

P-Channel Enhancement Mode MOSFET

1. Product Information

1.1 Features

- ☒ Surface-mounted package
- ☒ Advanced trench cell design

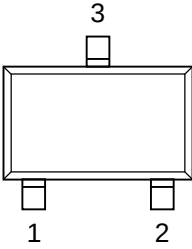
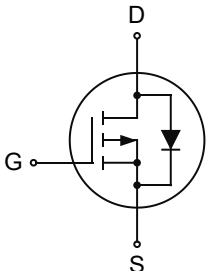
1.2 Applications

- ☒ Portable appliances
- ☒ Battery management
- ☒ High speed switch
- ☒ Low power DC to DC Converter

1.3 Quick reference

- ☒ $BV \leq -150V$
- ☒ $R_{DS(ON)} \leq 800m\Omega @ V_{GS} = -10V$
- ☒ $P_{tot} \leq 0.83W$
- ☒ $R_{DS(ON)} \leq 980m\Omega @ V_{GS} = -6$
- ☒ $I_D \leq -1.1A$

2. Pin Description

Pin	Description	Simplified Outline	Symbol
1	Gate(G)	 Top View SOT23-3L	
2	Source(S)		
3	Drain(D)		

3. Limiting Values

Symbol	Parameter	Conditions	Min	Max	Unit
V_{DS}	Drain-Source Voltage	$T_A=25^{\circ}\text{C}$	-150	-	V
V_{GS}	Gate-Source Voltage	$T_A=25^{\circ}\text{C}$	-	± 20	V
I_D^*	Drain Current	$T_A=25^{\circ}\text{C}, V_{GS}=-10\text{V}$	-	-1.1	A
I_D^*	Drain Current	$T_A=100^{\circ}\text{C}, V_{GS}=-10\text{V}$	-	-0.73	A
$I_{DM}^{*,**}$	Pulsed Drain Current	$T_A=25^{\circ}\text{C}, V_{GS}=-10\text{V}$	-	-4.4	A
P_{tot}	Total Power Dissipation	$T_A=25^{\circ}\text{C}$	-	0.83	W
T_{stg}	Storage Temperature		-55	150	$^{\circ}\text{C}$
T_J	Junction Temperature		-	150	$^{\circ}\text{C}$
I_S	Diode Forward Current	$T_A=25^{\circ}\text{C}$	-	-1.1	A
$R_{\theta JA}^*$	Thermal Resistance-Junction to Ambient		-	150	$^{\circ}\text{C}/\text{W}$

Notes:

* Surface Mounted on 1 in² pad area, $t \leq 10$ sec

** Pulse width $\leq 300 \mu\text{s}$, duty cycle $\leq 2\%$

4. Marking Information

Product Name	Marking
KJ1KP15A	1KP15

5. Ordering Code

Product Name	Package	Reel Size	Tape width	Quantity	Note
KJ1KP15A	SOT23-3L	-	-	3000	

Note: KJ1KP15A defines "Green" as lead-free (RoHS compliant) and halogen free (Br or Cl does not exceed 900 ppm by weight in homogeneous material and total of Br and Cl does not exceed 1500 ppm by weight; Follow IEC 61249-2-21 and IPC/JEDEC J-STD-020C)

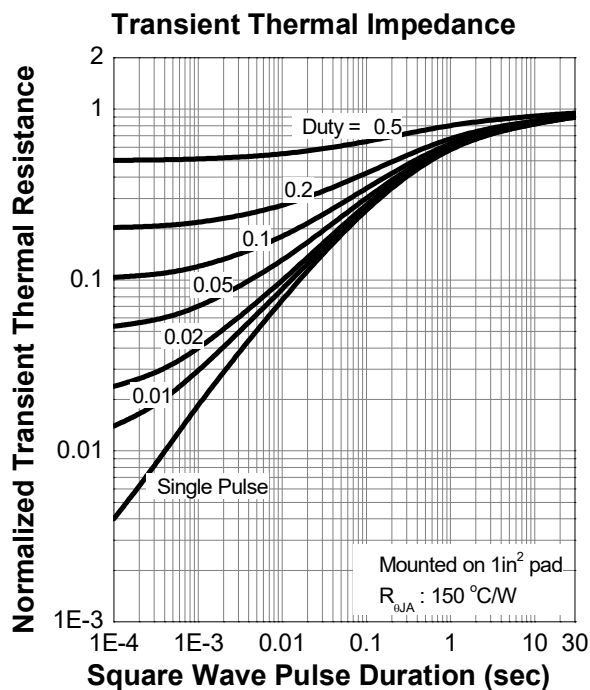
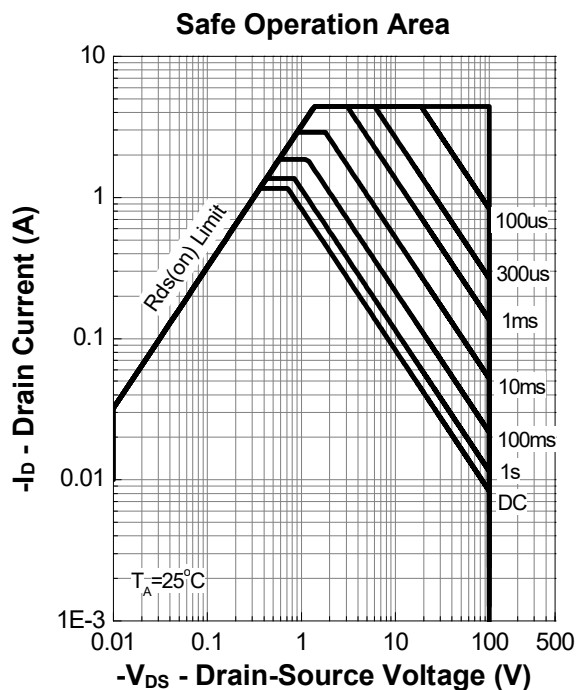
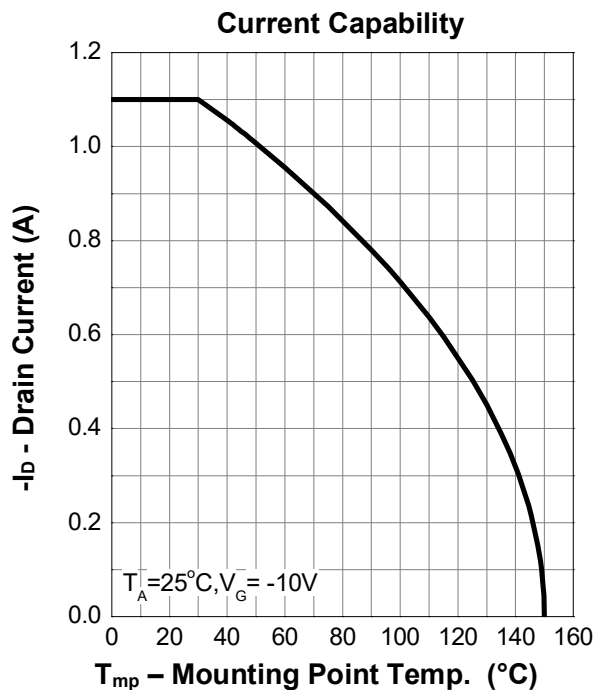
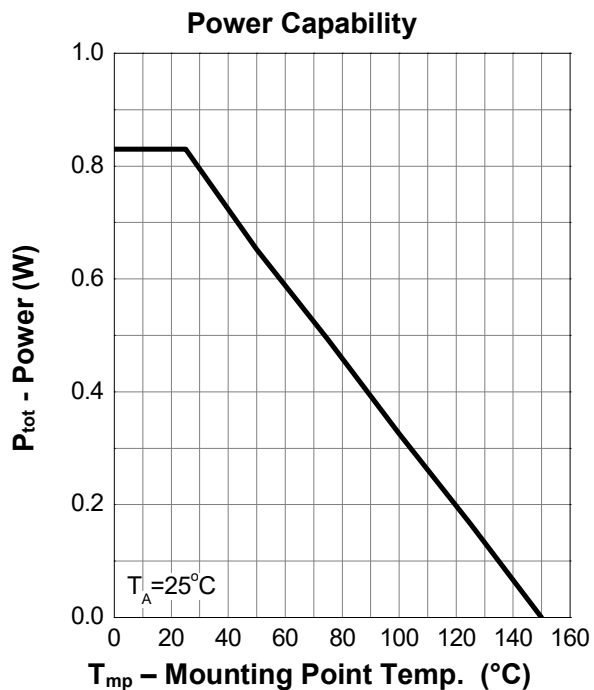
6. Electrical Characteristics (T_A=25°C Unless Otherwise Noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =-250μA	-150	-	-	V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =-250μA	-1.4	-	-3.5	V
I _{DSS}	Drain Leakage Current	V _{DS} =-80V, V _{GS} =0V	-	-	-1	μA
		T _J = 85 °C	-	-	-30	μA
I _{GSS}	Gate Leakage Current	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
R _{DS(ON)} ^a	On-State Resistance	V _{GS} =-10V, I _D =-1A	-	750	800	mΩ
		V _{GS} =-6V, I _D =-0.5A	-	900	980	mΩ
Diode Characteristics						
V _{SD} ^a	Diode Forward Voltage	I _{SD} =-1A, V _{GS} =0V	-	-	1.3	V
t _{rr}	Reverse Recovery Time	I _{SD} =-1A, dI _{SD} /dt=100A/μs	-	21	-	ns
Q _{rr}	Reverse Recovery Charge		-	17	-	nC
Dynamic Characteristics ^b						
C _{iSS}	Input Capacitance	V _{GS} =0V, V _{DS} =-50V Frequency=1MHz	-	563	-	pF
C _{oSS}	Output Capacitance		-	26	-	
C _{rSS}	Reverse Transfer Capacitance		-	1	-	
t _{d(on)}	Turn-on Delay Time	V _{DS} =-50V, V _{GEN} =-10V, R _G =4.5Ω, R _L =50Ω, I _{DS} =-1A	-	6.8	-	ns
t _r	Turn-on Rise Time		-	20	-	
t _{d(off)}	Turn-off Delay Time		-	145	-	
t _f	Turn-off Fall Time		-	48	-	
Gate Charge Characteristics ^b						
Q _g	Total Gate Charge	V _{GS} =-10V, V _{DS} =-50V, I _{DS} =-1A	-	18	-	nC
Q _{gs}	Gate-Source Charge		-	3.5	-	
Q _{gd}	Gate-Drain Charge		-	2.2	-	

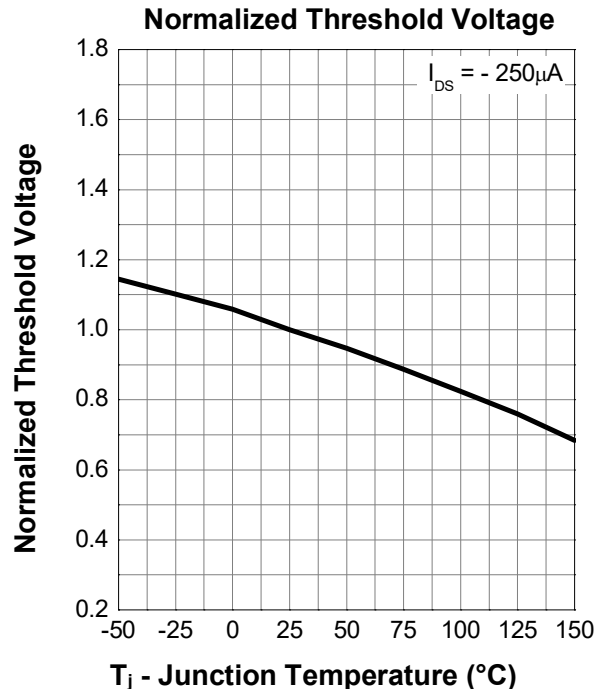
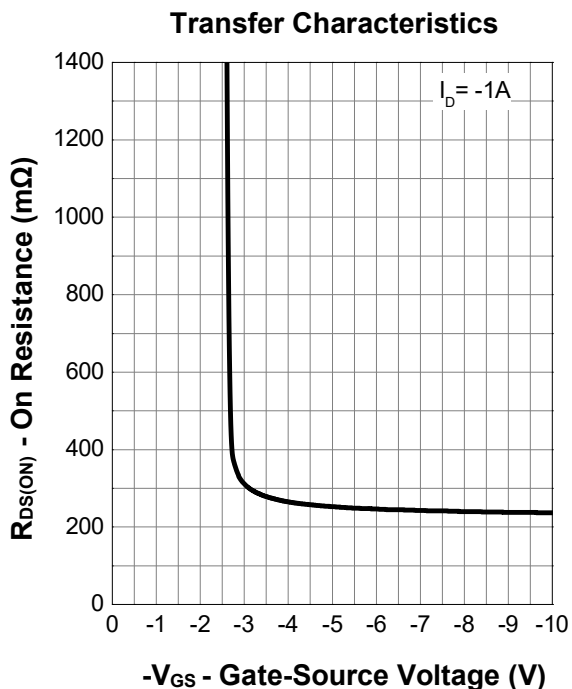
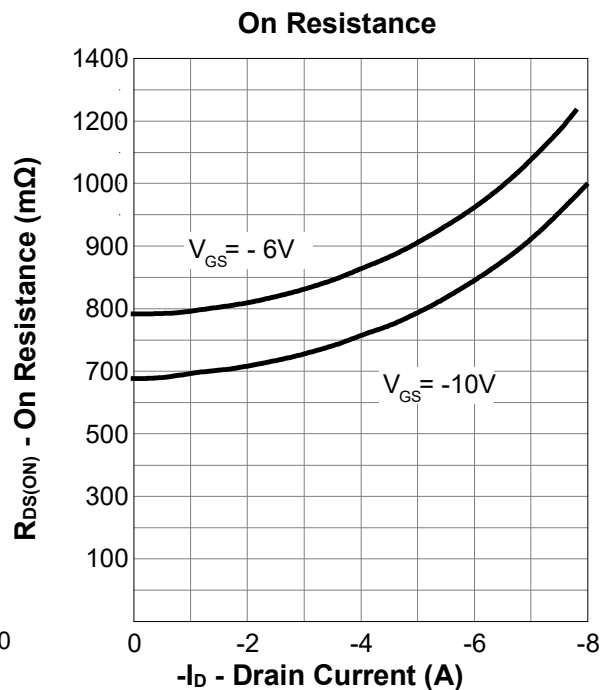
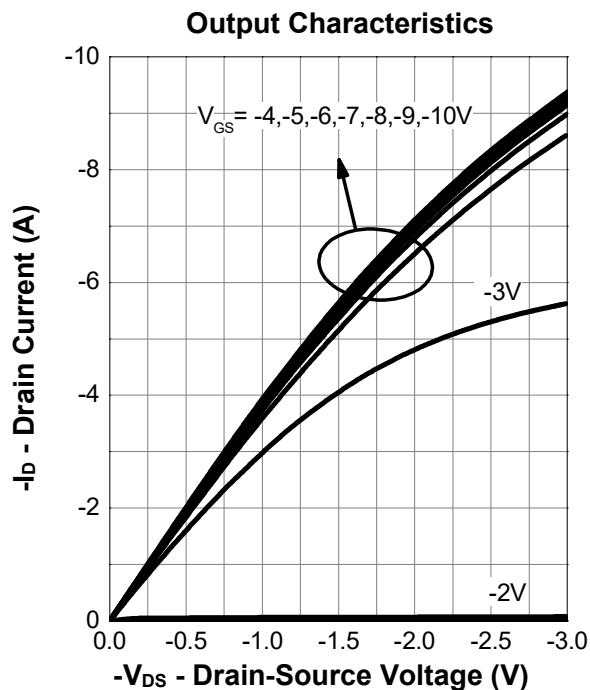
Notes:

- Pulse test; pulse width ≤ 300μs, duty cycle ≤ 2%
- Guaranteed by design, not subject to production testing

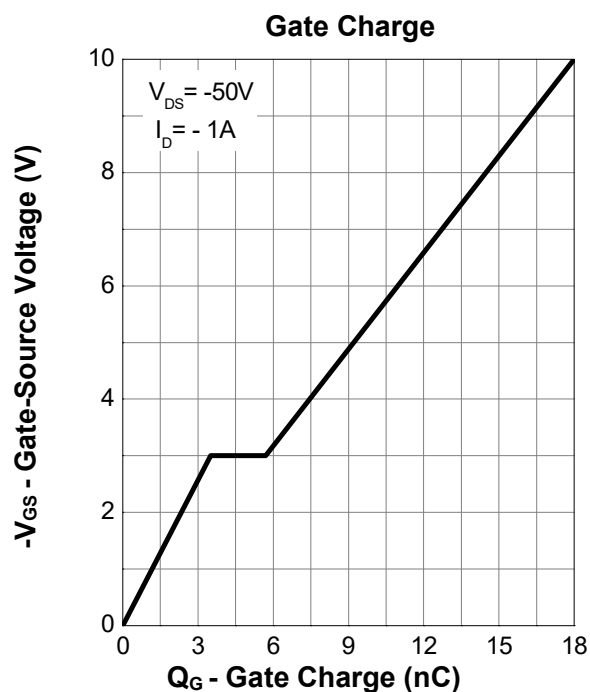
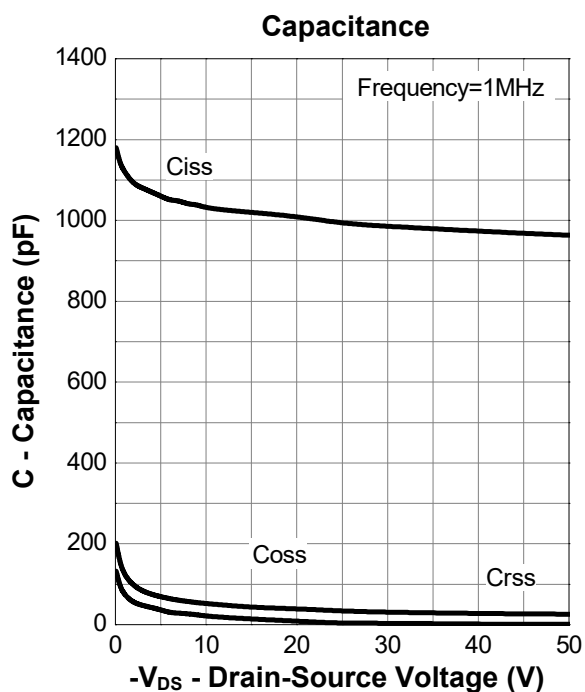
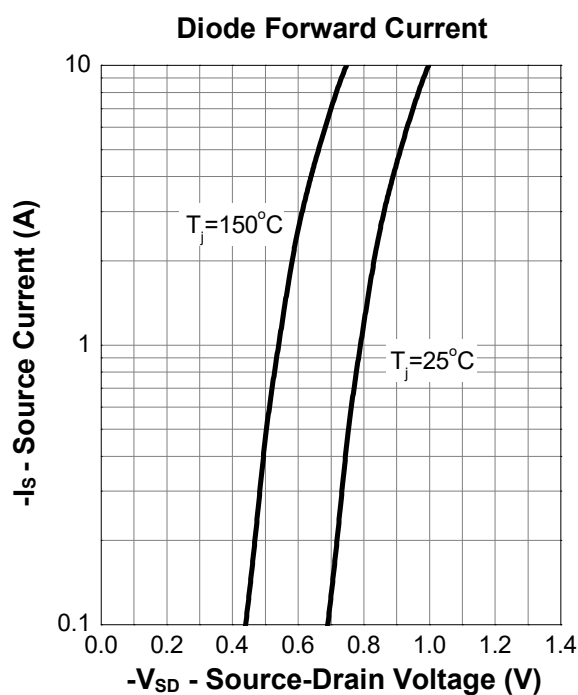
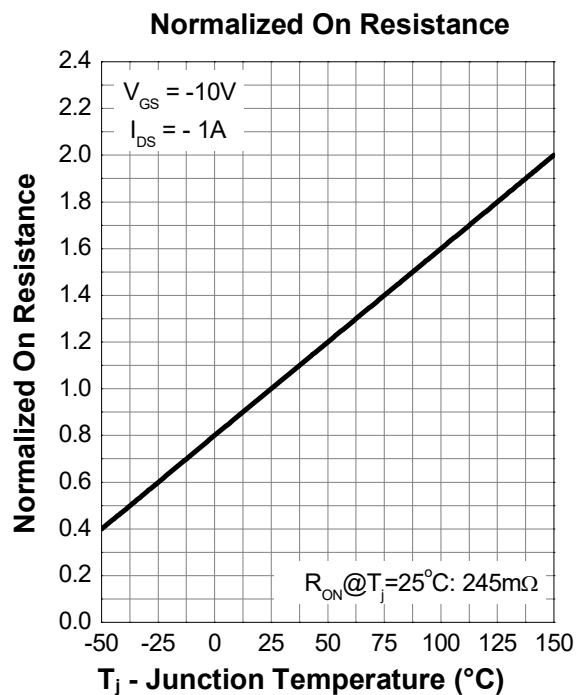
7. Typical Characteristics



7. Typical Characteristics (cont.)

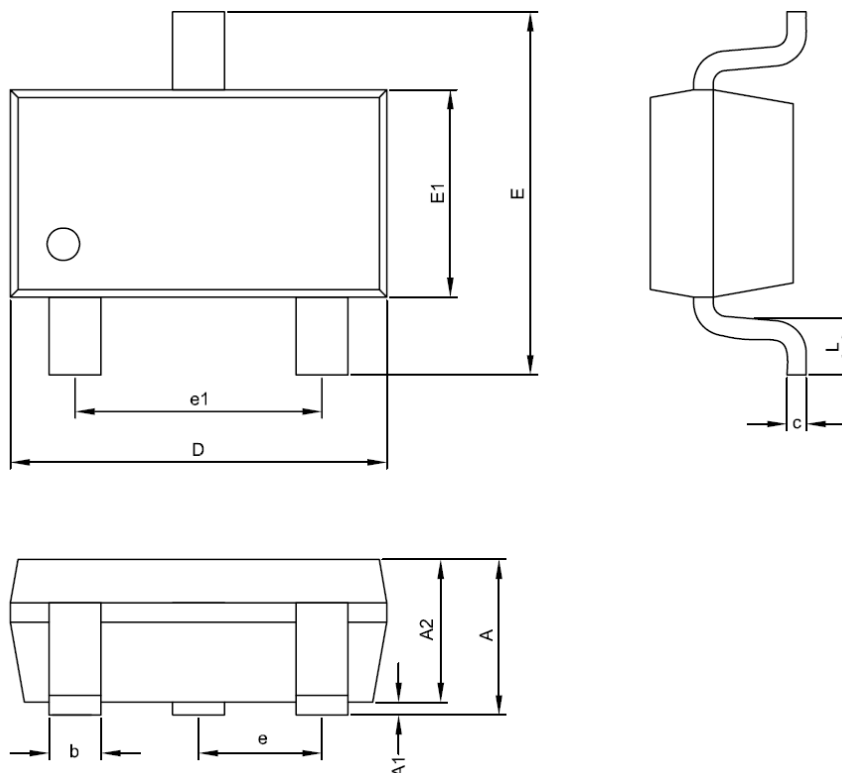


7. Typical Characteristics (cont.)



8. Package Dimensions

SOT23-3L Package



Symbol	Dimensions In Millimeters	
	MIN.	MAX.
A	1.00	1.45
A1	0.00	0.15
A2	1.00	1.30
D	2.70	3.10
E	2.60	3.00
E1	1.50	1.70
c	0.08	0.25
b	0.30	0.50
e	0.95 BSC	
e1	1.90 BSC	
L	0.30	0.60