Descrlptlon

N-channel Enhancement Mode Power MOSFET

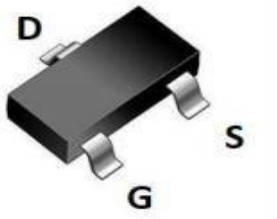
Features

- 100V, 2 A
  $R_{DS(ON)}$ <286mΩ @ V_{GS} = 10V
  $R_{DS(ON)}$ <325mΩ @ V_{GS} = 4.5V
- Advanced Trench Technology
- Excellent $R_{DS(ON)}$ and Low Gate Charge
- Lead Free

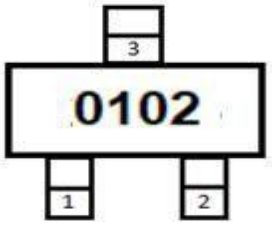
Applicatlons

- Load Swltch
- PWM Applicatlon
- Power Management

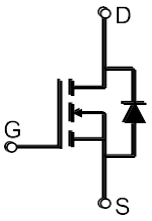
RoHS



SOT-23



Marking and Pin Assignment



Schematic Diagram

Package Marking and Ordering Informatlon

Device Marking	Device	Outline	Package	Reel Size	Reel(pcs)	Per Carton (pcs)
0102	OCT2N10TS	TAPING	SOT-23	7"	3000	120000

Absolute Maximum Ratings (@ T_C = 25°C unless otherwise specified)

V_{DS}	Drain-to-Source Voltage		100	V
V_{GS}	Gate-to-Source Voltage		±20	V
I_D	Continuous Drain Current	T_C = 25°C	2	A
		T_C = 100°C	1.5	
I_{DM}	Pulsed Drain Current (1)		10	
P_D	Power Dissipation	T_C = 25°C	2.3	W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient		54	°C/W
T_J, T_{STG}	Junction & Storage Temperature Range		-55 to150	°C

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	I_D = 250μA, V_{GS} = 0V	100	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = 100V, V_{GS} = 0V	-	-	1.0	μA
I_{GSS}	Gate-Body Leakage Current	V_{DS} = 0V, V_{GS} = ±20V	-	-	±100	nA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = 250μA	1.0	1.5	2.2	V
$R_{DS(ON)}$	Static Drain-Source ON-Resistance(2)	V_{GS} = 10V, I_D = 2A	-	220	286	mΩ
		V_{GS} = 4.5V, I_D = 1A	-	250	325	mΩ
C_{iss}	Input Capacitance	V_{GS} = 0V, V_{DS} = 25V, f = 1MHz	-	321	-	pF
C_{oss}	Output Capacitance		-	21	-	pF
C_{rss}	Reverse Transfer Capacitance		-	15	-	pF
Q_g	Total Gate Charge	V_{GS} = 0 to 10V V_{DS} = 30V, I_D =2A	-	5.3	-	nC
Q_{gs}	Gate Source Charge		-	1.3	-	nC
Q_{gd}	Gate Drain("Miller") Charge		-	1.7	-	nC
$t_{d(on)}$	Turn-On DelayTime	V_{GS} = 10V, V_{DD} = 30V I_D= 1A, R_{GEN} = 3Ω	-	14	-	ns
t_r	Turn-On Rise Time		-	54	-	ns
$t_{d(off)}$	Turn-Off DelayTime		-	18	-	ns
t_f	Turn-Off Fall Time		-	11	-	ns
I_S	Maximum Continuous Drain to Source Diode Forward Current		-	-	2	A
I_{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	10	A
V_{SD}	Drain to Source Diode Forward Voltage	V_{GS} = 0V, I_S = 3A	-	-	1.2	V

Notes:
1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.
2. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%

Typlcal Performance Characteristics

Figure 1: Output Characteristics

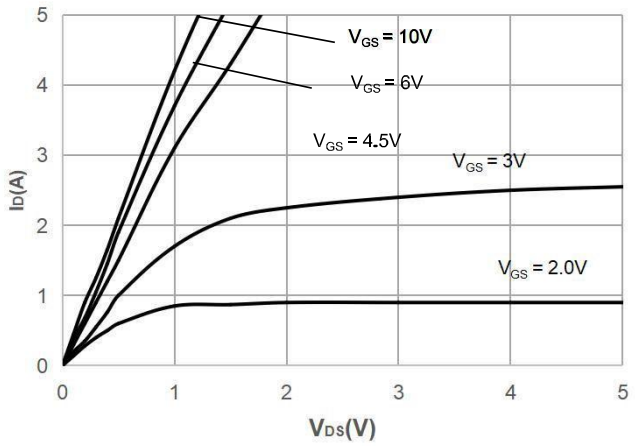


Figure 2: Typical Transfer Characteristics

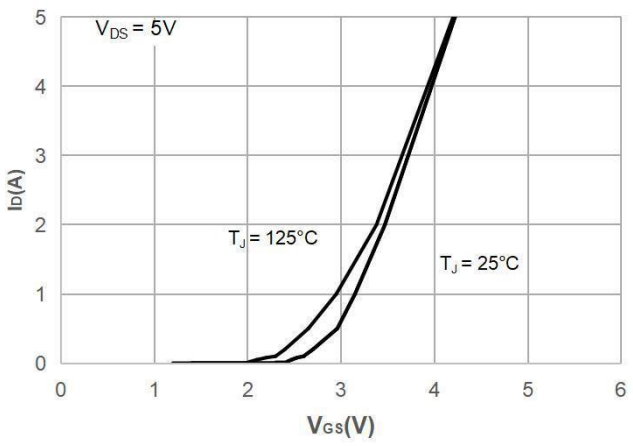


Figure 3: On-resistance vs. Drain Current

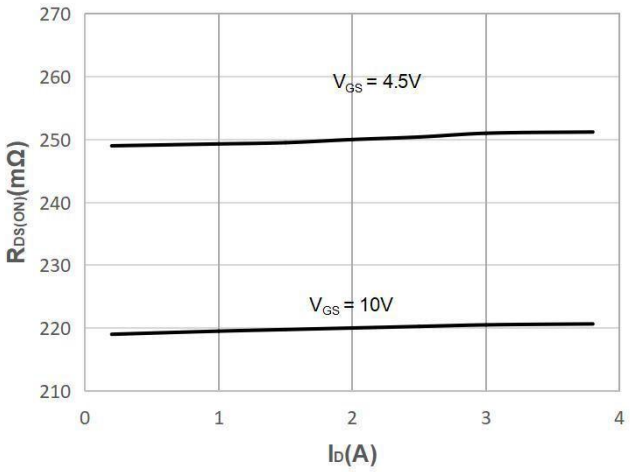


Figure 4: Body Diode Characteristics

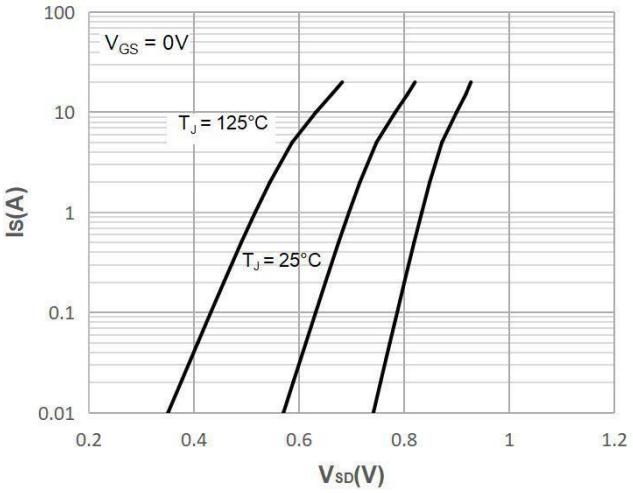


Figure 5: Gate Charge Characteristics

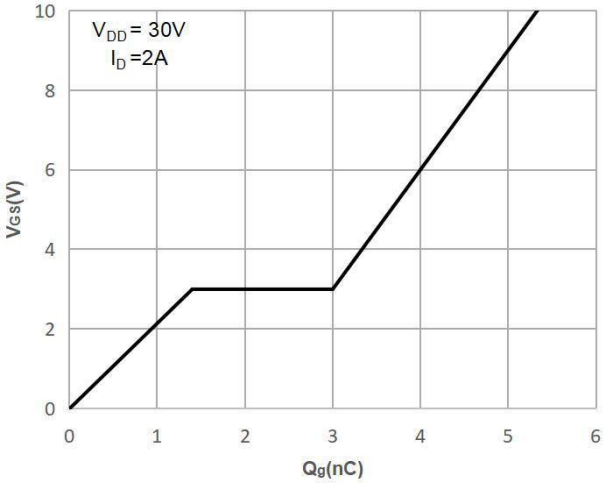
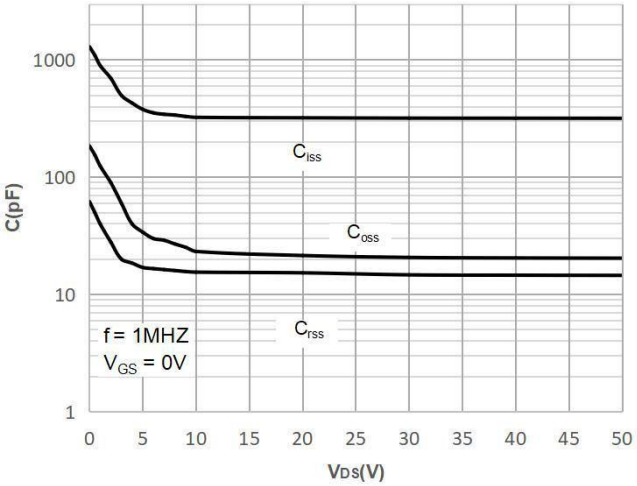


Figure 6: Capacitance Characteristics



Typlcal Performance Characteristics

Figure 7: Normalized Breakdown voltage vs. Junction Temperature

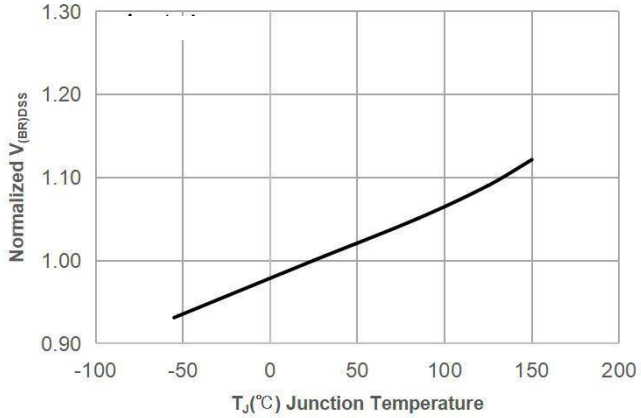


Figure 8: Normalized on Resistance vs. Junction Temperature

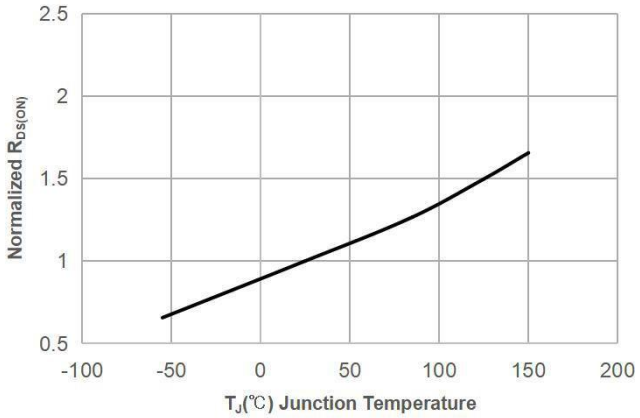


Figure 9: Maximum Safe Operating Area

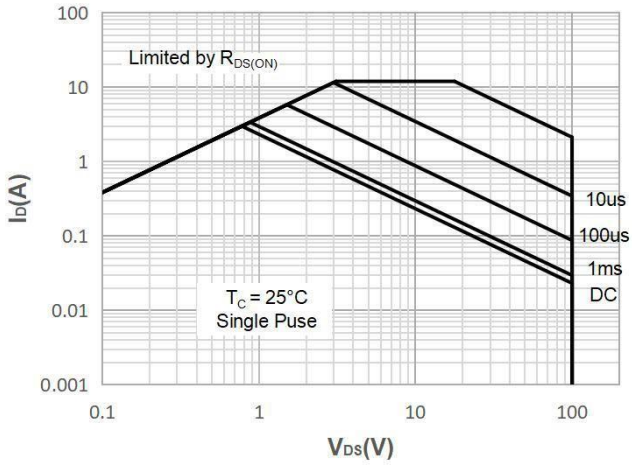


Figure 10: Maximum Continuous Drian Current vs. Case Temperature

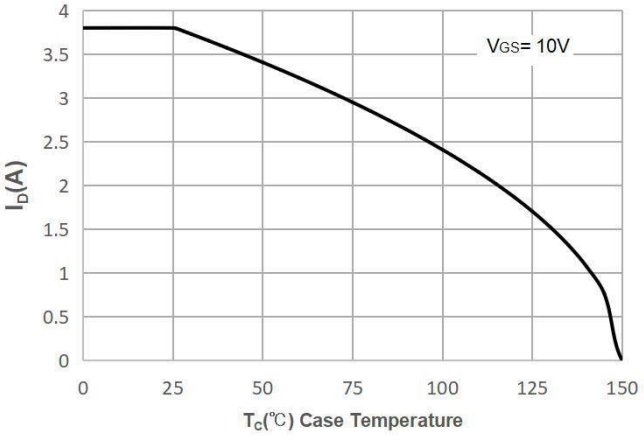


Figure 11: Normalized Maximum Transient Thermal Impedance

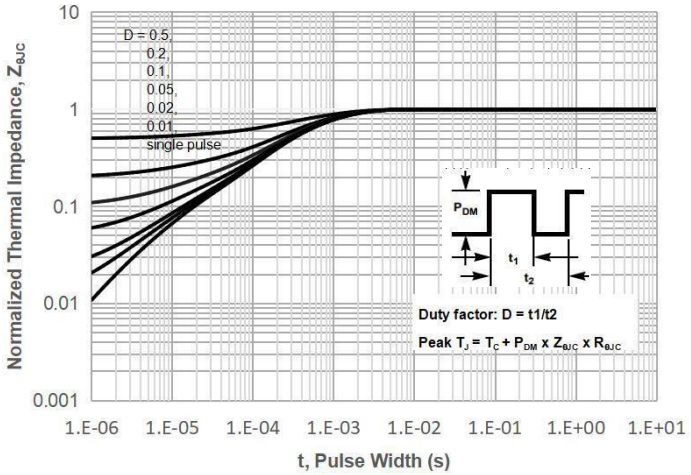
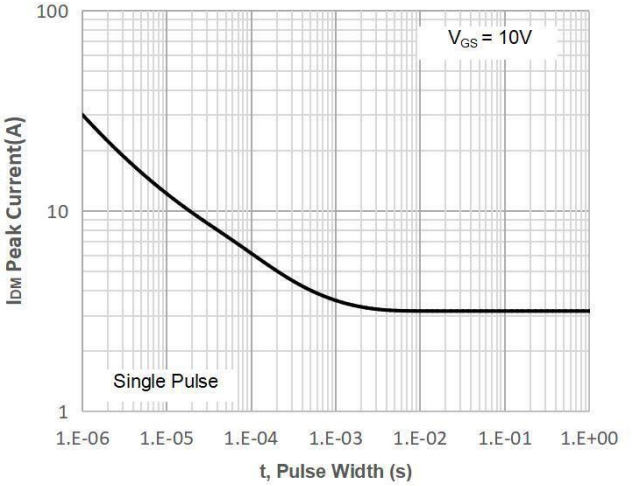


Figure 12: Peak Current Capacity



TestCIrcult

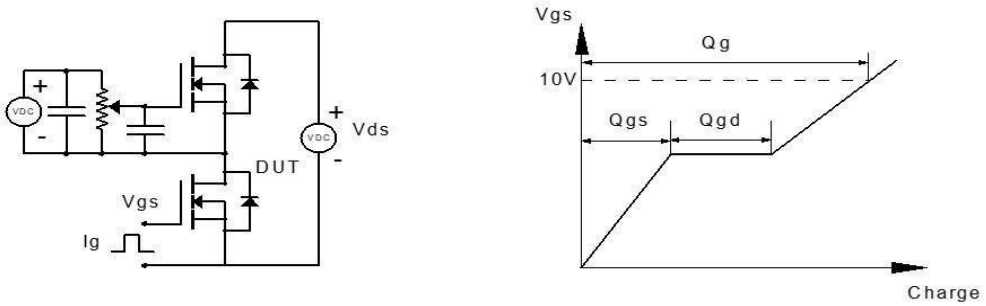


Figure 1: Gate Charge Test Circuit & Waveform

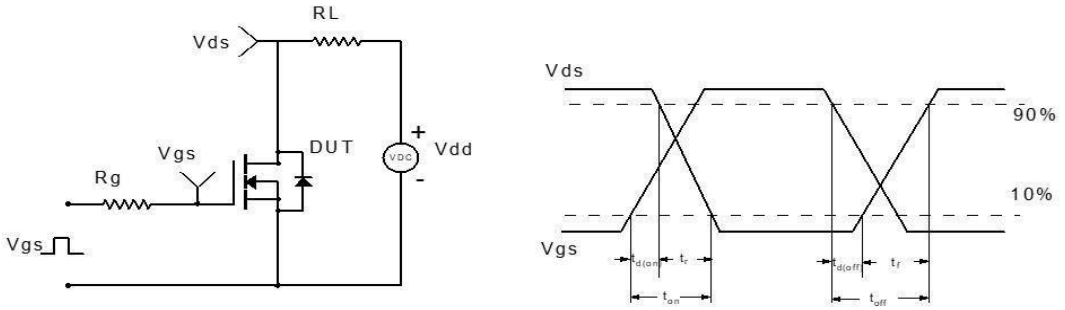


Figure 2: Resistive Switching Test Circuit & Waveform

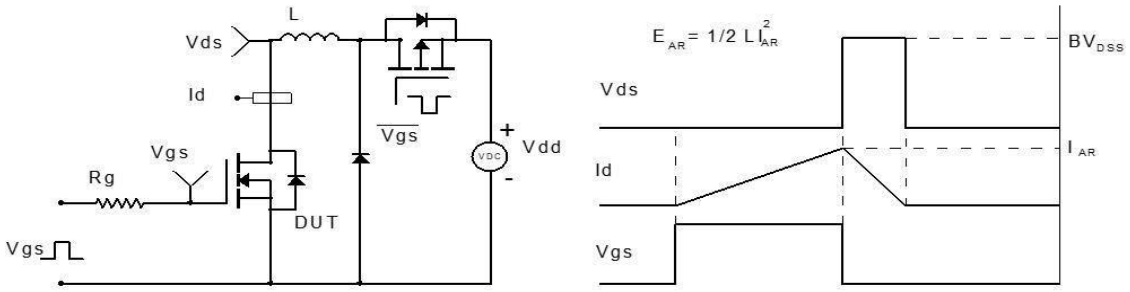


Figure 3: Unclamped Inductive Switching Test Circuit& Waveform

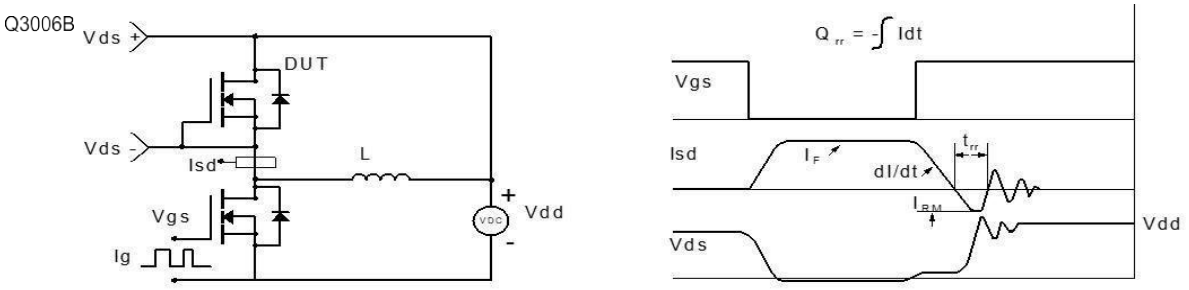


Figure 4: Diode Recovery Test Circuit & Waveform

Package Mechanlcal (SOT-23)

