Descriptions

This 30V,100A N-Channel MOSFET in a TO-252 Plastic Package.

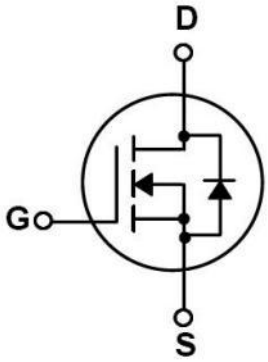
Features

- Low RDS(on)
- Low gate charge
- Low Crss
- Fast speed switching
- Halogen-free Product

Applications

These devices are well suited for high efficiency switching DC/DC converters and switch mode power supplies.

Equivalent Circuit



Pinning

PIN1：Gate PIN 2：Drain PIN 3：Source

Absolute Maximum Ratings(Ta=25℃)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DSS}	30	V
Drain Current		I_D(Tc=25℃)	100	A
Peak Drain Current		I_{DM}	350	A
Gate-Source Voltage		V_{GSS}	±20	V
Avalanche Current		I_{AS}	24.5	A
Single Pulsed Avalanche Energy		E_{AS}	294	mJ
Total Power Dissipation		P_D(Tc=25℃)	100	W
Junction and Storage Temperature Range		T_J,T_{STG}	-55 to 150	℃
Thermal resistance, junction - ambient	t ≤ 10s	$R_{\theta JA}$	20	℃/W
	Steady-State		50	
Thermal resistance, junction - case	Steady-State	$R_{\theta JC}$	1.8	

Electrical Characteristics(Ta=25℃)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Zero Gate Voltage Drain Current	BV_{DSS}	V_{GS}=0V I_D=250μA	30	33		V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=30V V_{GS}=0V			1	μA
Gate-Body Leakage Current Forward	I_{GSS}	V_{GS}=±20V V_{DS}=0V			±0.1	μA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} I_D=250μA	1.0	1.5	3.0	V
Forward On Voltage	V_{SD}	I_S=20A V_{GS}=0V			1.2	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V I_D=50A		3.5	3.9	mΩ
		V_{GS}=4.5V I_D=40A		5.1	8	mΩ
Gate resistance	R_g	V_{GS}=0V V_{DS}=0V f=1MHz		3		Ω
Input Capacitance	C_{iss}	V_{GS}=0V f=1.0MHz V_{DS}=25V		2750		pF
Output Capacitance	C_{oss}			380		pF
Reverse Transfer Capacitance	C_{rss}			240		pF

Electrical Characteristics(Ta=25℃)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Total Gate Charge	$Q_{g(10V)}$	V_{GS}=10V, V_{DS}=15V, I_D=20A		80		nC
Total Gate Charge	$Q_{g(4.5V)}$			35		
Gate Source Charge	Q_{gs}			13		
Gate Drain Charge	Q_{gd}			13		
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=15V I_D=1A R_{GEN}=6Ω V_{GS}=10V		25.7	50	ns
Turn-On Rise Time	t_r			10	20	ns
Turn-Off Delay Time	$t_{d(off)}$			128	200	ns
Turn-Off Fall Time	t_f			34	70	ns

Electrical Characteristic Curve

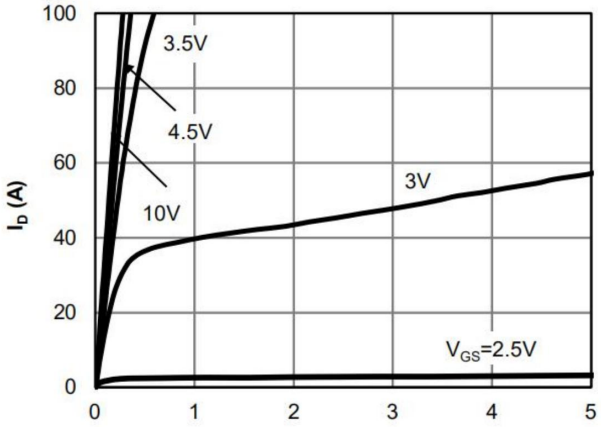


Figure 1: On-Region Characteristics

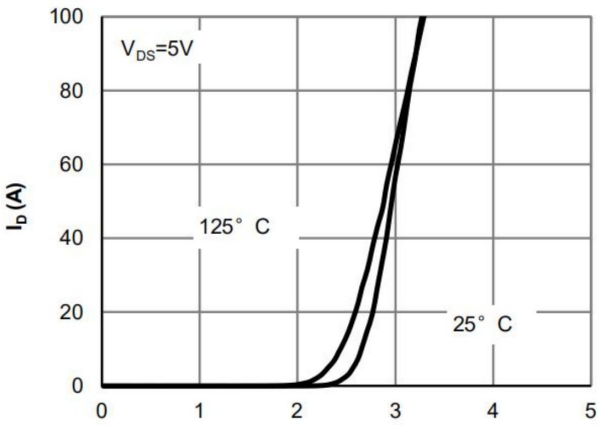


Figure 2: Transfer Characteristics

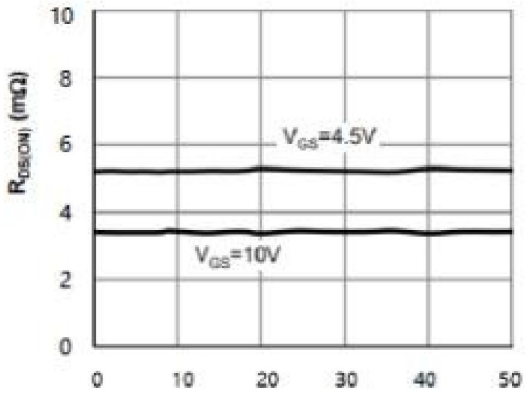


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

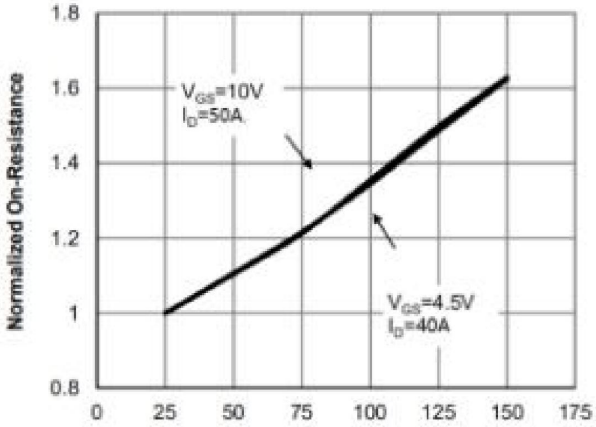


Figure 4: On-Resistance vs. Junction Temperature

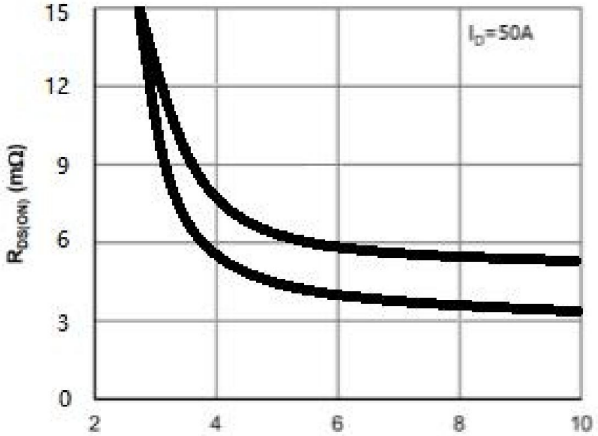


Figure 5: On-Resistance vs. Gate-Source Voltage

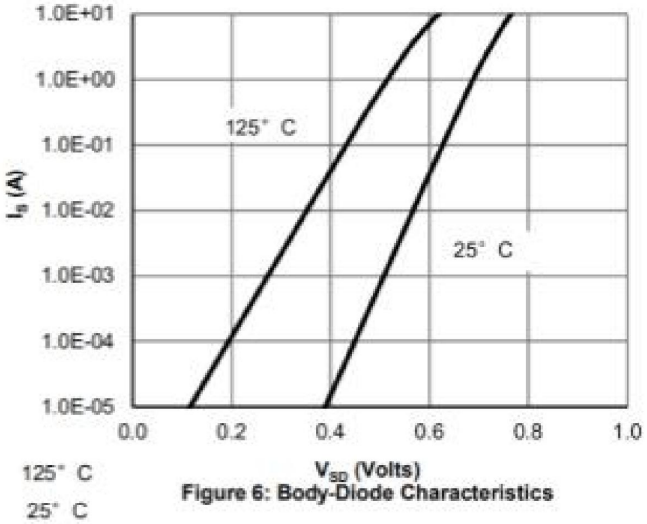


Figure 6: Body-Diode Characteristics

Electrical Characteristic Curve

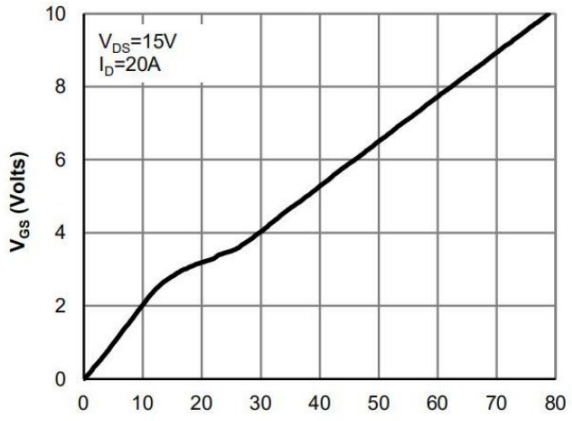


Figure 7: Gate-Charge Characteristics

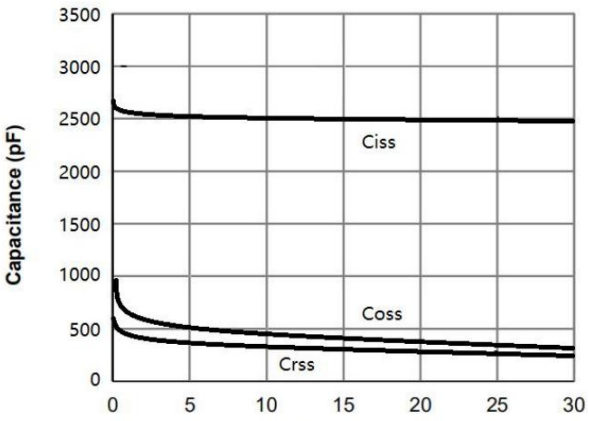


Figure 8: Capacitance Characteristics

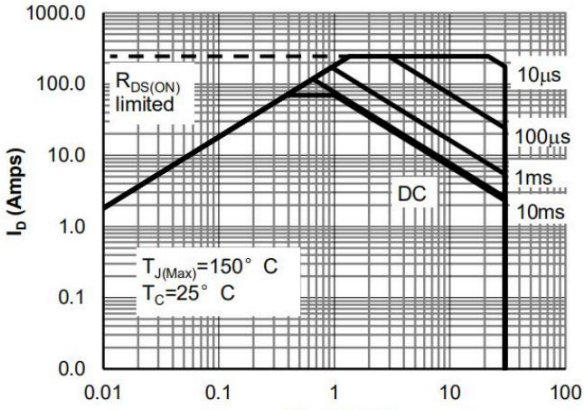


Figure 9: Maximum Forward Biased Safe Operating Area

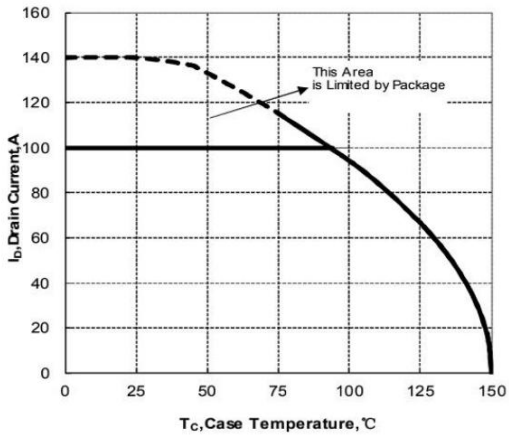


Figure10. Maximum Continuous Drain Current vs Case Temperature

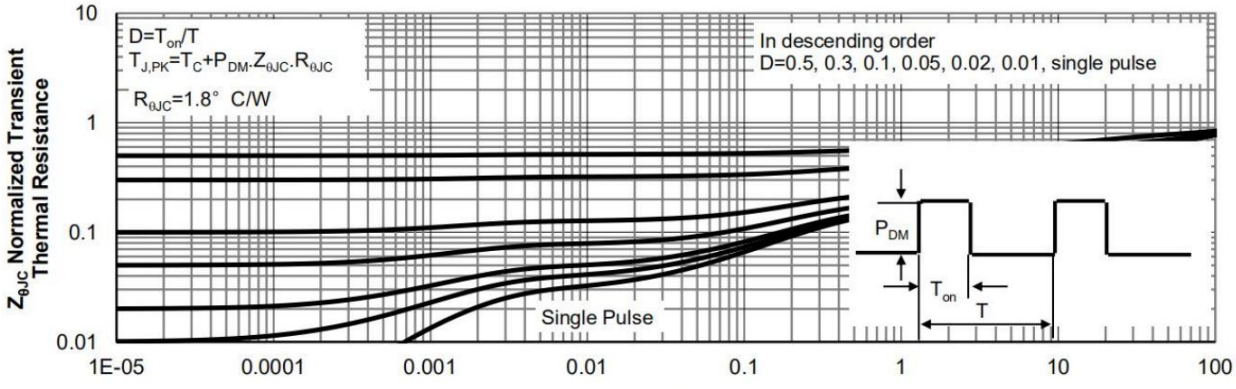
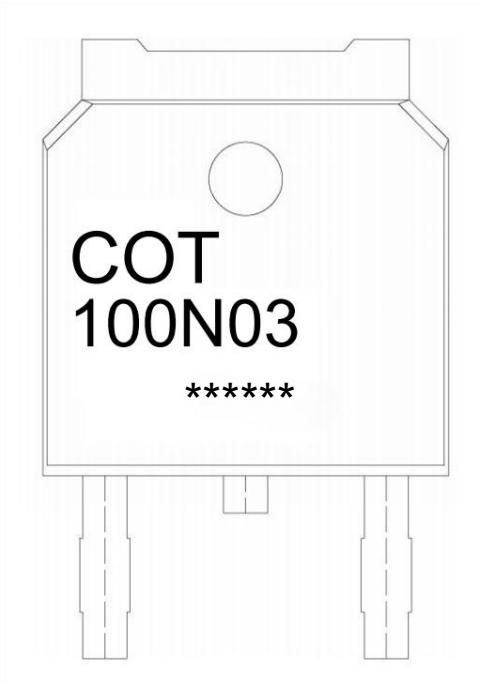


Figure 11: Normalized Maximum Transient Thermal Impedance

Marking Instructions



Note:

COT:	Company Code.
100N03:	Product Type.
******:	Lot No. Code, code change with Lot No.

Packaging SPEC

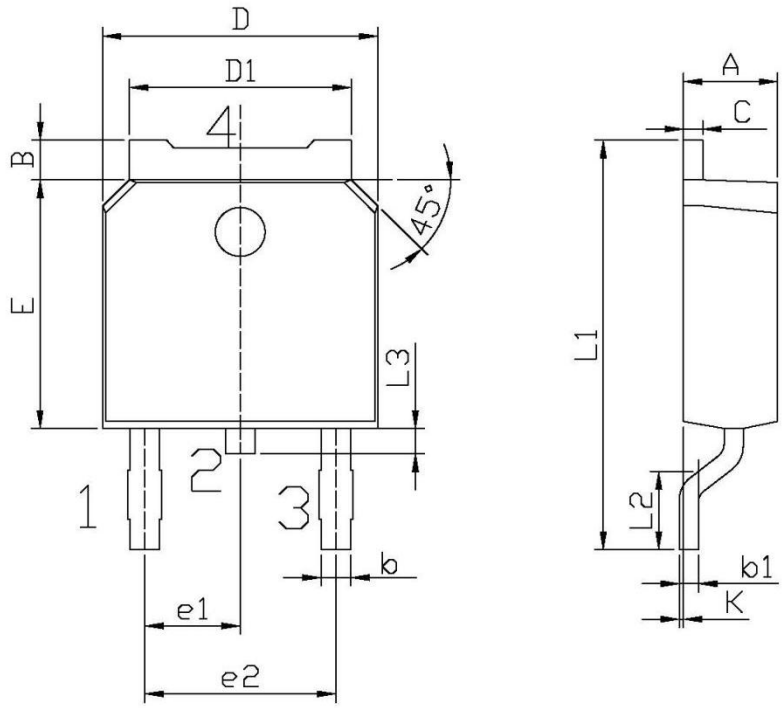
REEL INFORMATION

Package Type	Units					Dimension (unit：mm³)		
	Units/Reel	Reels/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	Reel	Inner Box	Outer Box
TO-252	2,500	2	5,000	6	30,000	13″ ×16	360×360×50	380×335×366

TUBE INFORMATION

Package Type	Units					Dimension (unit：mm³)		
	Units/Tube	Tubes/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	Tube	Inner Box	Outer Box
TO-252	75	48	3,600	5	18,000	526×20.5×5.25	555×164×50	575×290×180

Package Outline Dimensions



单位：mm

Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
A	2.20	2.40	E	5.95	6.25
B	0.95	1.25	e1	2.24	2.34
b	0.70	0.90	e2	4.43	4.73
b1	0.45	0.55	L1	9.85	10.35
C	0.45	0.55	L2	1.70	2.00
D	6.45	6.75	L3	0.60	0.90
D1	5.10	5.50	K	0.00	0.10

TO-252