistance and fast switching performance. It provides the designer with an extreme efficient device for use in a wide range of power applications.

Absolute Maximum Ratings@T_j=25°C(unless otherwise specified)

Symbol	Parameter	Rating	Units
VDS	Drain-Source Voltage	-30	V
VGS	Gate-Source Voltage	±25	V
ID@Tc=25°C	Drain Current, VGS @ 10V	-42	A
ID@Tc=100°C	Drain Current, VGS @ 10V	-30	A
ID@TA=25°C	Drain Current, VGS @ 10V ₃	-15	A
ID@TA=70°C	Drain Current, VGS @ 10V ₃	-12	A
IDM	Pulsed Drain Current ¹	-80	A
PD@TA=25°C	Total Power Dissipation	3	W
EAS	Single Pulse Avalanche Energy ⁴	20	mJ
TSTG	Storage Temperature Range	-55 to 150	°C
TJ	Operating Junction Temperature Range	150	°C

Thermal Data

Symbol	Parameter	Value	Unit
Rthj-c	Maximum Thermal Resistance, Junction-case	4	°C/W
Rthj-a	Maximum Thermal Resistance, Junction-ambient ₃	60	°C/W

Electrical Characteristics@T_j=25 oC(unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
BV _{DSS}	Drain-Source Breakdown Voltage	VGS=0V, ID=250uA	-30	-	-	V
RDS(ON)	Static Drain-Source On-Resistance ²	VGS=-10V, ID=-15A	-	11.5	12.5	mΩ
		VGS=-4.5V, ID=-12A	-	16.5	18.5	mΩ
V _{GS(th)}	Gate Threshold Voltage	VDS=VGS, ID=250uA	-1	-	-2.1	V
g _{fs}	Forward Transconductance	VDS=-10V, ID=-12A	-	24	-	S
I _{DSS}	Drain-Source Leakage Current	VDS=-24V, VGS=0V	-	-	-1	uA
I _{GSS}	Gate-Source Leakage	VGS=±25V, VDS=0V	-	-	±100	nA
Q _g	Total Gate Charge ²	ID=-12A	-	19	-	nC
Q _{gs}	Gate-Source Charge	VDS=-15V	-	6	-	nC
Q _{gd}	Gate-Drain ("Miller") Charge	VGS=-4.5V	-	9	-	nC
t _{d(on)}	Turn-on Delay Time	VDS=-15V	-	12	-	ns
t _r	Rise Time	ID=-1A	-	10	-	ns
t _{d(off)}	Turn-off Delay Time	RG=3.3Ω	-	57	-	ns
t _f	Fall Time	VGS=-10V	-	30	-	ns
C _{iss}	Input Capacitance	VGS=0V	-	2170	-	pF
C _{oss}	Output Capacitance	VDS=-15V	-	290	-	pF
Crss	Reverse Transfer Capacitance	f=1.0MHz	-	260	-	pF
Rg	Gate Resistance	f=1.0MHz	-	9	-	Ω

Source-Drain Diode

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V _{SD}	Forward On Voltage ²	IS=-10A, VGS=0V	-	-	-1.2	V
t _{rr}	Reverse Recovery Time	IS=-10A, VGS=0V dI/dt=100A/μs	-	24	-	ns
Q _{rr}	Reverse Recovery Charge		-	10	-	nC

Notes:

- 1.Pulse width limited by Max. junction temperature.
- 2.Pulse test
- 3.Surface mounted on 1 in2 2oz copper pad of FR4 board, t_≤10sec
- 4.Starting T_j=25℃, VDD=-30V, L=0.1mH, RG=25Ω, VGS=-10V

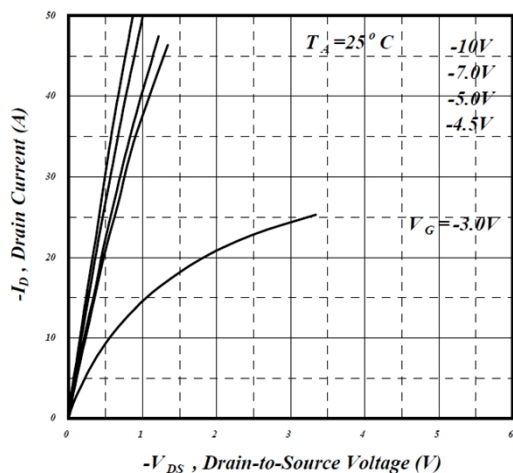


Fig 1. Typical Output Characteristics

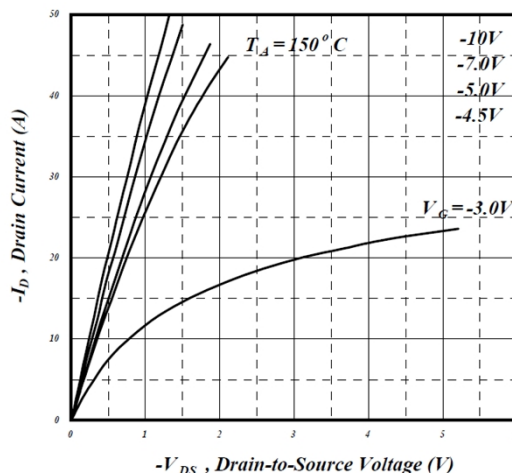


Fig 2. Typical Output Characteristics

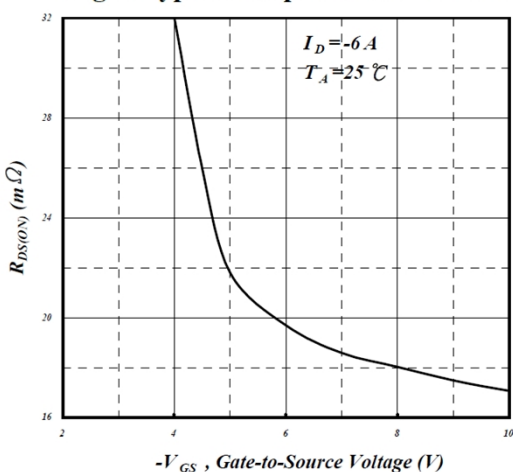


Fig 3. On-Resistance v.s. Gate Voltage

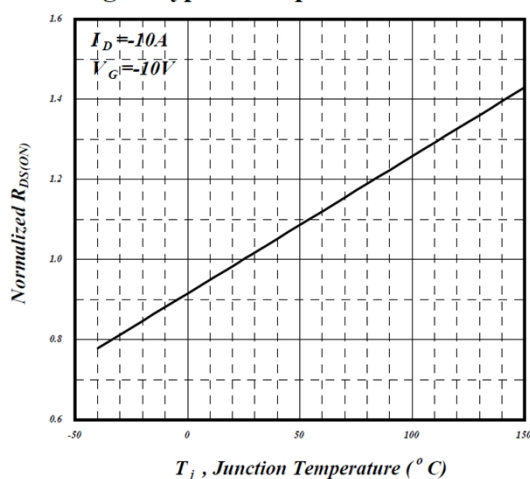


Fig 4. Normalized On-Resistance v.s. Junction Temperature

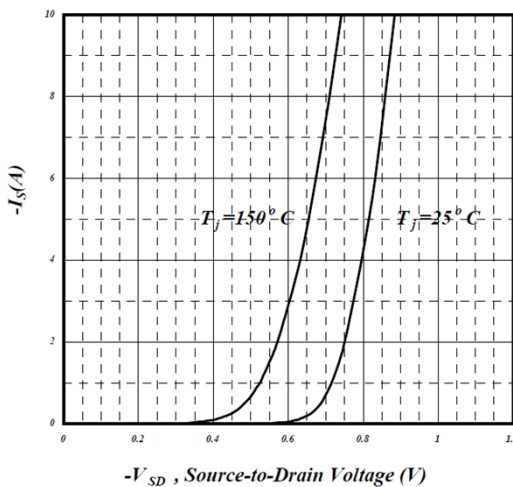


Fig 5. Forward Characteristic of Reverse Diode

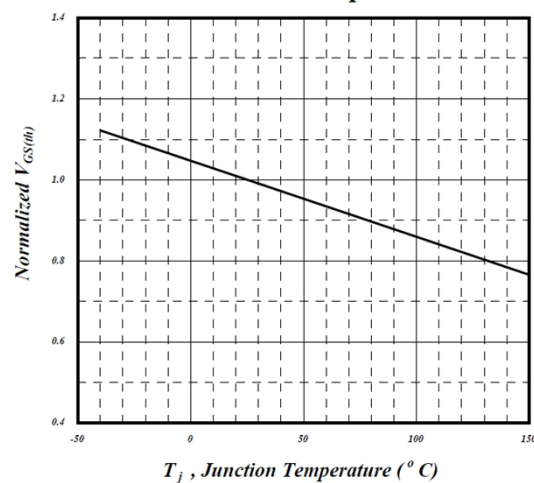


Fig 6. Gate Threshold Voltage v.s. Junction Temperature

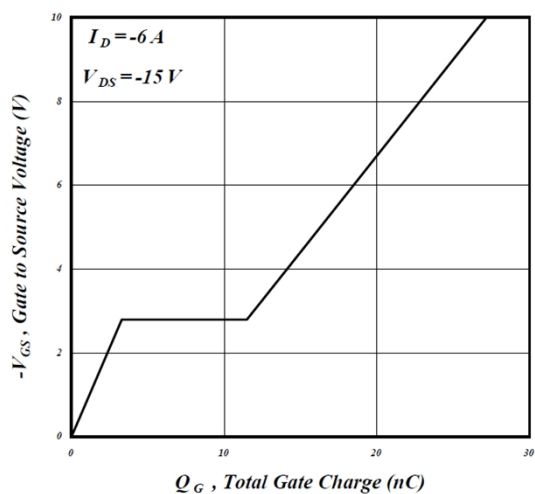


Fig 7. Gate Charge Characteristics

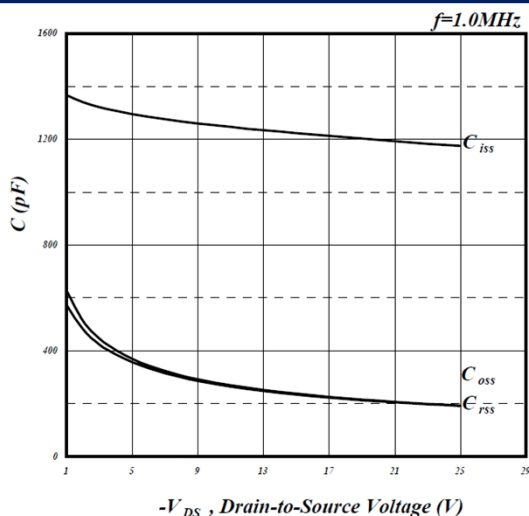


Fig 8. Typical Capacitance Characteristics

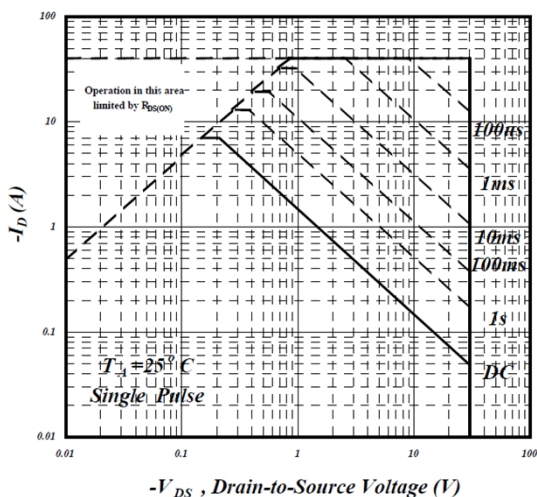


Fig 9. Maximum Safe Operating Area

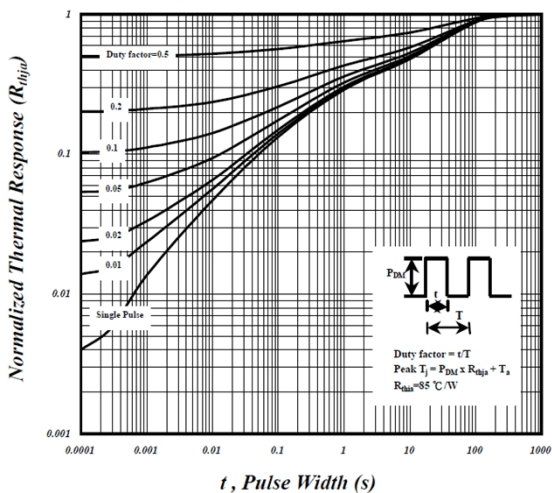


Fig 10. Effective Transient Thermal Impedance

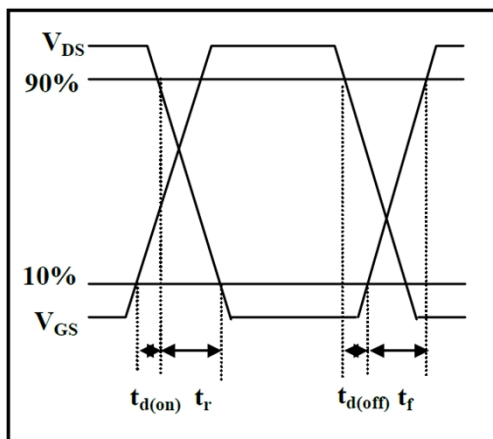


Fig 11. Switching Time Waveform

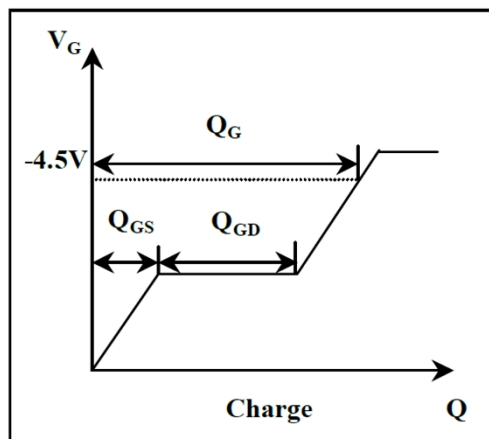


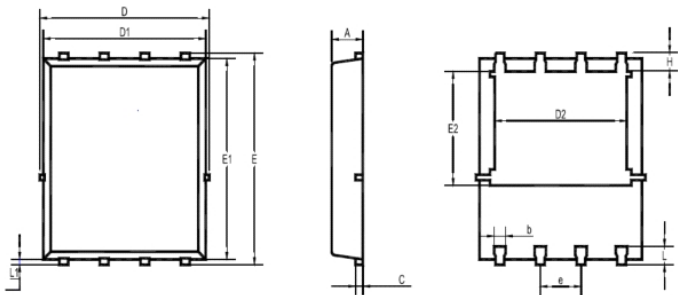
Fig 12. Gate Charge Waveform

Marking Information



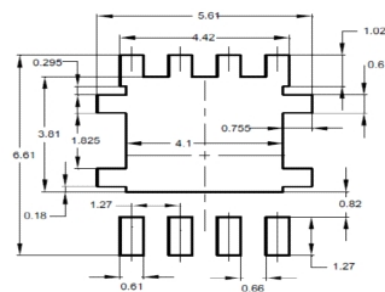
Package	PDFN5x6	
XXXX	Part Number	
PP	Package Code	
Y	Year	I=2023 , J=2024,
WW	Weeks	Ex. 10/27=44weeks, 11/3=45weeks
FF	Wafer lot	Lot No.
A	Serial	Serial No.
Dot	First pin	

Package Outline : PDFN 5x6 (mm)



UNIT	A	b	C	D	D1	D2	E	E1	E2	e	L	L1	H
mm	1.12	0.51	0.34	5.26	5.1	4.5	6.25	6	3.66	1.37	0.71	0.2	0.71
	0.9	0.33	0.11	4.7	4.7	3.56	5.75	5.6	3.18	1.17	0.35	0.06	0.35

PDFN5x6 FOOTPRINT: (mm)



Packing information

Package	Tape Width (mm)	Pitch		Reel Size		Per Reel Packing Quantity
		mm	inch	mm	inch	
PDFN5x6	12	8 ± 0.1	0.315 ± 0.004	330	13	5,000