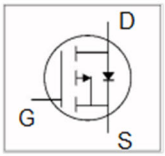
KGEY 金易半 Kingeavysemi

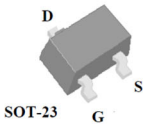
KE2305T0U

P-CHANNEL ENHANCEMENT MODE POWER MOSFET

- **Simple Drive Requirement**
- **Small Package Outline**
- **Surface Mount Device**
- **RoHS Compliant & Halogen-Free**



BV_{DSS}	-20V
$R_{DS(ON)typ}$	30mΩ
I_D	-5.1A



Description

KE2305 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
V_{DS}	Drain-Source Voltage	-20	V
V_{GS}	Gate-Source Voltage	±12	V
$I_{D\text{-Continuous}}$	Drain Current, V_{GS} @ 10V	-5.1	A
I_{DM}	Pulsed Drain Current[2]	-16	A
P_D@T_A=25℃	Total Power Dissipation[3]	1	W
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	150	℃

Thermal Data

Symbol	Parameter	Value	Unit
Rthj-a	Maximum Thermal Resistance, Junction-ambient[3]	125	℃/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	-20	-	-	V
RDS(ON)	Static Drain-Source On-Resistance	VGS=4.5V, ID=-3.5A	-	30	39	mΩ
		VGS=-2.5V, ID=-3.0A	-	40	58	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	VDS=VGS, ID=250uA	-0.4	-	-1	V
I_{DSS}	Drain-Source Leakage Current	VDS=-8V, VGS=0V	-	-	-1	uA
I_{GSS}	Gate-Source Leakage	VGS=±8V, VDS=0V	-	-	±100	nA
Q_g	Total Gate Charge	ID=-4A VDS=-10V VGS=-4.5V	-	8.8	-	nC
Q_{gs}	Gate-Source Charge		-	1.4	-	nC
Q_{gd}	Gate-Drain ("Miller") Charge		-	1.9	-	nC
$t_{d(on)}$	Turn-on Delay Time	VDS=-10V ID=3.3A RG=3Ω VGS=-4.5V,RL=2.5Ω	-	10	-	ns
t_r	Rise Time		-	32	-	ns
$t_{d(off)}$	Turn-off Delay Time		-	50	-	ns
t_f	Fall Time		-	51	-	ns
C_{iss}	Input Capacitance	VGS=0V VDS=-10V f=1.0MHz	-	830	-	pF
C_{oss}	Output Capacitance		-	132	-	pF
Crss	Reverse Transfer Capacitance		-	85	-	pF

Source-Drain Diode

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V_{SD}	Forward On Voltage²	IS=3A, VGS=0V	-	-0.75	-1.2	V

Notes:

1.Pulse width limited by Max. junction temperature.

2.Pulse test

3.Surface mounted on 1 in^2 2oz copper pad of FR4 board, t ≤10sec ; 300°C/W when mounted on min. copper pad.

Typical Performance Characteristics

Figure1: Output Characteristics

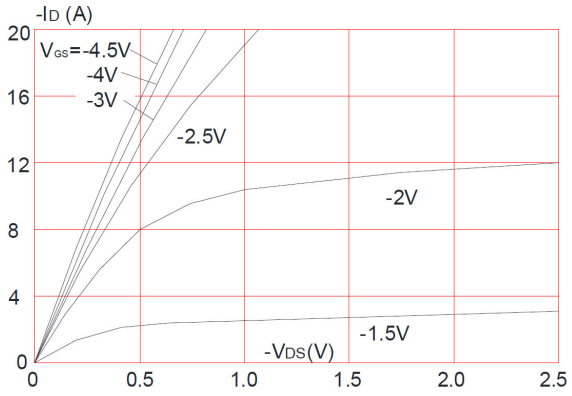


Figure 2: Typical Transfer Characteristics

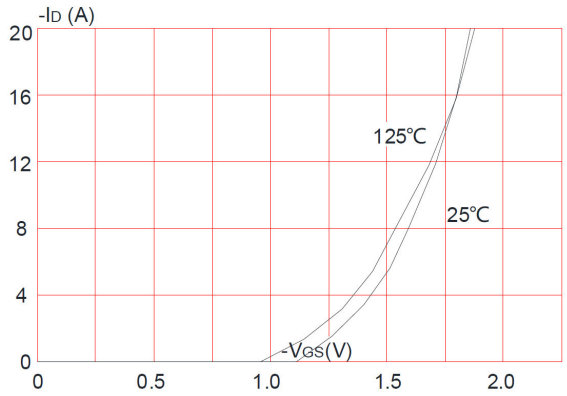


Figure 3: On-resistance vs. Drain Current

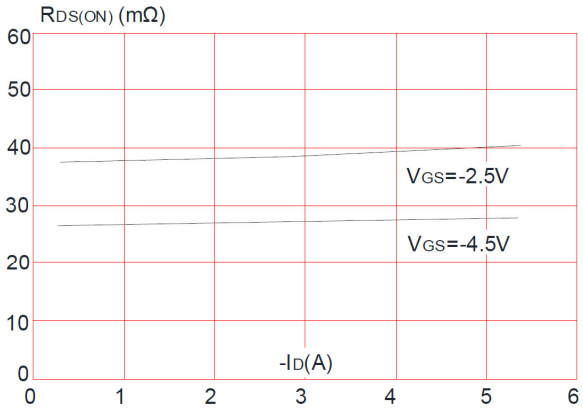


Figure 4: Body Diode Characteristics

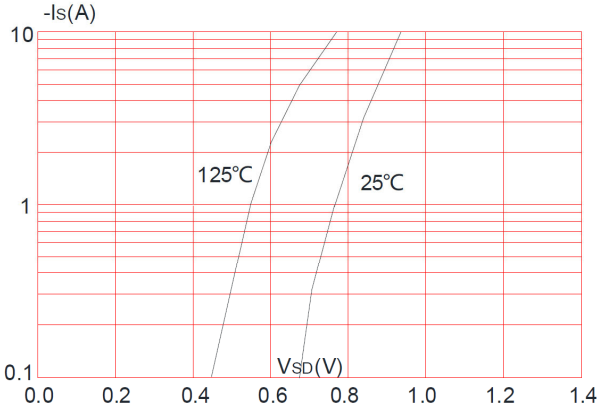


Figure 5: Gate Charge Characteristics

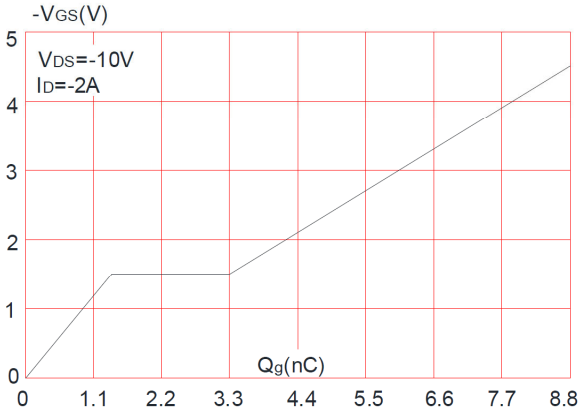


Figure 6: Capacitance Characteristics

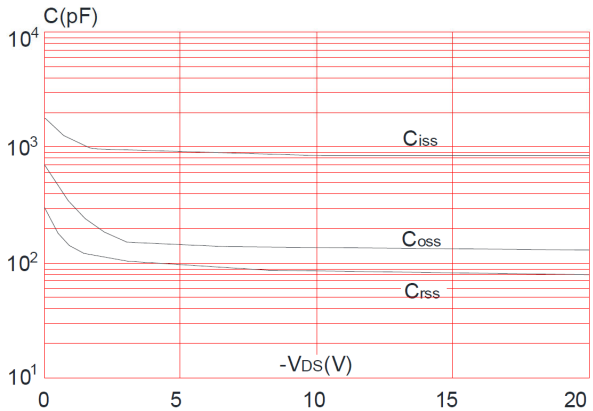


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

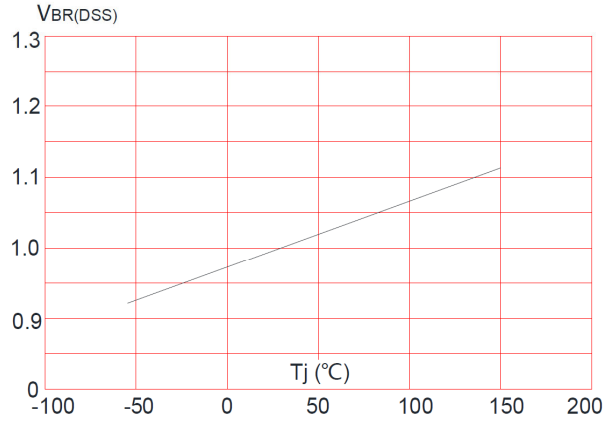


Figure 8: Normalized on Resistance vs. Junction Temperature

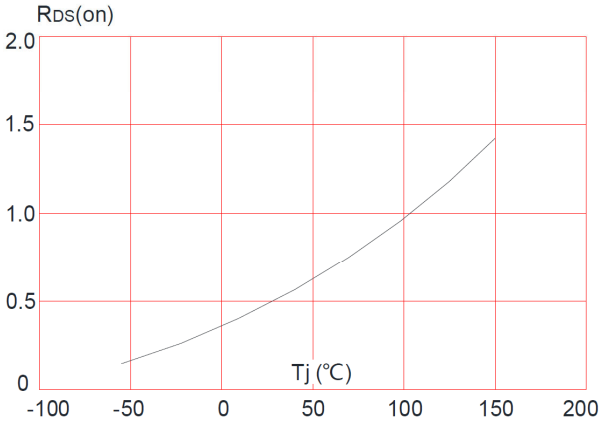


Figure 9: Maximum Safe Operating Area

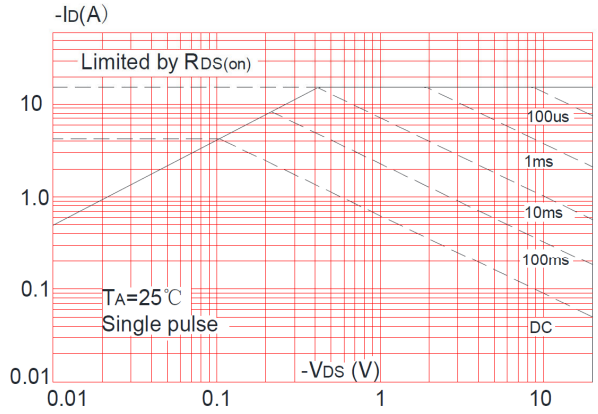


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

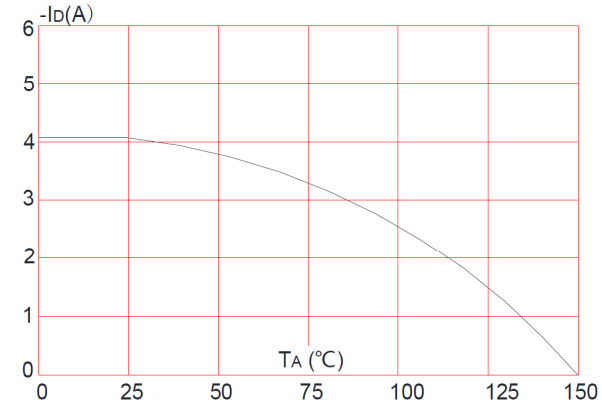
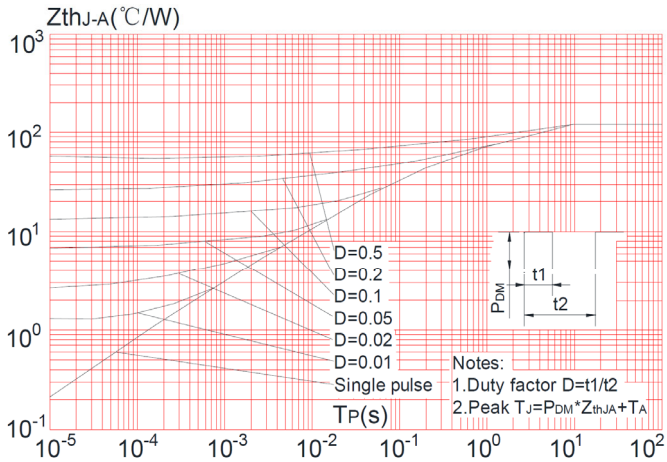
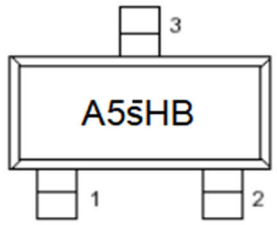


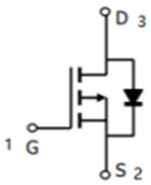
Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambient



Marking Information

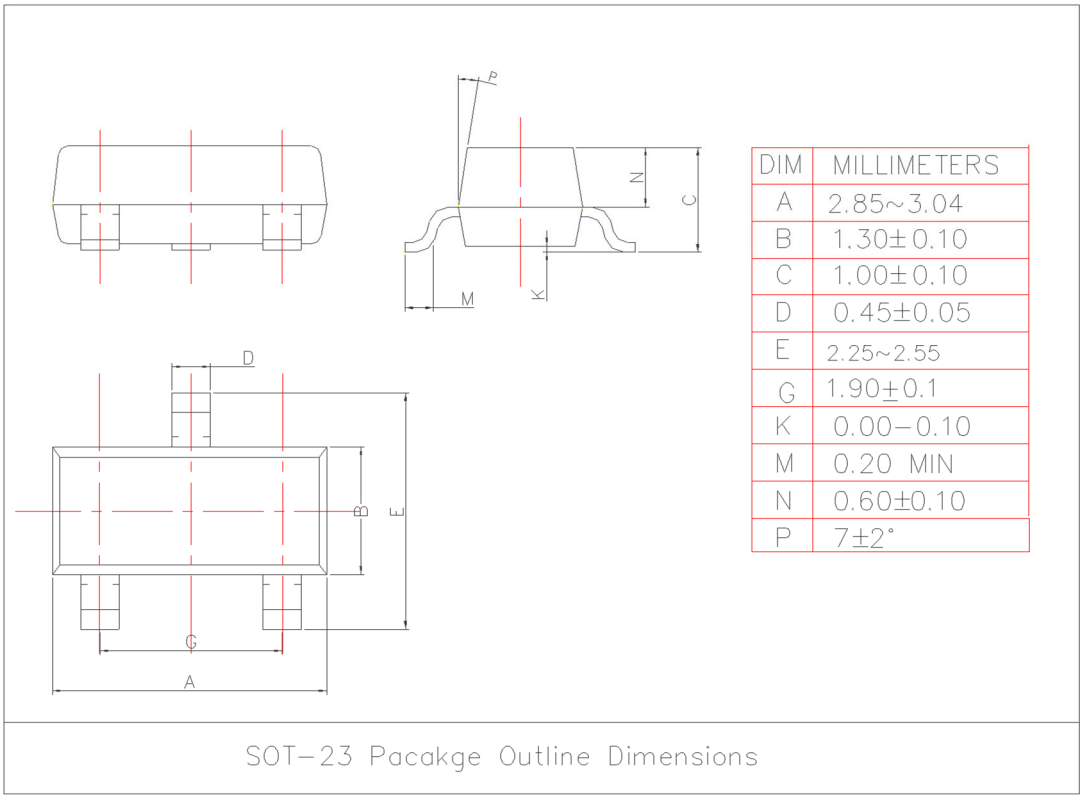


Top view



marking：A5s̄HB

Package Outline : SOT-23



DIM	MILLIMETERS
A	2.85~3.04
B	1.30±0.10
C	1.00±0.10
D	0.45±0.05
E	2.25~2.55
G	1.90±0.1
K	0.00−0.10
M	0.20 MIN
N	0.60±0.10
P	7±2°

SOT−23 Pacakge Outline Dimensions