

PRODUCT CHARACTERISTICS

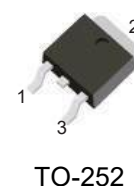
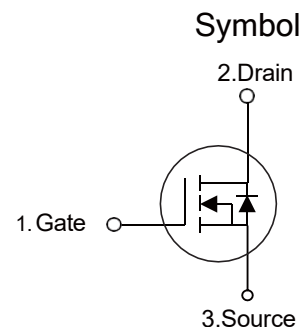
V_{DSS}	20V
$R_{DS(on)Typ}(@V_{GS}=4.5V)$	6 mΩ
$R_{DS(on)Typ}(@V_{GS}=2.5V)$	9.6 mΩ
I_D	60A

DESCRIPTION

This is suitable for the most demanding DC-DC converter application where high efficiency is to be achieved.

FEATURES

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



ORDER INFORMATION

Order codes		Package	Packing
Halogen-Free	Halogen		
N/A	MOT60N02BD	TO-252	2500 pieces /Reel

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

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V_{DSS}	20	V
Gate-Source Voltage	V_{GSS}	± 12	V
Drain Current Continuous($@V_{GS}=10V, T_C=25^{\circ}C$)	I_D	60	A
Drain Current Continuous ($@V_{GS}=10V, T_C=100^{\circ}C$)	I_D	40	A
Pulsed Drain Current	I_{DM}	240	A
Single Pulsed Avalanche Energy	E_{AS}	64	mJ
Power Dissipation	P_D	40	W
Junction Temperature	T_J	+150	$^{\circ}C$
Storage Temperature Range	T_{STG}	-55 ~ +150	$^{\circ}C$

THERMAL CHARACTERISTICS

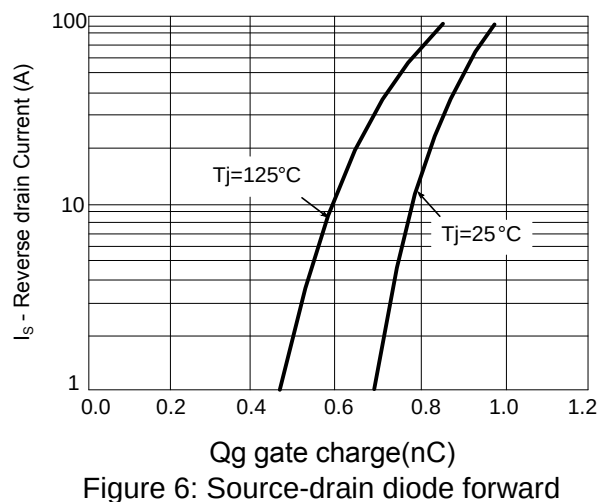
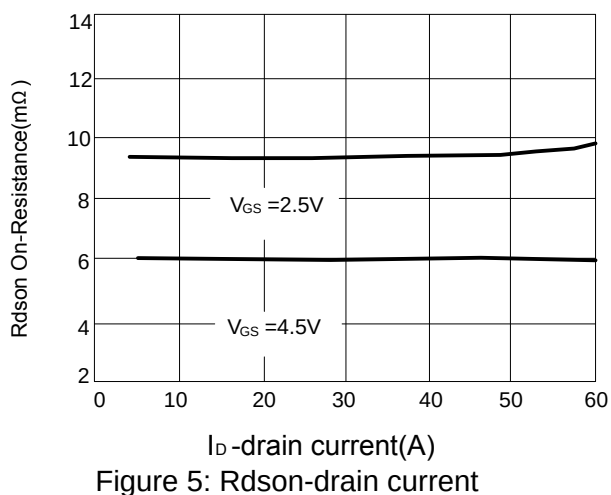
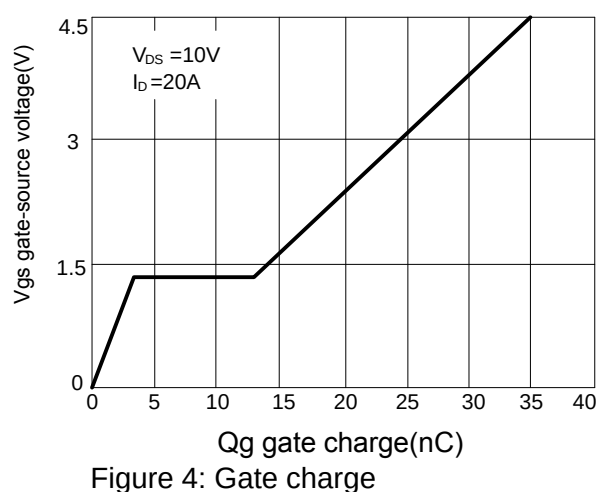
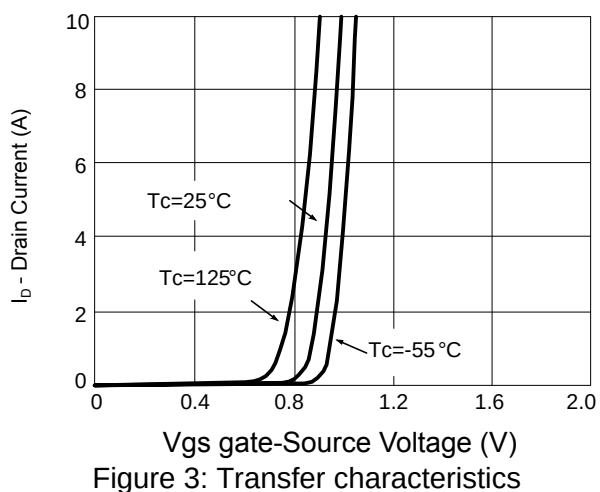
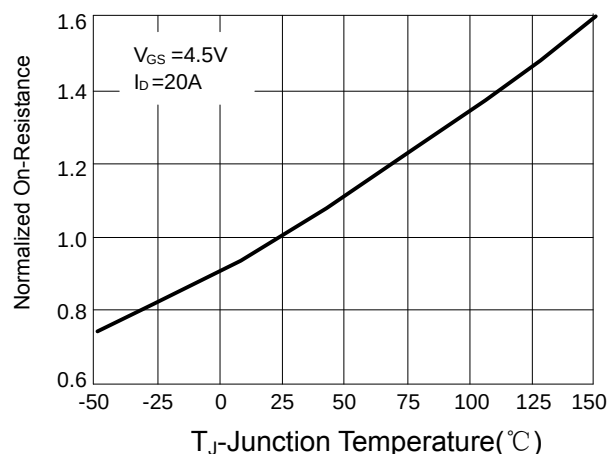
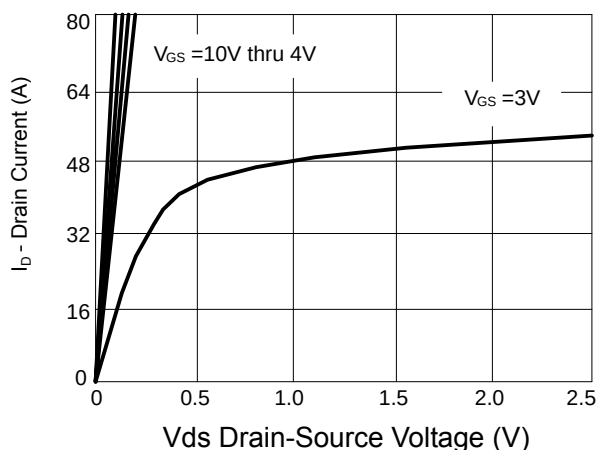
Parameter	Symbol	Typ	Unit
Junction to Case	R_{thJC}	3.13	$^{\circ}C/W$

Note: * EAS condition: $T_J=25^{\circ}C, V_{DD}=12V, V_G=10V, L=0.5mH, R_g=25\Omega$

■ ELECTRICAL CHARACTERISTICS (T_c=25°C, unless otherwise specified)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off characteristics						
Drain-Source Breakdown Voltage	V _{DSS}	V _{GS} =0V I _D =250μA	20	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =20V,V _{GS} =0V	-	-	1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±12V,V _{DS} =0V	-	-	±100	nA
On characteristics						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} ,I _D =250μA	0.4	1.	1.5	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =4.5 V, I _D =20A	-	6	7	mΩ
		V _{GS} =2.5V, I _D =10A	-	9.6	12	mΩ
Dynamic characteristics						
Gate capacitance	R _g	V _{GS} =0V,V _{DS} =0V ,f=1.0MHz	-	2.9	-	Ω
Forward Transconductance	g _{FS}	V _{DS} =10V,I _D = 3A	-	12	-	S
Input Capacitance	C _{iss}	V _{DS} =12V,V _{GS} =0V, F=1.0MHz	-	834	-	PF
Output Capacitance	C _{oss}		-	140	-	PF
Reverse Transfer Capacitance	C _{rss}		-	120	-	PF
Switching characteristics						
Turn-on Delay Time	t _{d(on)}	V _{DS} =10V,I _D =20A V _{GS} =4.5 V,R _G =3Ω	-	6.4	-	nS
Turn-on Rise Time	t _r		-	17.2	-	nS
Turn-Off Delay Time	t _{d(off)}		-	29.6	-	nS
Turn-Off Fall Time	t _f		-	16.8	-	nS
Total Gate Charge	Q _g	V _{DS} =10V,I _D =20A, V _{GS} =4.5V	-	35	-	nC
Gate-Source Charge	Q _{gs}		-	3	-	nC
Gate-Drain Charge	Q _{gd}		-	10	-	nC
Drain-source diode characteristics						
Diode Forward Voltage	V _{SD}	V _{GS} =0V,I _S =3A	-	0.74	1.2	V
Diode Forward Current	I _S		-	-	60	A
Maximum Pulsed Current	I _{SM}		-	-	240	A
Reverse Recovery Time	t _{rr}	T _J = 25°C, I _F = I _S di/dt = 100A/μs	-	25	-	nS
Reverse Recovery Charge	Q _{rr}		-	24	-	nC

■ TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS(Cont.)

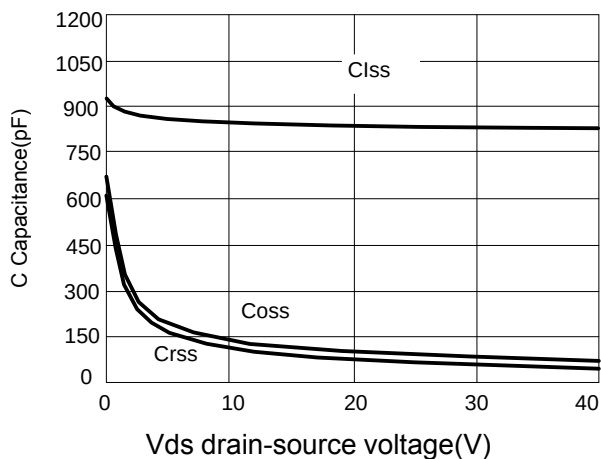


Figure 7: Capacitance de-rating

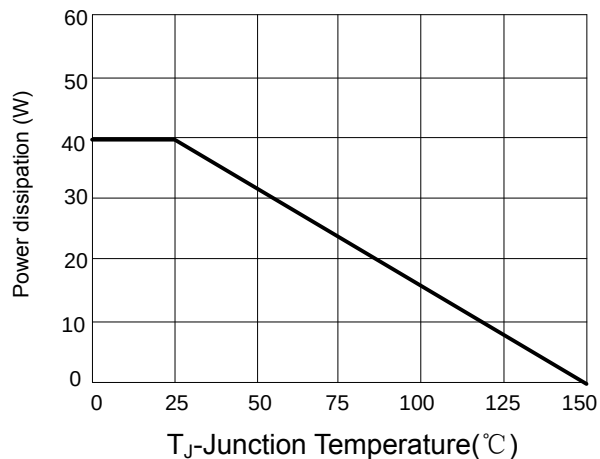


Figure 8: Power de-rating

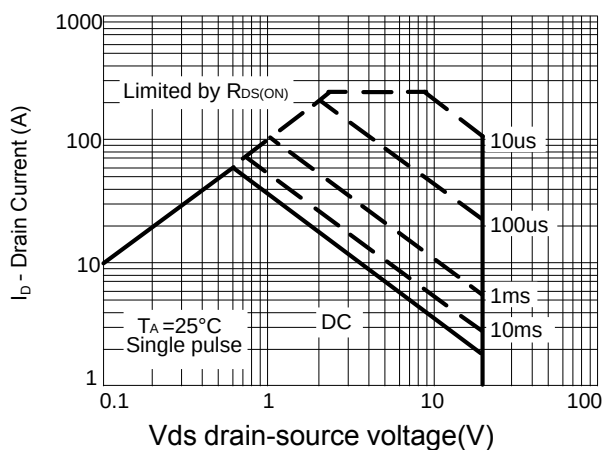


Figure 9: Safe operation area

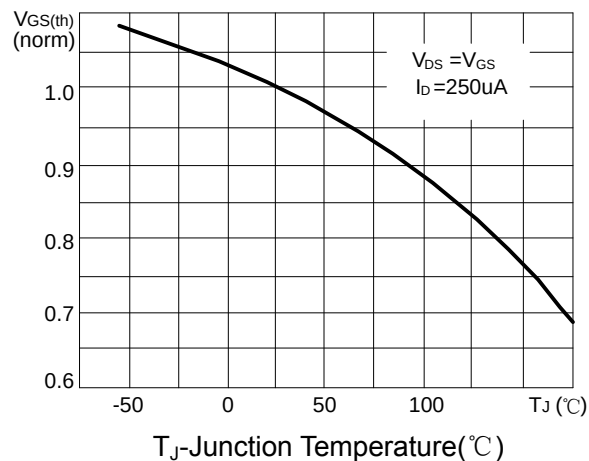


Figure 10: $V_{GS(th)}$ vs junction temperature

■ TO-252 PACKAGE OUTLINE DIMENSIONS

