M065NE6NTB

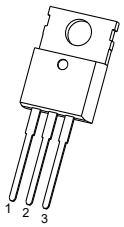
RoHS COMPLIANT

68V N-Channel MOSFET

Product Summary

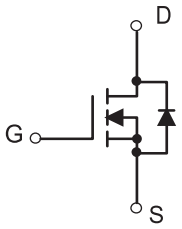
$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
68V	5.8mΩ@10V	95A

TO-220-3L-C



1. GATE
2. DRAIN
3. SOURCE

Schematic diagram



Feature

- Trench Technology Power MOSFET
- Low $R_{DS(ON)}$
- Low Gate Charge
- Low Gate Resistance
- 100% UIS Tested

Application

- Power Switching Application
- Power management
- PWM Application

Package Marking and Ordering Information

Part Number	Package	Marking	Packing	Reel Size	Tape Width	Qty
M065NE6NTB	TO-220-3L-C	M065NE6N	Tube	-	-	50pcs

ABSOLUTE MAXIMUM RATINGS (T_A = 25℃ unless otherwise noted)

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	68	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current[1]	T_C = 25℃	I_D	95	A
	T_C = 100℃	I_D	59	A
Pulsed Drain Current[2]		I_{DM}	380	A
Single Pulsed Avalanche Current[3]		I_{AS}	37	A
Single Pulsed Avalanche Energy[3]		E_{AS}	342	mJ
Power Dissipation[5]	T_C = 25℃	P_D	125	W
Thermal Resistance from Junction to Ambient[6]		$R_{\theta JA}$	68	℃/W
Thermal Resistance from Junction to Case		$R_{\theta JC}$	1.0	℃/W
Junction Temperature		T_J	150	℃
Storage Temperature		T_{STG}	-55~ +150	℃

Electrical Characteristics (T_A=25℃ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	68			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 68V, V_{GS} = 0V			1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS} = ±20V, V_{DS} = 0V			±100	nA
On Characteristics[4]						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	2	2.9	4	V
Drain-Source On-resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 30A		5.8	7.5	mΩ
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS} = 35V, V_{GS} = 0V, f = 1MHz		5072		pF
Output Capacitance	C_{oss}			245		
Reverse Transfer Capacitance	C_{rss}			198		
Gate Resistance	R_g	V_{DS} = 0V, V_{GS} = 0V, f = 1MHz		1.0		Ω
Switching Characteristics						
Total Gate Charge	Q_g	V_{DS} = 35V, V_{GS} = 10V, I_D = 30A		92		nC
Gate-Source Charge	Q_{gs}			24		
Gate-Drain Charge	Q_{gd}			25		
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = 35V, V_{GS} = 10V, I_D = 30A, R_G = 3Ω		21		ns
Turn-On Rise Time	t_r			30		
Turn-Off Delay Time	$t_{d(off)}$			42		
Turn-Off Fall Time	t_f			15		
Source - Drain Diode Characteristics						
Diode Forward Voltage[4]	V_{SD}	V_{GS} = 0V, I_S = 30A			1.2	V

Notes :

1.The maximum current rating is limited by package.And device mounted on a large heatsink

2.Pulse Test : Pulse Width ≤ 10μs, duty cycle ≤ 1%.

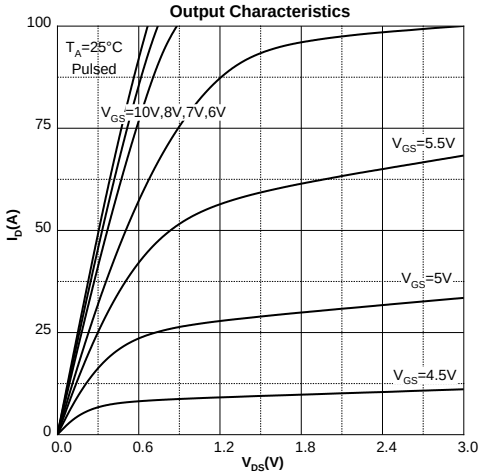
3.E_{AS} condition: V_{DD} = 34V, V_{GS} = 10V, L = 0.5mH, R_G = 25Ω Starting T_J = 25°C.

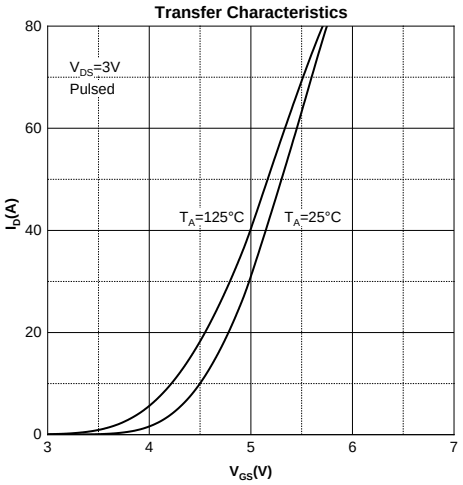
4.Pulse Test : Pulse Width ≤ 300μs, duty cycle ≤ 2%.

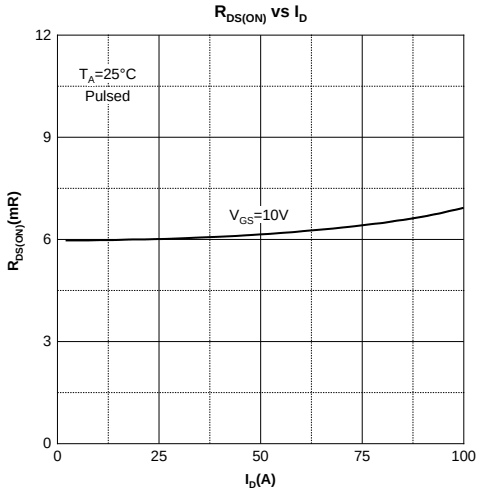
5.The power dissipation P_D is limited by $T_{J(MAX)}$ = 150°C.And device mounted on a large heatsink

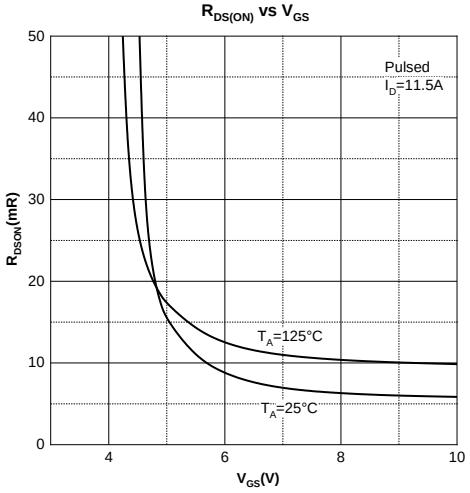
6.Device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C.

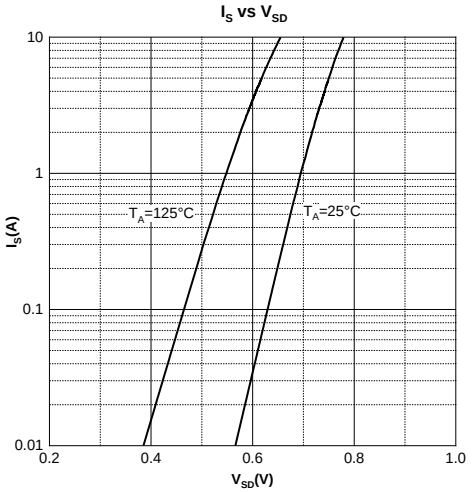
Typical Characteristics

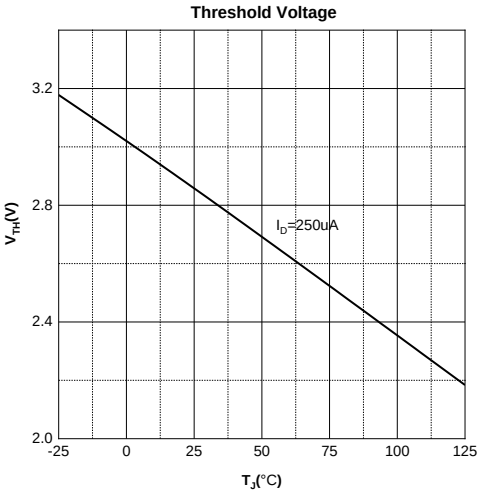




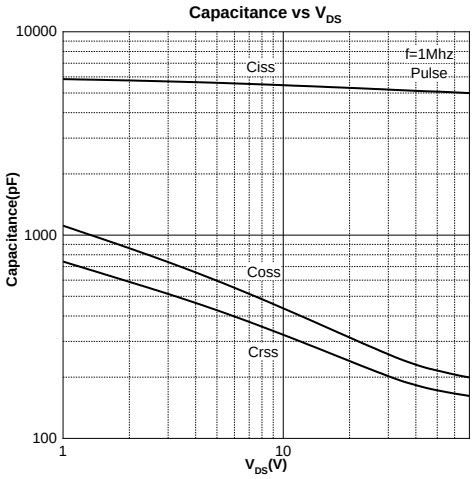


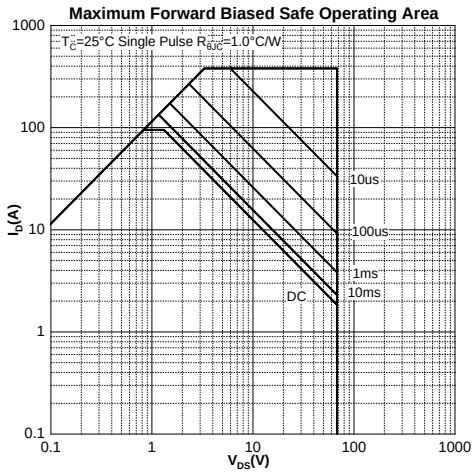


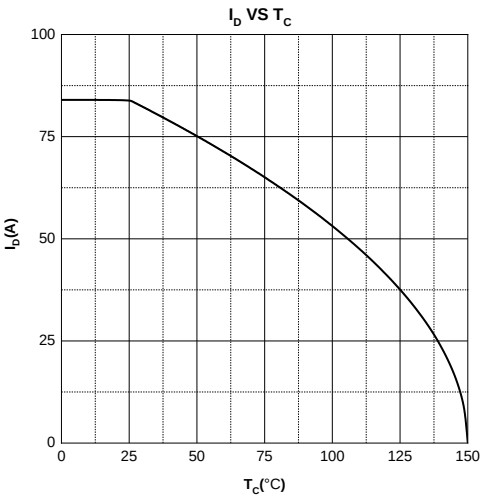


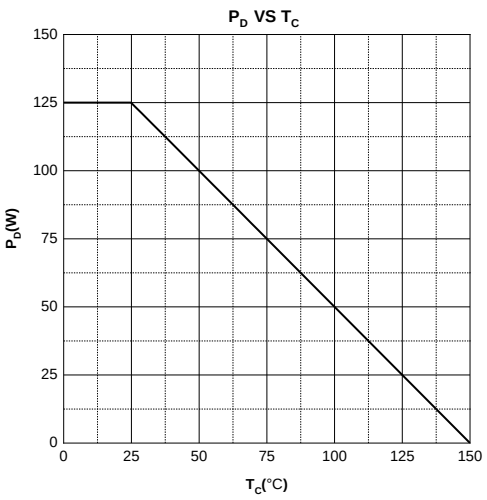


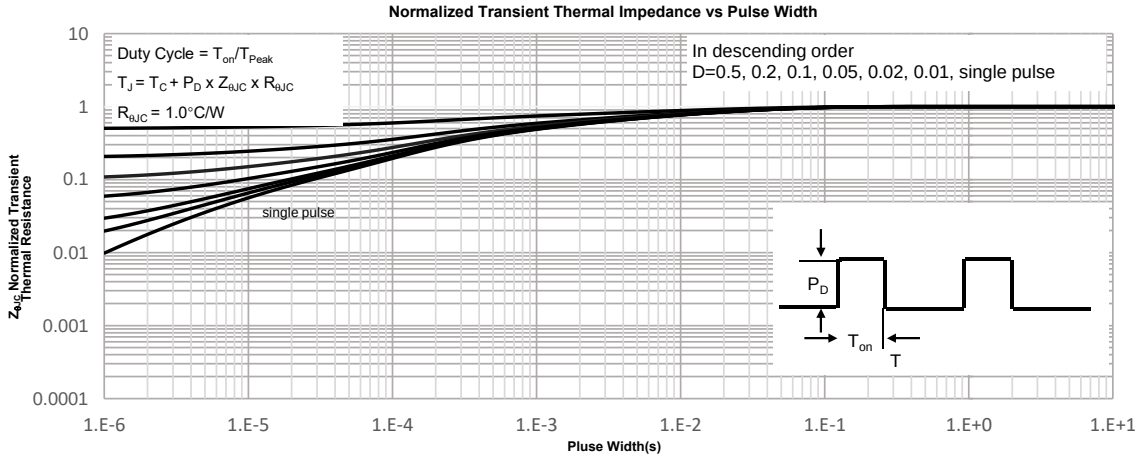
Typical Characteristics



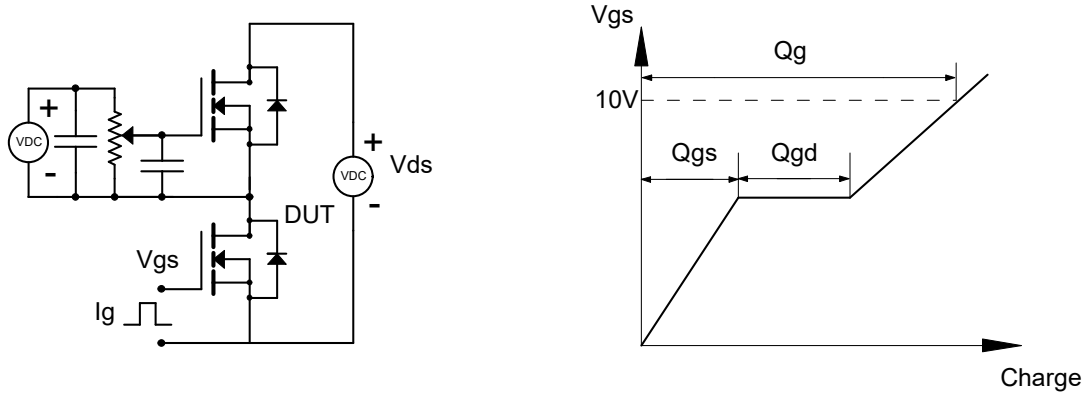




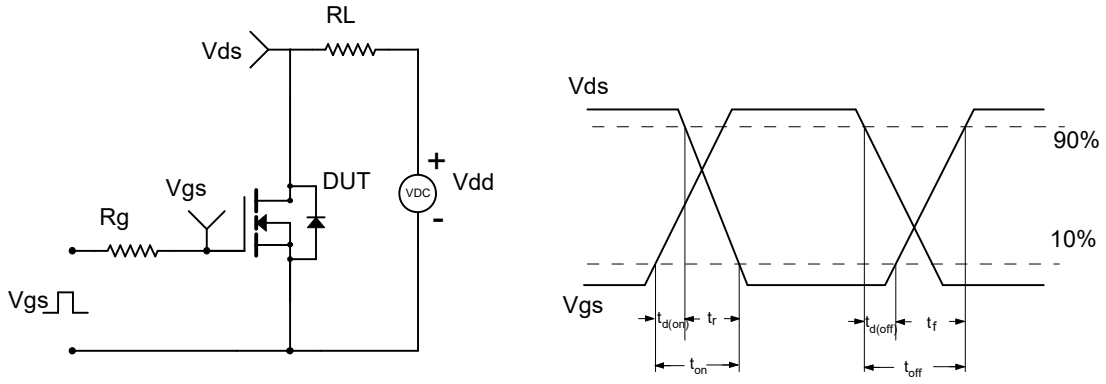




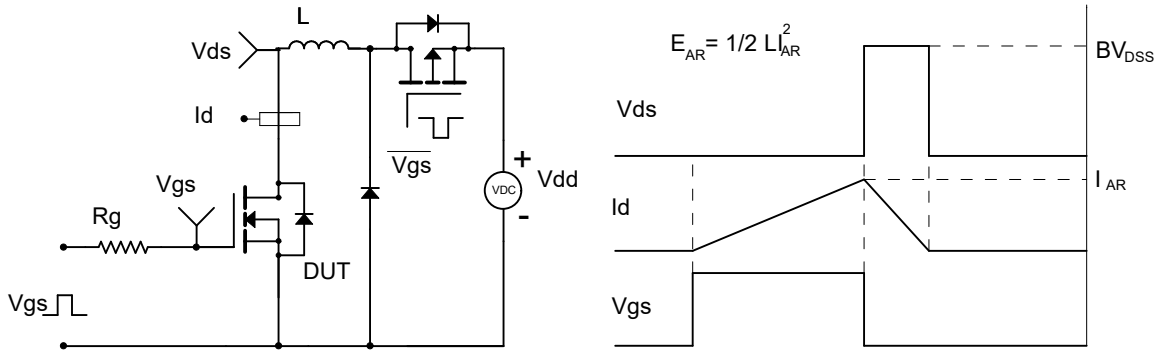
Gate Charge Test Circuit & Waveform



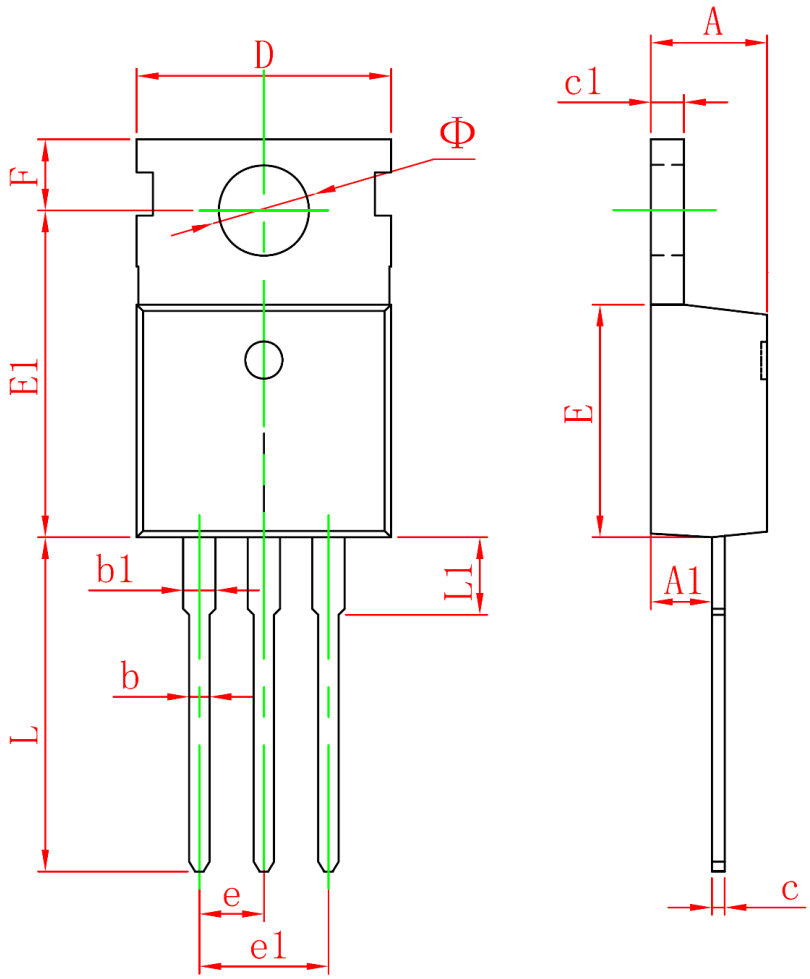
Resistive Switching Test Circuit & Waveform



Unclamped Inductive Switching (UIS) Test Circuit & Waveforms



TO-220-3L-C Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.300	4.700	0.169	0.185
A1	2.200	2.600	0.087	0.102
b	0.600	1.000	0.024	0.039
b1	1.150	1.600	0.045	0.063
c	0.300	0.700	0.012	0.028
c1	1.000	1.400	0.039	0.055
D	9.600	10.400	0.378	0.409
E	8.800	9.750	0.346	0.384
E1	11.800	13.300	0.465	0.524
e	2.540BSC		0.100BSC	
e1	4.840	5.320	0.191	0.209
F	2.600	3.000	0.102	0.118
L	12.600	14.800	0.496	0.583
L1	2.800	4.200	0.110	0.165
Φ	3.400	4.000	0.134	0.157