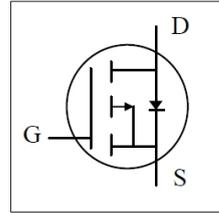


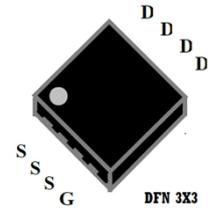
- Simple Drive Requirement
- Small Size & Low $R_{DS(ON)}$
- RoHS Compliant & Halogen-Free



BV_{DSS}	-30V
$R_{DS(ON)typ}$	11m Ω
I_D	-13A

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@ $T_j=25^\circ\text{C}$ (unless otherwise specified)

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-30	V
V_{GS}	Gate-Source Voltage	± 25	V
$I_D@T_A=25^\circ\text{C}$	Drain Current, $V_{GS} @ 10V_3$	-13	A
$I_D@T_A=70^\circ\text{C}$	Drain Current, $V_{GS} @ 10V_3$	-10.5	A
I_{DM}	Pulsed Drain Current ¹	-50	A
$P_D@T_A=25^\circ\text{C}$	Total Power Dissipation	3	W
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ\text{C}$
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ\text{C}$

Thermal Data

Symbol	Parameter	Value	Unit
R_{thj-c}	Maximum Thermal Resistance, Junction-case	5	$^\circ\text{C}/\text{W}$
R_{thj-a}	Maximum Thermal Resistance, Junction-ambient ³	40	$^\circ\text{C}/\text{W}$

Electrical Characteristics@T_j=25 °C(unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250uA	-30	-	-	V
R _{DS(ON)}	Static Drain-Source On-Resistance ²	V _{GS} =-10V, I _D =-10A	-	11	11.5	mΩ
		V _{GS} =-4.5V, I _D =-6A	-	15.9	17.5	mΩ
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250uA	-1	-1.3	-2.1	V
g _{fs}	Forward Transconductance	V _{DS} =-10V, I _D =-10A	-	20	-	S
I _{DSS}	Drain-Source Leakage Current	V _{DS} =-24V, V _{GS} =0V	-	-	-10	uA
I _{GSS}	Gate-Source Leakage	V _{GS} =±25V, V _{DS} =0V	-	-	±100	nA
Q _g	Total Gate Charge ²	I _D =-6A	-	19	30.4	nC
Q _{gs}	Gate-Source Charge	V _{DS} =-15V	-	6	-	nC
Q _{gd}	Gate-Drain ("Miller") Charge	V _{GS} =-4.5V	-	9	-	nC
t _{d(on)}	Turn-on Delay Time	V _{DS} =-15V	-	12	-	ns
t _r	Rise Time	I _D =-1A	-	10	-	ns
t _{d(off)}	Turn-off Delay Time	R _G =3.3Ω	-	57	-	ns
t _f	Fall Time	V _{GS} =-10V	-	30	-	ns
C _{iss}	Input Capacitance	V _{GS} =0V	-	2170	3472	pF
C _{oss}	Output Capacitance	V _{DS} =-15V	-	290	-	pF
C _{rss}	Reverse Transfer Capacitance	f=1.0MHz	-	260	-	pF
R _g	Gate Resistance	f=1.0MHz	-	9	18	Ω

Source-Drain Diode

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V _{SD}	Forward On Voltage ²	I _S =2.9A, V _{GS} =0V	-	-	-1.2	V
t _{rr}	Reverse Recovery Time	I _S =-10A, V _{GS} =0V	-	21	-	ns
Q _{rr}	Reverse Recovery Charge	dI/dt=100A/μs	-	6	-	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 ; 210°C/W when mounted on min. copper pad.

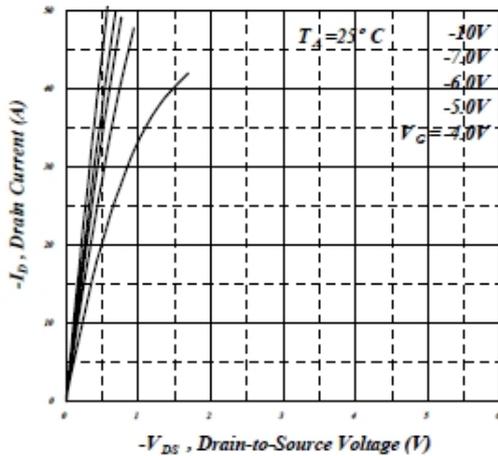


Fig 1. Typical Output Characteristics

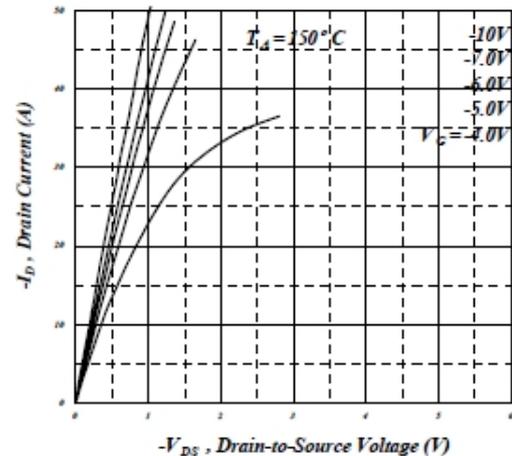


Fig 2. Typical Output Characteristics

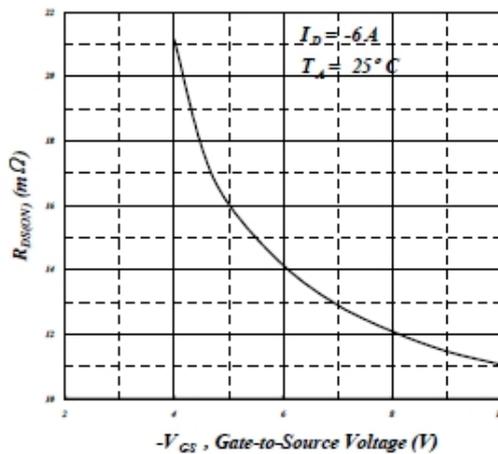


Fig 3. On-Resistance v.s. Gate Voltage

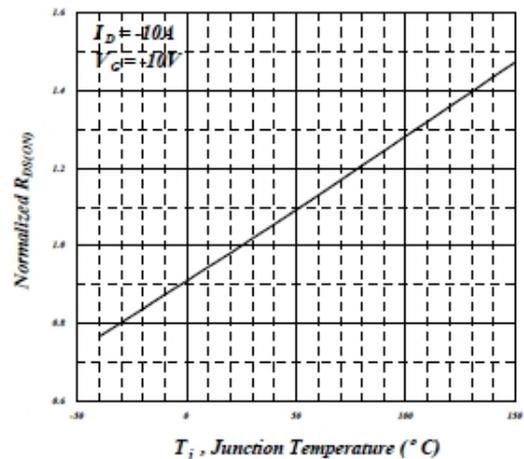


Fig 4. Normalized On-Resistance
v.s. Junction Temperature

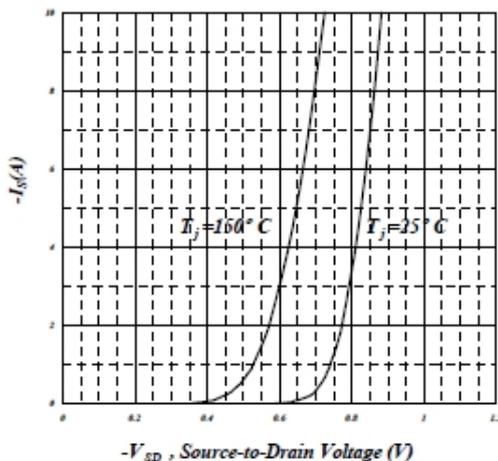


Fig 5. Forward Characteristic of
Reverse Diode

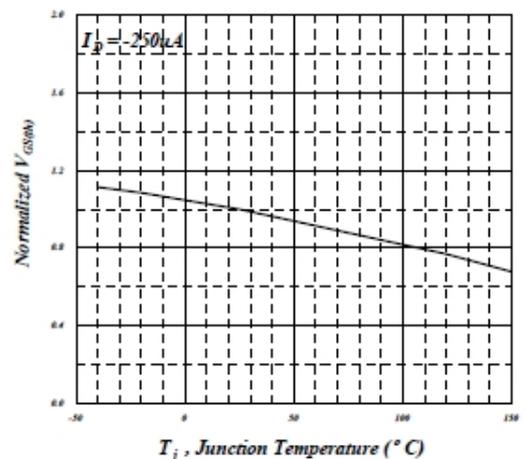


Fig 6. Gate Threshold Voltage v.s.
Junction Temperature

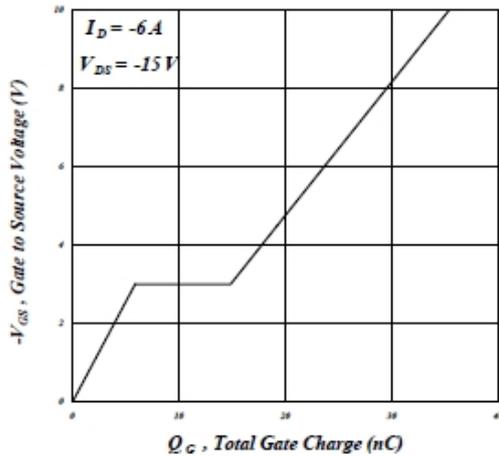


Fig 7. Gate Charge Characteristics

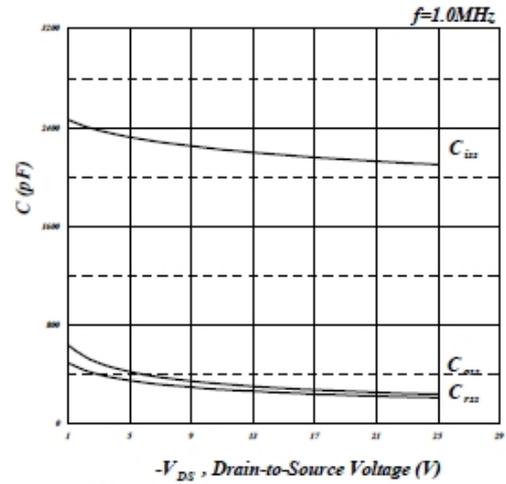


Fig 8. Typical Capacitance Characteristics

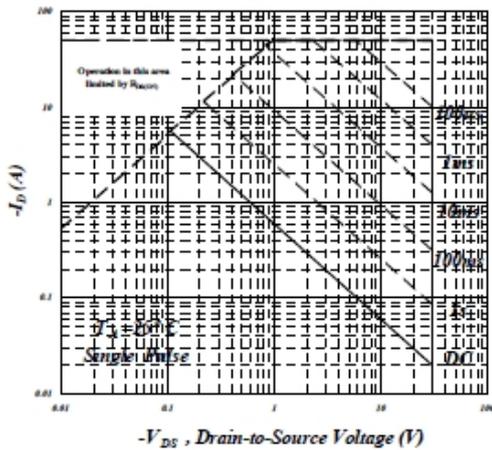


Fig 9. Maximum Safe Operating Area

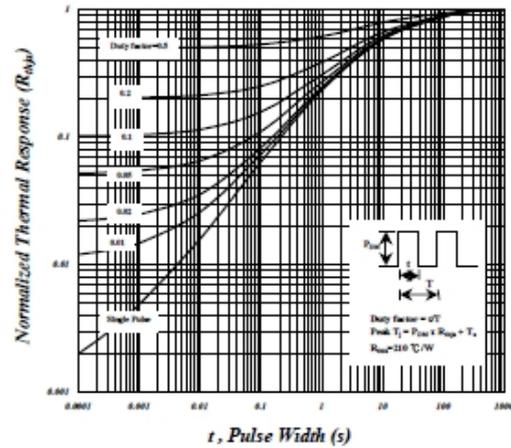


Fig 10. Effective Transient Thermal Impedance

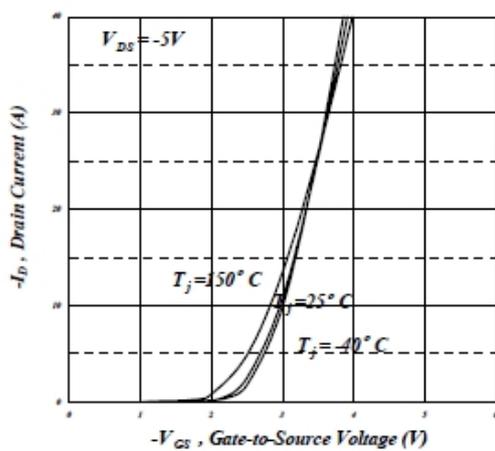


Fig 11. Transfer Characteristics

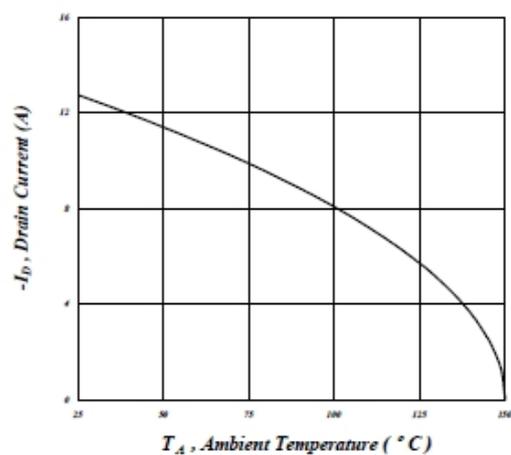
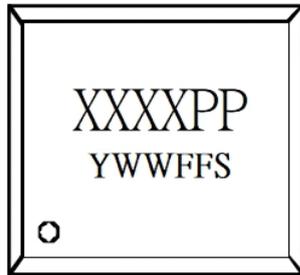


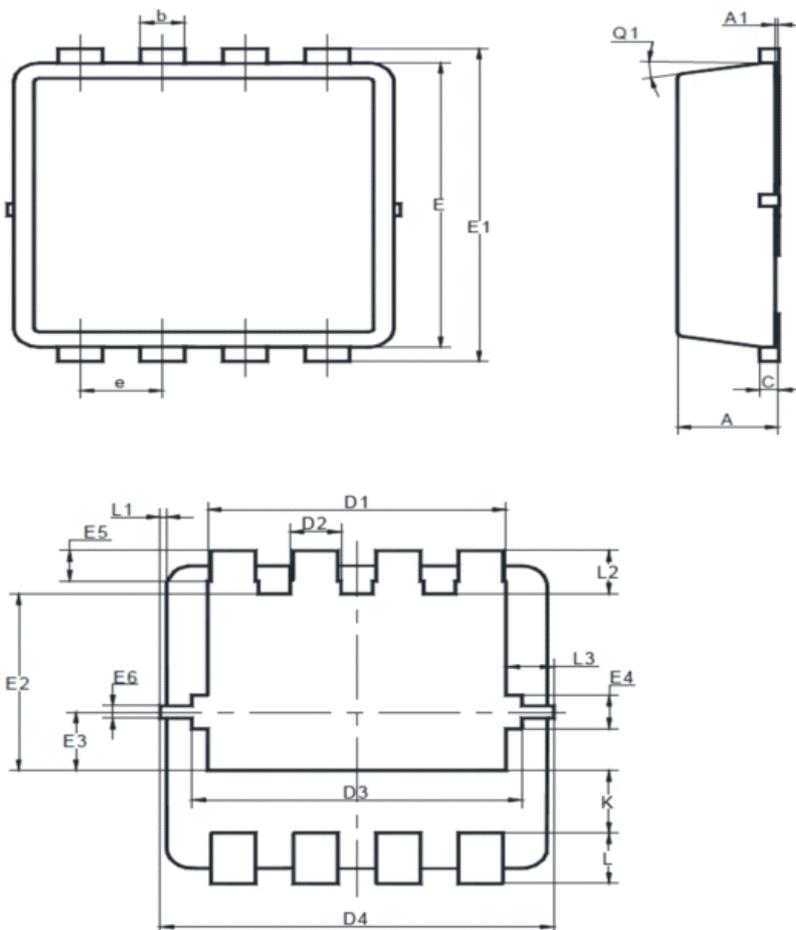
Fig 12. Drain Current v.s. Ambient Temperature

Marking Information



Package	DFN3x3	
XXXX	Part Number	
PP	Package Code	
Y	Year	E=2019, F=2020,
WW	Weeks	Ex. 10/27=44weeks, 11/3=45weeks
FF	Wafer lot	Lot No.
S	Serial	Serial No.
Dot	First pin	

Package Outline : DFN 3x3



Unit	A	A1	b	c	D1	D2	D3	D4	E	E1	E2	E3	E4
mm	0.9 0.7	0.05 0	0.35 0.24	0.25 0.1	2.6 2.4	0.5 0.3	2.7 2.5	3.33 3	3.1 2.9	3.5 3.1	1.85 1.65	0.68 0.48	0.43 0.23
Unit	E5	E6	e	K	L	L1	L2	L3	θ1				
mm	0.4 0.2	0.25 0.15	0.7 0.6	0.72 0.52	0.5 0.3	0.1 0	0.53 0.33	0.475 0.275	13° 0°				

