

Description

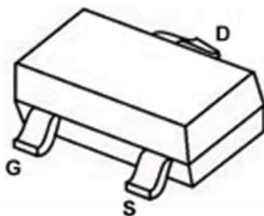
PECJ P-channel Enhancement Mode Power MOSFET

Features

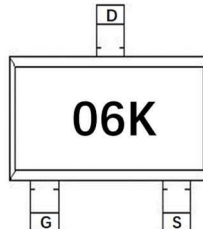
- $V_{DS} = -20V$, $I_D = -0.66A$
 $R_{DS(ON)} < 1.2\Omega$ @ $V_{GS} = -4.5V$
 $R_{DS(ON)} < 1.5\Omega$ @ $V_{GS} = -2.5V$
- Advanced Trench Technology
- Excellent $R_{DS(ON)}$ and Low Gate Charge
- Lead free product is acquired
- ESD Rating: 2.0KV

Application

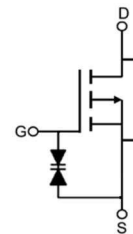
- PWM Applications
- Load Switch
- Power Management



SOT-323 top view



Marking and pin Assignment



Schematic Diagram

Package Marking and Ordering Information

Device Marking	Device	OUTLINE	Device Package	Reel Size	Reel (PCS)	Per Carton (PCS)
06k	PECJ2006KT3	TAPING	SOT-323	-	-	-

Absolute Maximum Ratings ($T_A = 25^\circ C$ unless otherwise specified)

Symbol	Parameter	Max.	Units
V_{DSS}	Drain-Source Voltage	-20	V
V_{GSS}	Gate-Source Voltage	± 10	V
I_D	Continuous Drain Current	$T_A = 25^\circ C$	A
		$T_A = 100^\circ C$	
I_{DM}	Pulsed Drain Current note1	-2.64	A
P_D	Power Dissipation	0.2	W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	625	$^\circ C/W$
T_J, T_{STG}	Operating and Storage Temperature Range	-55 to +150	$^\circ C$

Electrical Characteristics (T_J=25°C unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D = -250μA	-20	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = -20V, V _{GS} =0V,	-	-	-1	μA
I _{GSS}	Gate to Body Leakage Current	V _{DS} =0V, V _{GS} = ±10V	-	-	±10	uA
On Characteristics						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D = -250μA	-0.3	-0.65	-1.0	V
R _{DS(on)}	Static Drain-Source on-Resistance note2	V _{GS} = -4.5V, I _D = -0.5A	-	-	1.2	Ω
		V _{GS} = -2.5V, I _D = -0.2A	-	-	1.5	
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} = -10V, V _{GS} =0V, f=1.0MHz	-	113	-	pF
C _{oss}	Output Capacitance		-	15	-	pF
C _{rss}	Reverse Transfer Capacitance		-	9	-	pF
Q _g	Total Gate Charge	V _{DS} = -10V, I _D = -0.3A, V _{GS} = -4.5V	-	9.8	-	nC
Q _{gs}	Gate-Source Charge		-	1.6	-	nC
Q _{gd}	Gate-Drain("Miller") Charge		-	3.4	-	nC
Switching Characteristics						
t _{d(on)}	Turn-on Delay Time	V _{DD} = -10V, I _D = -0.6A, R _G =3Ω, V _{GEN} = -4.5V, R _L =2.5Ω	-	9	-	ns
t _r	Turn-on Rise Time		-	5.7	-	ns
t _{d(off)}	Turn-off Delay Time		-	32.6	-	ns
t _f	Turn-off Fall Time		-	20.3	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I _S	Maximum Continuous Drain to Source Diode Forward Current		-	-	-0.66	A
I _{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	-2.64	A
V _{SD}	Drain to Source Diode Forward Voltage	V _{GS} =0V, I _S = -0.66A	-	-	-1.2	V

Notes:1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature

2. Pulse Test: Pulse Width≤300μs, Duty Cycle≤2%

Typical Performance Characteristics

Figure 1: Output Characteristics

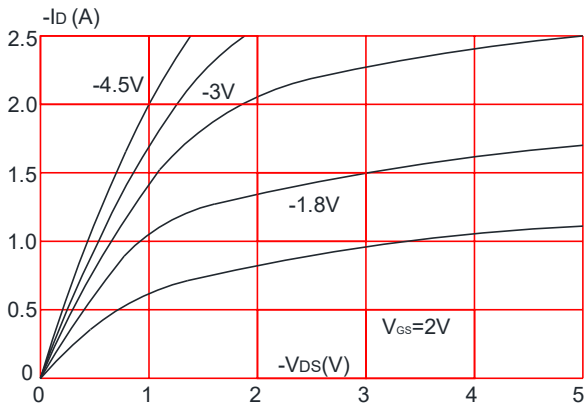


Figure 2: Typical Transfer Characteristics

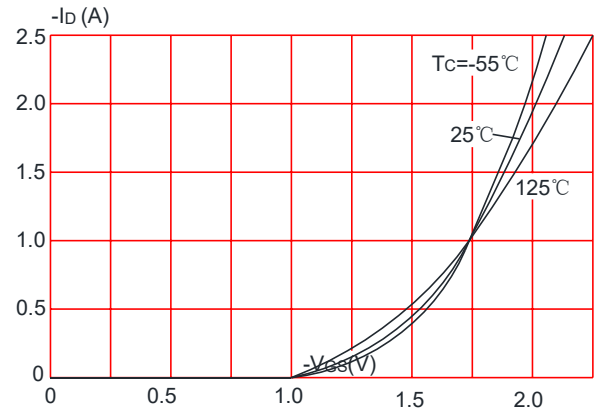


Figure 3: On-resistance vs. Drain Current

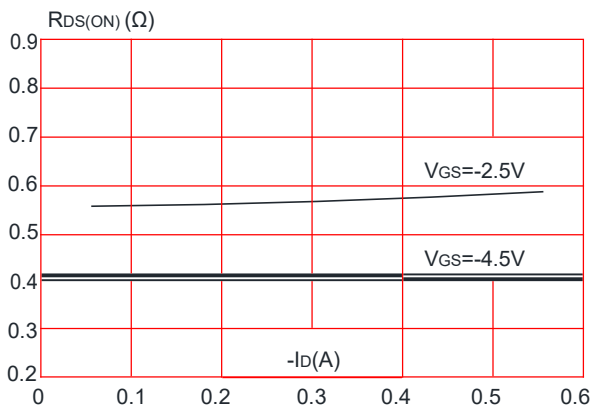


Figure 4: Body Diode Characteristics

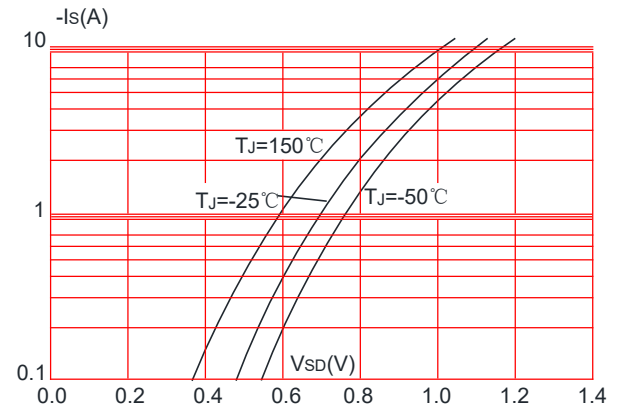


Figure 5: Gate Charge Characteristics

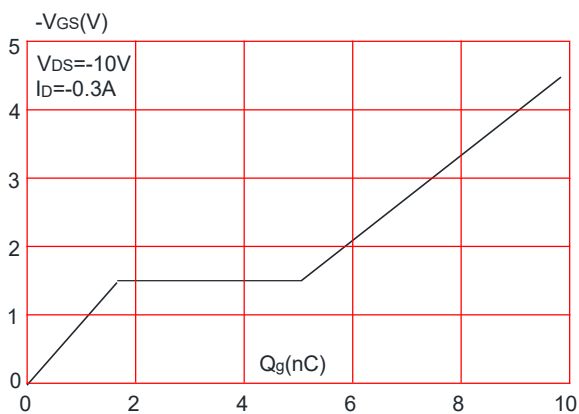


Figure 6: Capacitance Characteristics

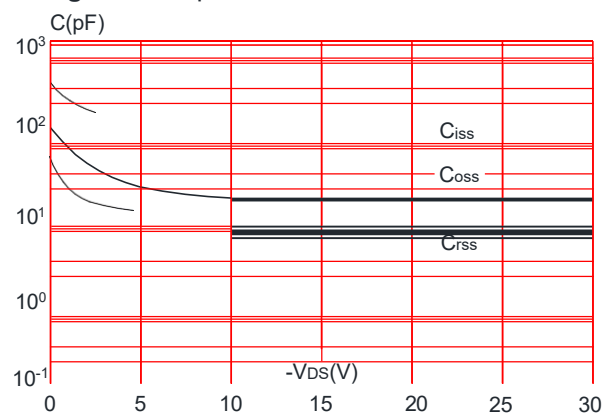


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

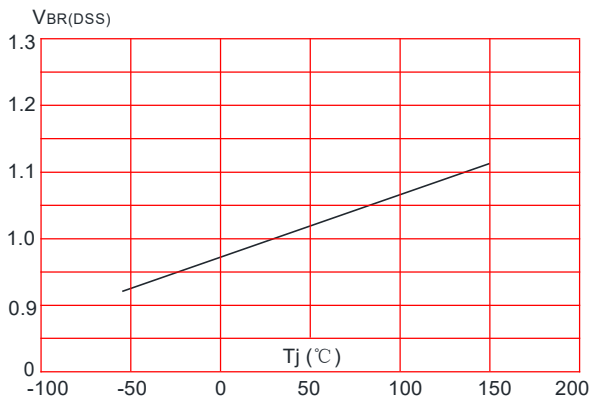


Figure 8: Normalized on Resistance vs. Junction Temperature

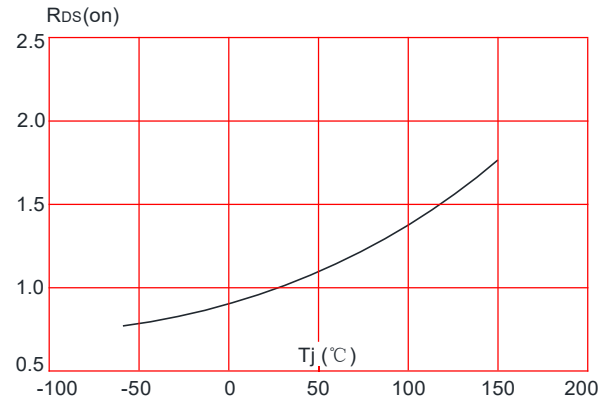


Figure 9: Maximum Safe Operating Area

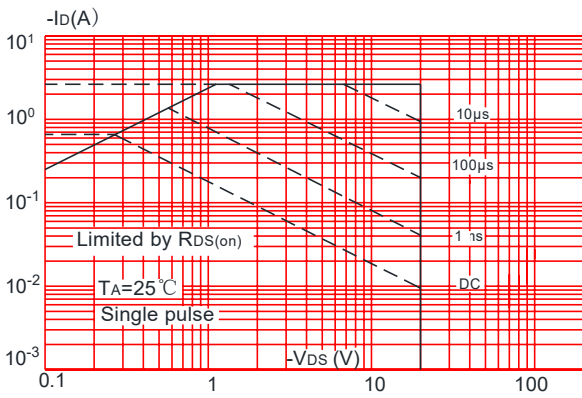


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

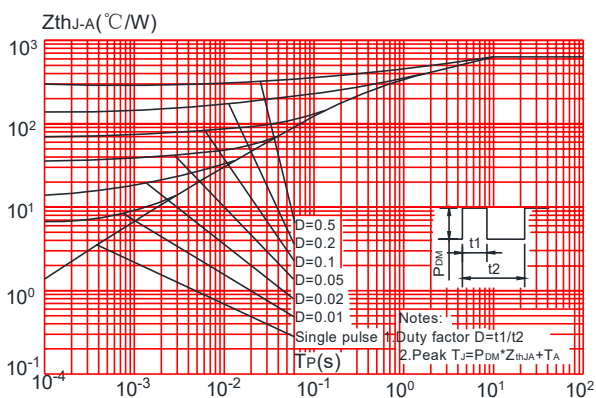
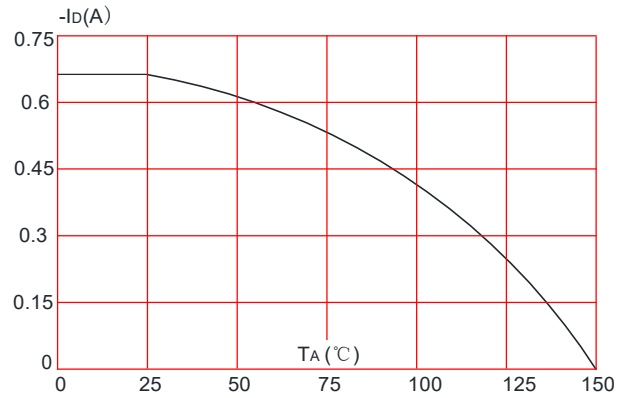
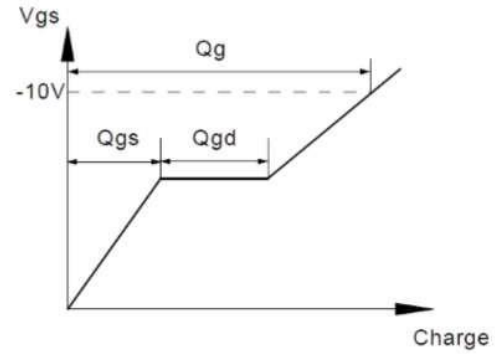
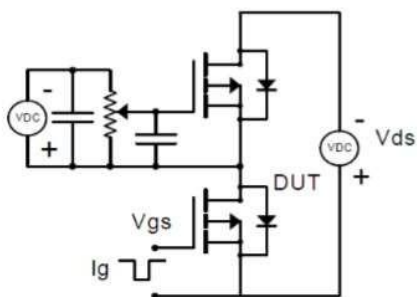


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

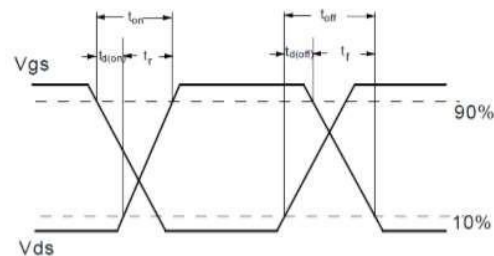
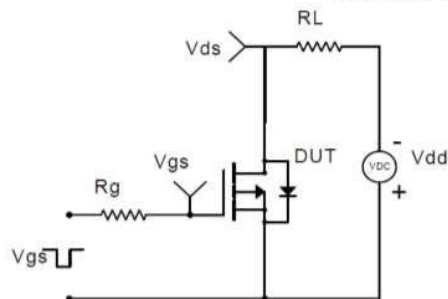


Test Circuit

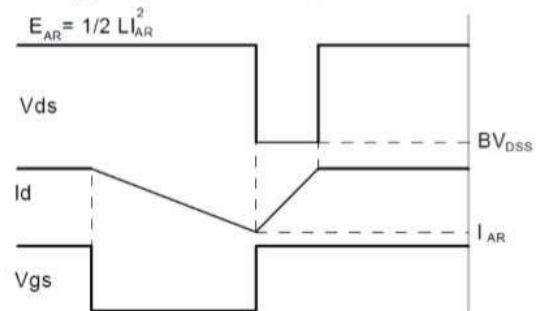
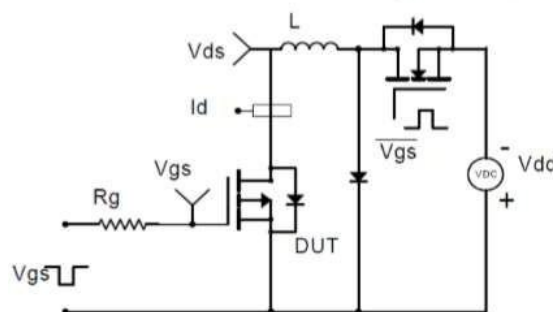
Gate Charge Test Circuit & Waveform



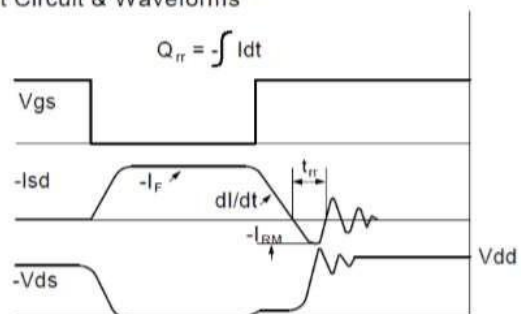
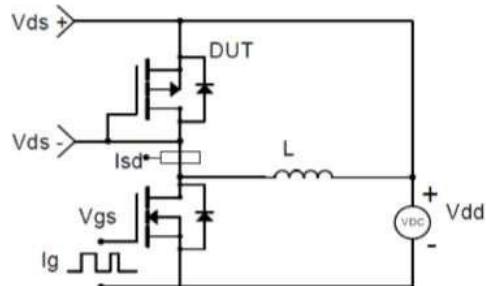
Resistive Switching Test Circuit & Waveforms



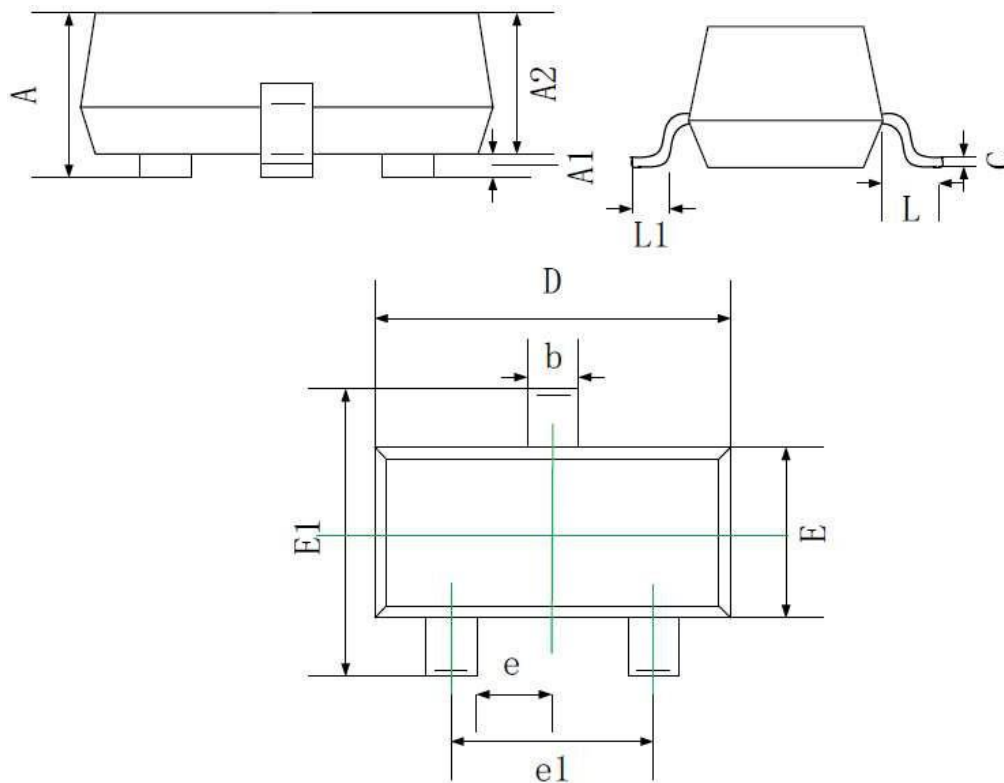
Unclamped Inductive Switching (UIS) Test Circuit & Waveforms



Diode Recovery Test Circuit & Waveforms



Package Mechanical Data-SOT-323



Symbol	Dimensions In Millimeters	
	Min.	Max.
A	0.90	1.10
A1	0.00	0.10
A2	0.90	1.00
b	0.30	0.50
C	0.10	0.15
D	2.00	2.20
E	1.15	1.35
E1	2.15	2.40
e	0.65 TYP.	
e1	1.20	1.40
L	0.525 REF.	
L1	0.26	0.46