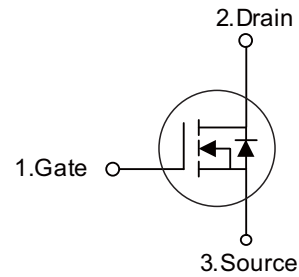


PRODUCT CHARACTERISTICS

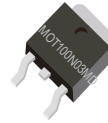
V_{DSS}	30	V
$R_{DS(ON)-Max}$	4.5 at $V_{GS}=10V$	m Ω
$R_{DS(ON)-Max}$	7.2 at $V_{GS}=4.5 V$	m Ω
I_D	100	A

Symbol

APPLICATIONS

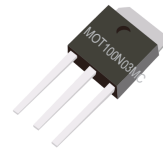
- Switching applications

FEATURES

- $R_{DS(on)} * Q_g$ industry's benchmark
- Conduction losses reduced
- Switching losses reduced
- Low threshold device



TO-252



TO-251

ORDER INFORMATION

Order codes		Package	Packing
Halogen-Free	Halogen		
N/A	MOT100N03MD	TO-252	2500 pieces /Reel
N/A	MOT100N03MC	TO-251	70 pieces/Tube

ABSOLUTE MAXIMUM RATINGS ($T_C = 25^\circ C$, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V_{DSS}	30	V
Gate-Source Voltage	V_{GSS}	± 20	V
Continuous Drain Current	I_D	100	A
Pulsed Drain Current (Note 2)	I_{DM}	400	A
Single Pulsed Avalanche Current (Note 3)	I_{AS}	35	A
Single Pulsed Avalanche Energy (Note 3)	E_{AS}	875	mJ
Power Dissipation	P_D	50	W
Derate above $25^\circ C$		0.4	W/ $^\circ C$
Junction Temperature	T_J	+175	$^\circ C$
Strong Temperature	T_{STG}	-55 ~ +175	$^\circ C$

Note: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

2. Pulse width limited by maximum junction temperature

3. $L = 0.5mH$, $I_{AS} = 35A$, $V_{DD} = 25V$, $R_G = 25\Omega$, Starting $T_J = 25^\circ C$.

THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	110	$^\circ C/W$
Junction to Case	θ_{JC}	2.5	$^\circ C/W$

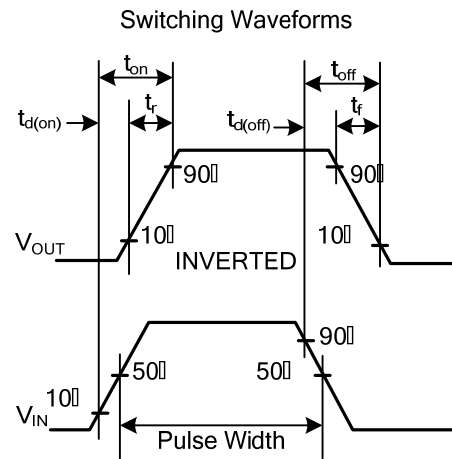
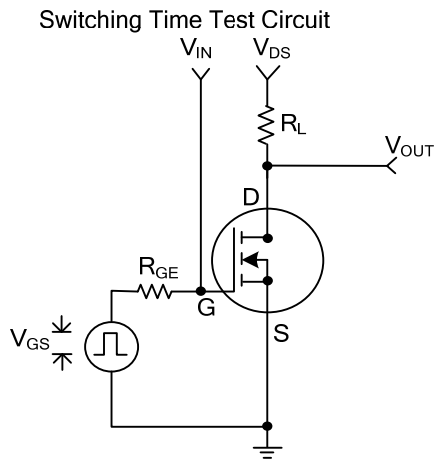


■ ELECTRICAL CHARACTERISTICS ($T_J = 25^\circ\text{C}$, unless otherwise noted)

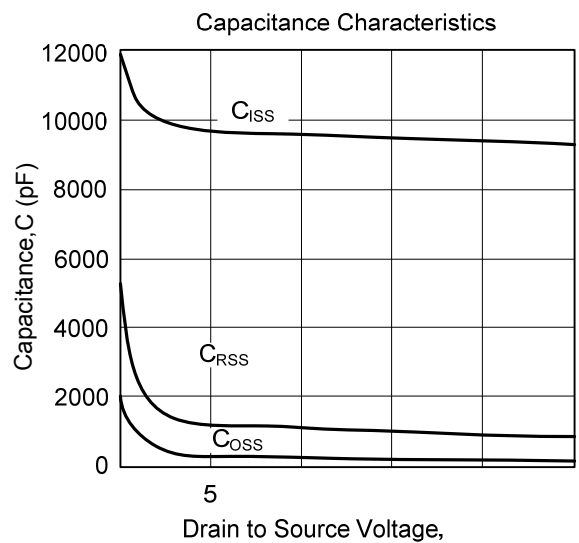
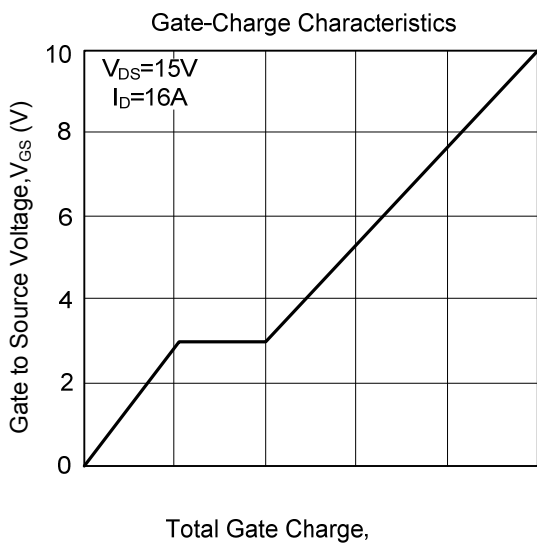
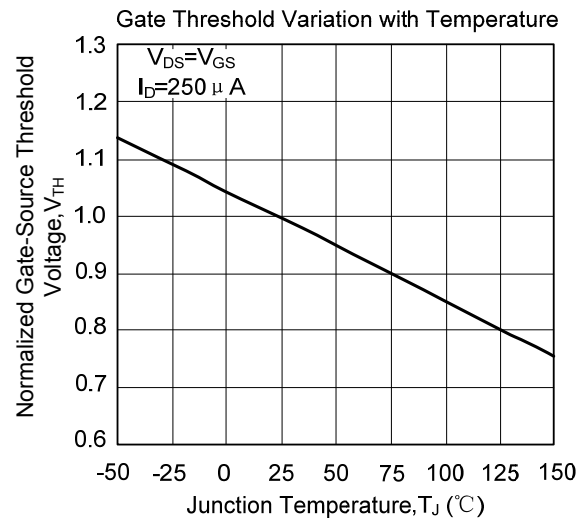
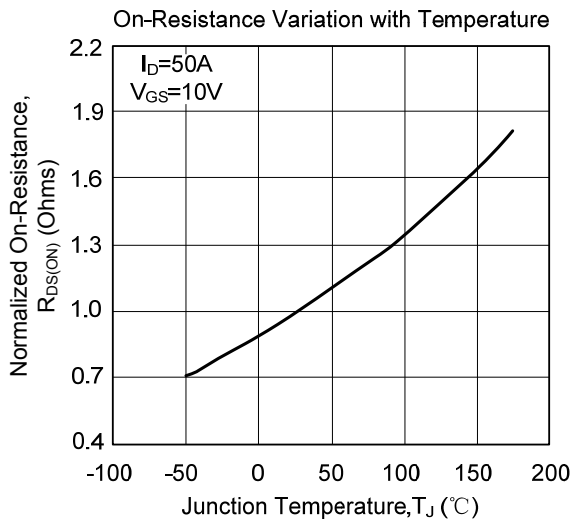
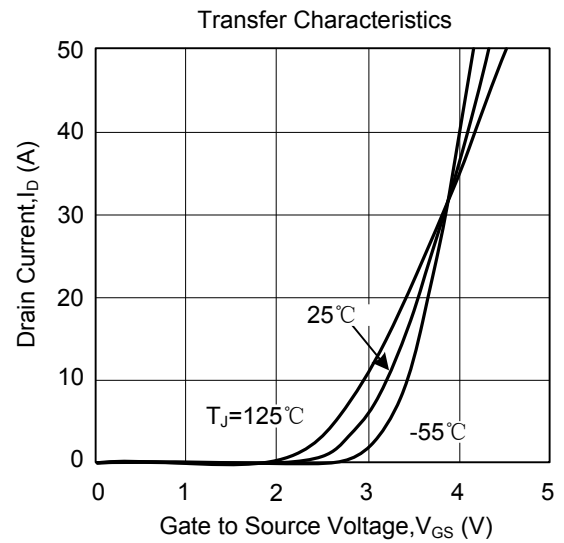
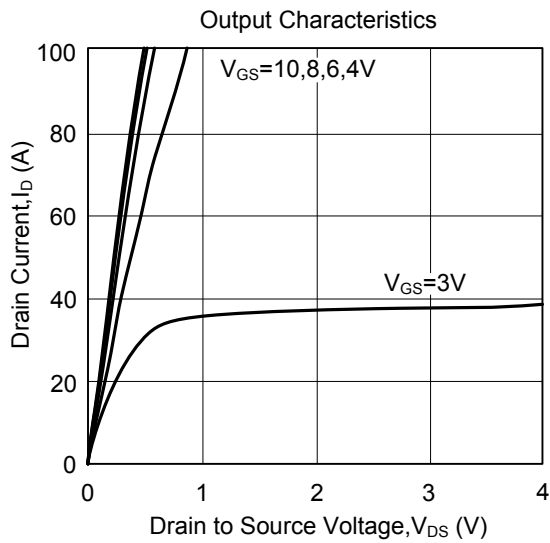
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS} = 0\text{ V}, I_D = 250\ \mu\text{A}$	30			V
Drain-Source Leakage Current	I_{DSS}	$V_{DS} = 30\text{ V}, V_{GS} = 0\text{ V}$			1	μA
Gate-Source Leakage Current	I_{GSS}	$V_{DS} = 0\text{ V}, V_{GS} = \pm 20\text{ V}$			± 100	nA
ON CHARACTERISTICS (Note2)						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS} = V_{GS}, I_D = 250\ \mu\text{A}$	1		3	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS} = 10\text{ V}, I_D = 50\text{ A}$		3.8	4.5	m Ω
		$V_{GS} = 4.5\text{ V}, I_D = 40\text{ A}$		5.3	7.2	
DYNAMIC PARAMETERS (Note3)						
Input Capacitance	C_{ISS}	$V_{DS} = 15\text{ V}, V_{GS} = 0\text{ V}, f = 1.0\text{ MHz}$		9500		pF
Output Capacitance	C_{OSS}			800		
Reverse Transfer Capacitance	C_{RSS}			300		
SWITCHING PARAMETERS (Note3)						
Total Gate Charge	Q_G	$V_{DS} = 15\text{ V}, V_{GS} = 5\text{ V}, I_D = 16\text{ A}$		50	65	nC
Gate Source Charge	Q_{GS}			20.8		
Gate Drain Charge	Q_{GD}			19		
Turn-ON Delay Time	$t_{D(ON)}$	$V_{DD} = 15\text{ V}, I_D = 1\text{ A}, R_{GEN} = 6\ \Omega$ $V_{GS} = 10\text{ V}$		25.7	50	ns
Turn-ON Rise Time	t_R			10	20	
Turn-OFF Delay Time	$t_{D(OFF)}$			128	200	
Turn-OFF Fall-Time	t_F			34	70	
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Drain-Source Diode Forward Voltage	V_{SD}	$I_S = 20\text{ A}, V_{GS} = 0\text{ V}$			1.5	V
Drain-Source Diode Forward Current	I_S				90	A

- Note: 1. Pulse Test : Pulse Width < 300 μs , Duty Cycle < 2%.
2. Guaranteed by design, not subject to production testing.

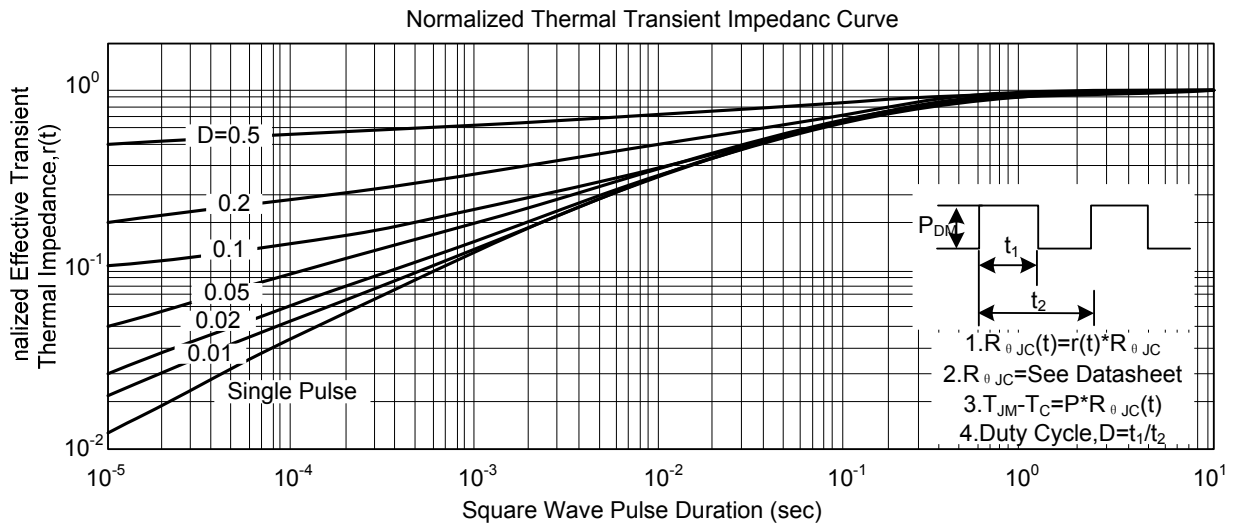
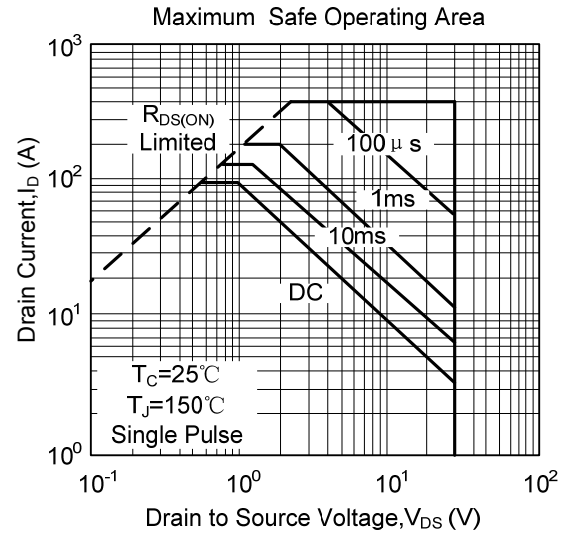
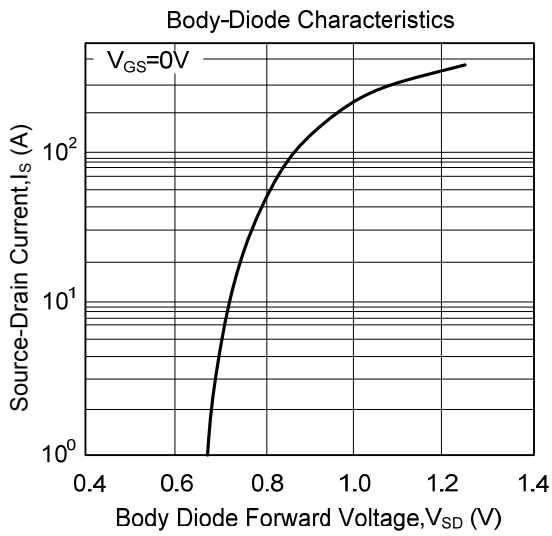
■ TEST CIRCUIT AND WAVEFORM



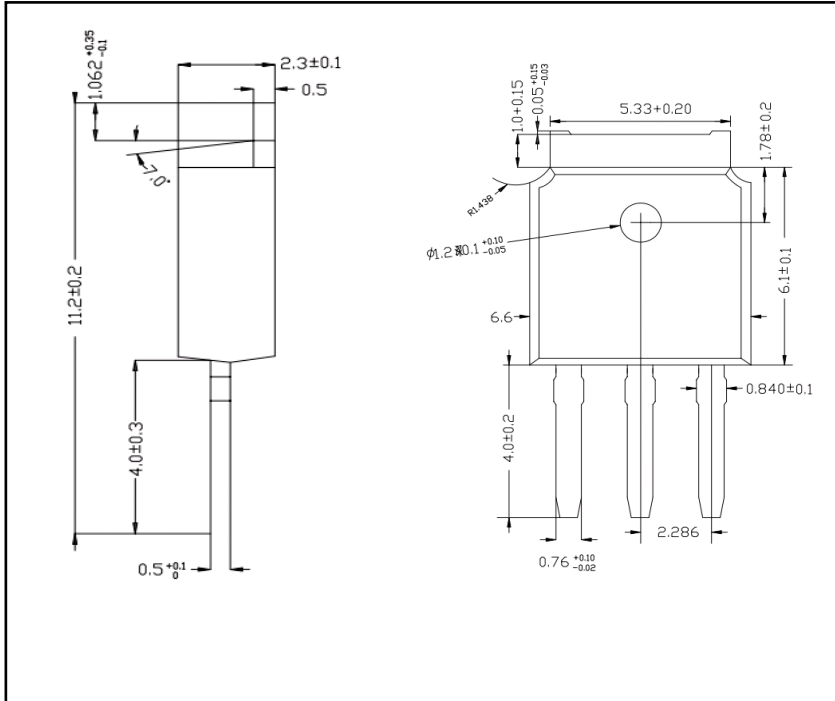
■ TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS(Cont.)



■ TO-251 PACKAGE OUTLINE DIMENSIONS



■ TO-252 PACKAGE OUTLINE DIMENSIONS

