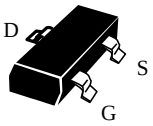
KWN0313AGE

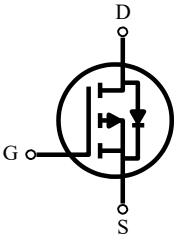
P-Channel Enhancement Mode MOSFET

SOT-23-3L



FEATURES

- Advanced Trench Technology
- Excellent RDS(ON) and Low Gate Charge
- Lead Free



ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C unless otherwise noted)

Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Voltage		V_{GS}	± 20	V
Drain Current-Continuous	T_A=25°C	I_D	-8	A
	T_A=100°C		-4.8	A
Drain Current-Continuous[1]		I_{DM}	-32	A
Maximum Power Dissipation	T_A=25°C	P_D	2.5	W
Junction & Storage Temperature Range		T_J,T_{STG}	- 55 to 150	℃

THERMAL CHARACTERISTICS

Thermal Resistance, Junction to Ambient[2]	R_{thJA}	50	°C/W

Notes: 1.Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.
2. RθJA is measured with the device mounted on a 1inch2 pad of 2oz copper FR4 PCB

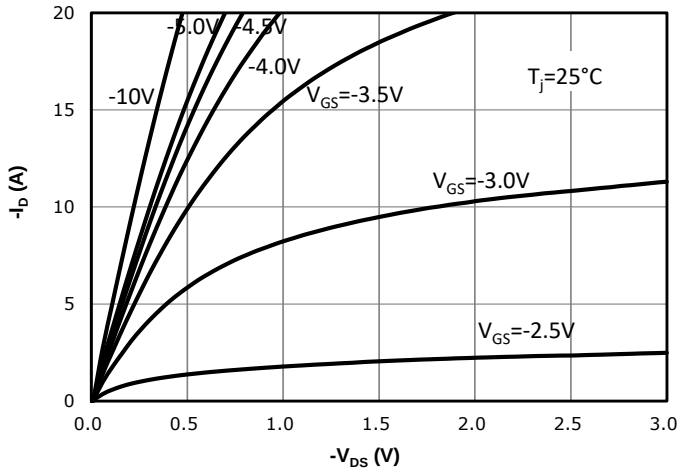
ELECTRICAL CHARACTERISTICS (TA = 25 ℃ unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS} = 0V , I_D = -250uA	-30			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = -30V , V_{GS} = 0V			-1.0	uA
Gate-Body Leakage	I_{GSS}	V_{GS} = ±20V , V_{DS} = 0V			±100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS} , I_D = -250uA	-1.1	-1.6	-2.2	V
Drain-Source On-State Resistance[3]	$R_{DS(on)}$	V_{GS} = -10V , I_D =-5A		16	20.8	mΩ
	$R_{DS(on)}$	V_{GS} = -4.5V , I_D = -3A		26	33.8	mΩ
DYNAMIC CHARACTERISTICS						
Input Capacitance	C_{ISS}	V_{DS} = -15V , V_{GS} = 0V f = 1.0MHz		900		pF
Output Capacitance	C_{OSS}			172		pF
Reverse Transfer Capacitance	C_{RSS}			146		pF
Total Gate Charge	Q_g	V_{GS} = 0 to -10V V_{DS}=-15V, ID = -5A		22		nC
Gate-Source Charge	Q_{gs}			3		nC
Gate-Drain Charge	Q_{gd}			6		nC
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	$t_{D(ON)}$	VGS = -10V, V_{DD} = -15V ID=-5A, RGEN = 2.5Ω		10		ns
Rise Time	t_r			14		ns
Turn-Off Delay Time	$t_{D(OFF)}$			50		ns
Fall Time	t_f			20		ns
Drain-Source Diode Characteristics and Max Ratings						
Drain to Source Diode Forward Current	I_S				-8	A
Drain to Source Diode Forward Current	I_{SM}				-32	A
Drain to Source Diode Forward Voltage[3]	V_{SD}	V_{GS} = 0V, I_S = -5A			-1.2	V
Body Diode Reverse Recovery Time	t_{rr}	IF =-5A, di/dt = 100A/us		64		nS
Body Diode Reverse Recovery Charge	Q_{rr}			25		nC

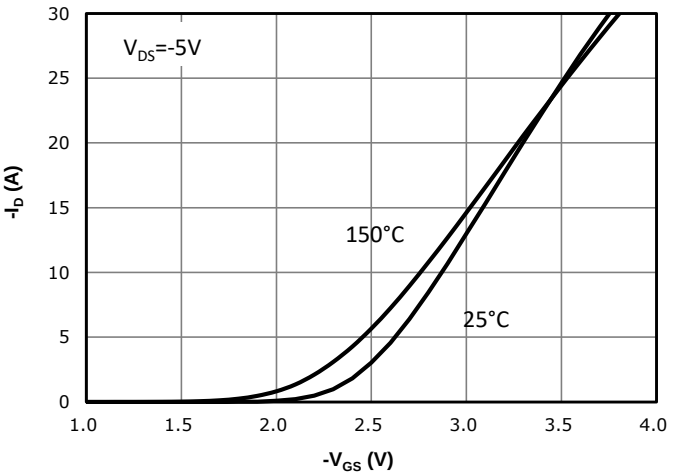
Note :3. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%.

Typical Characteristics

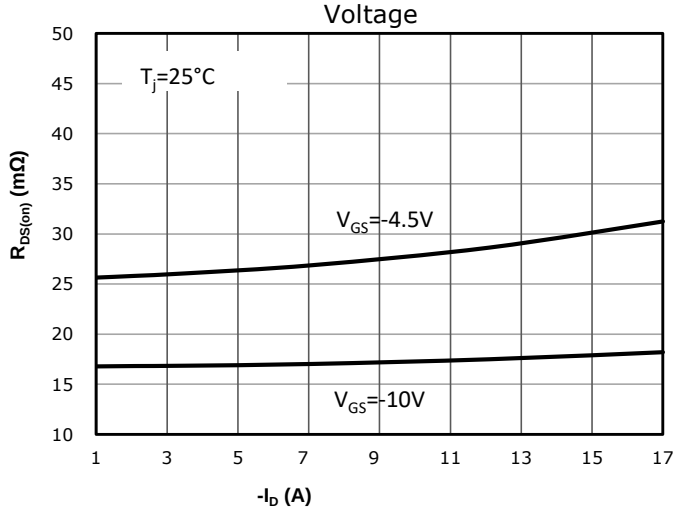
Output Characteristics



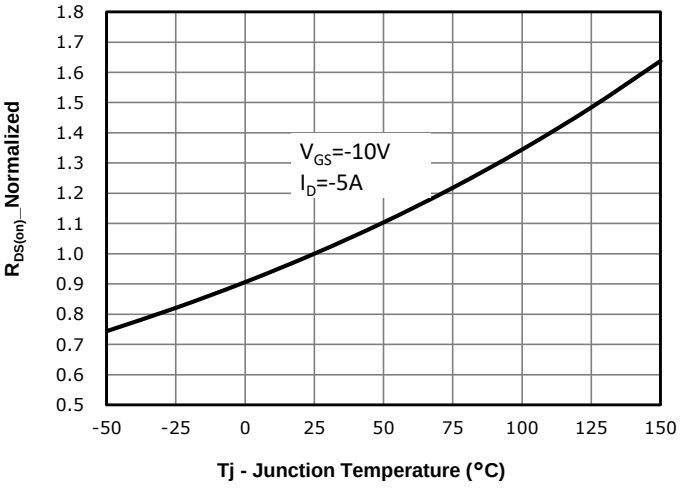
Transfer Characteristics



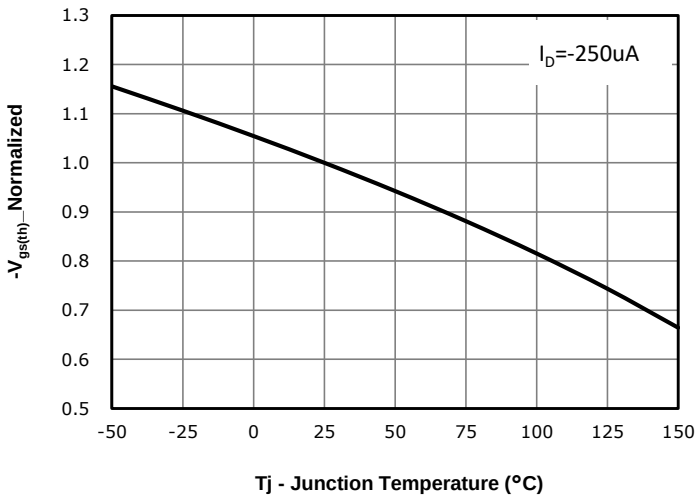
Rds(on) vs Drain Current and Gate Voltage



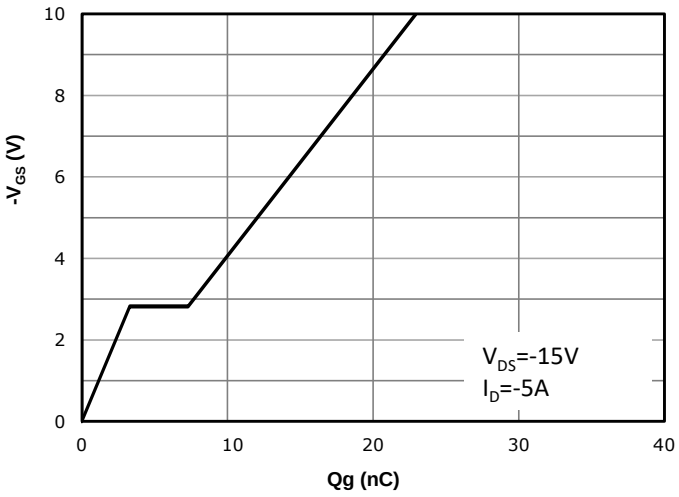
Rds(on) vs. Temperature



Vgs(th) vs. Temperature

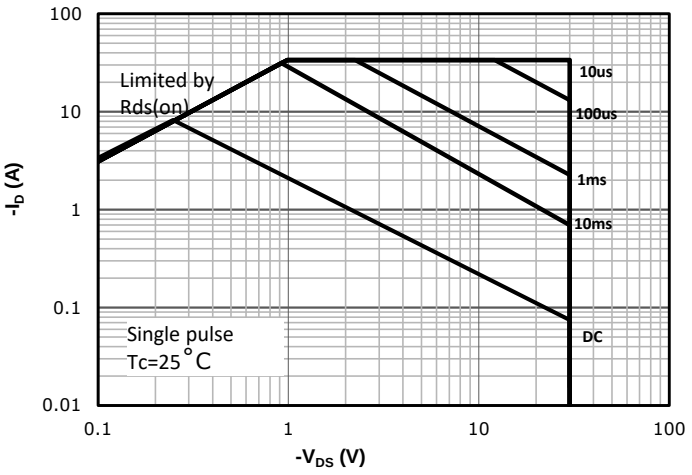


Gate Charge Characteristics

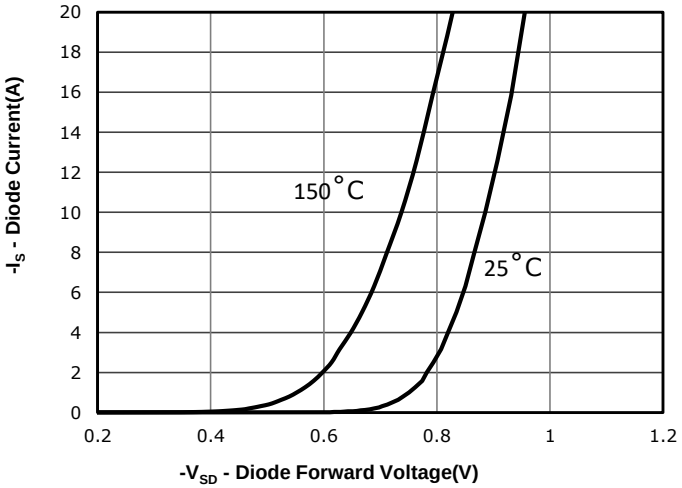


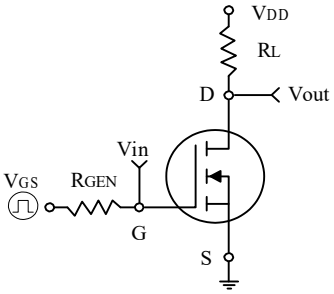
Typical Characteristics

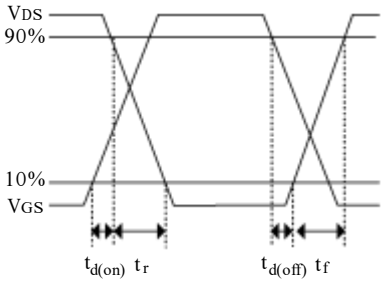
Safe Operating Area



Body-diode Forward Characteristics







Switching Test Circuit and Switching Waveforms

Max. Transient Thermal Impedance