Description

This 30V,100A N-Channel MOSFET in a TO-263 Plastic Package.

Applications

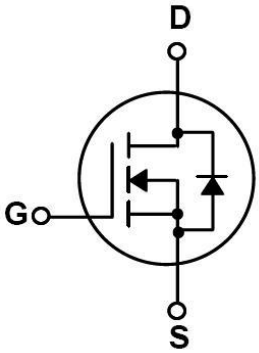
These devices are well suited for high efficiency switching DC/DC converters and switch mode power supplies

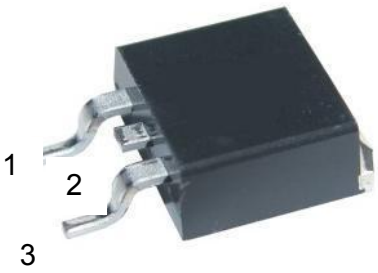
Features

- Low gate charge
- Low crss
- Fast Switching
- Halogen-free Product

V_{DSS}	$R_{DS(on)}$ (Typ)	I_D
30V	2.8mΩ	100A

Equivalent Circuit & Pinning





Pin1:Gate Pin2:Drain Pin3: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}	30	A
Single Pulsed Avalanche Energy	E_{AS}	360	mJ
Total Power Dissipation	P_D(Tc=25℃)	150	W
Junction and Storage Temperature Range	T_J,T_{STG}	-55 to 150	℃
Thermal resistance, junction - ambient	$R_{\theta JA}$	62.5	℃/W
Thermal resistance, junction - case	$R_{\theta JC}$	0.83	

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	32		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	1.7	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		2.8	3.8	mΩ
		V_{GS}=4.5V I_D=40A		4.0	7.0	mΩ
Gate resistance	R_g	V_{GS}=0V V_{DS}=0V f=1MHz		1.8		Ω
Input Capacitance	C_{iss}	V_{GS}=0V f=1.0MHz V_{DS}=25V		2500		pF
Output Capacitance	C_{oss}			310		pF
Reverse Transfer Capacitance	C_{rss}			275		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

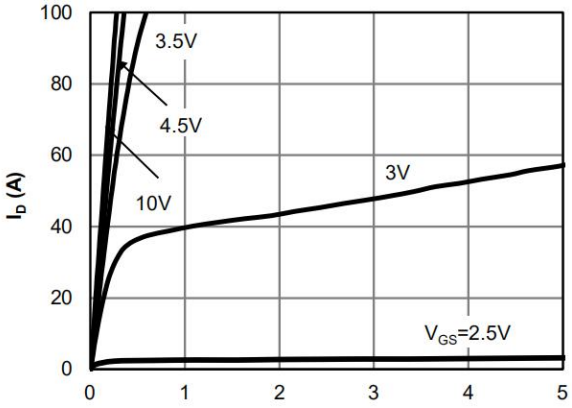


Figure 1: On-Region Characteristics

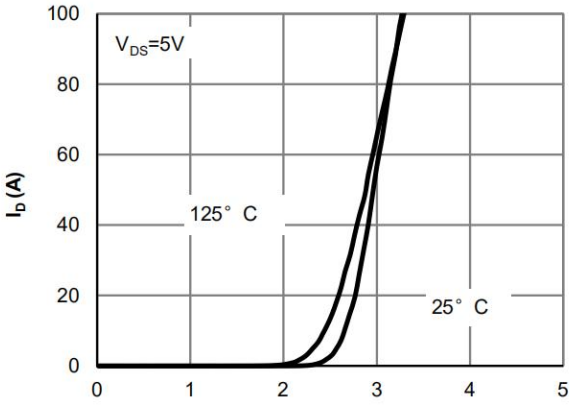


Figure 2: Transfer Characteristics

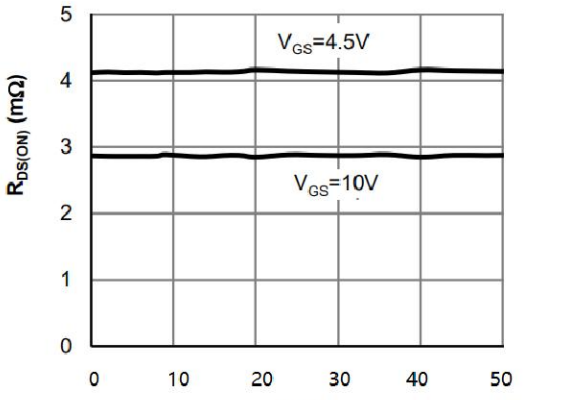


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

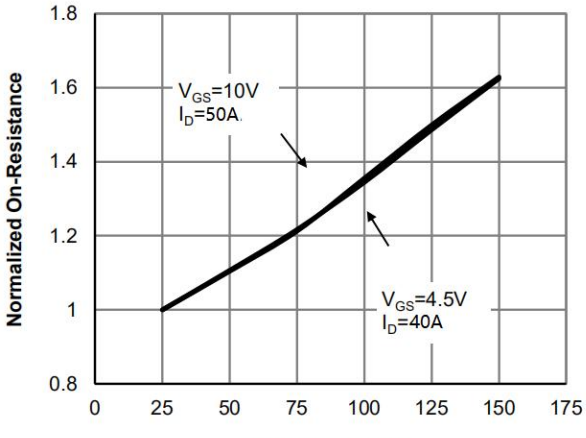


Figure 4: On-Resistance vs. Junction Temperature

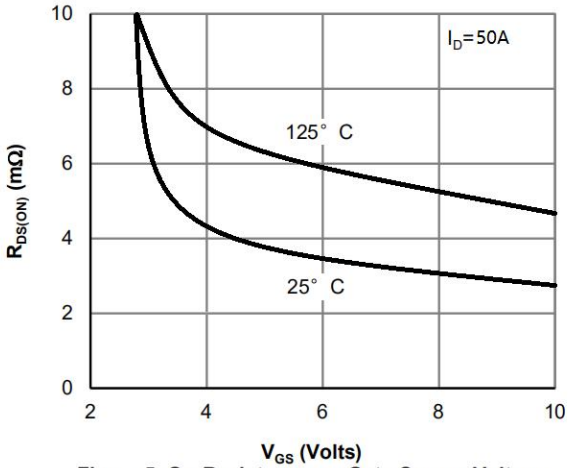


Figure 5: On-Resistance vs. Gate-Source Voltage

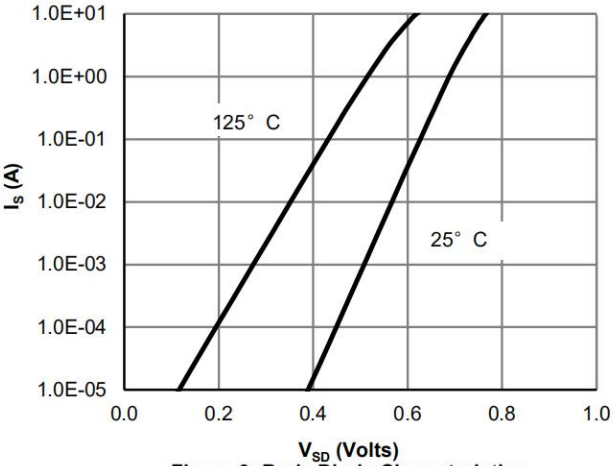


Figure 6: Body-Diode Characteristics

Electrical Characteristic Curve

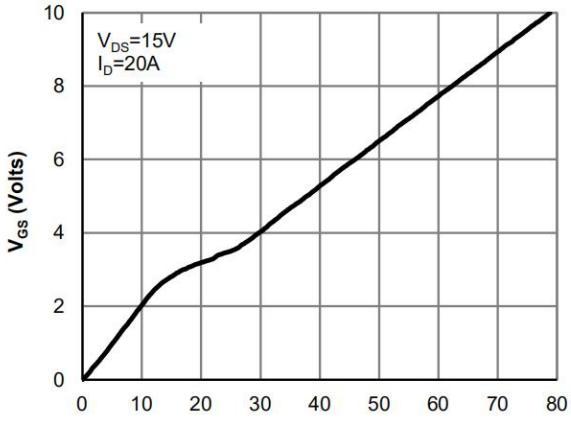


Figure 7: Gate-Charge Characteristics

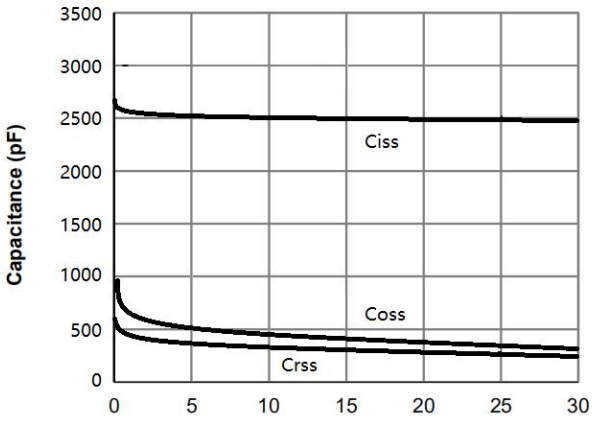
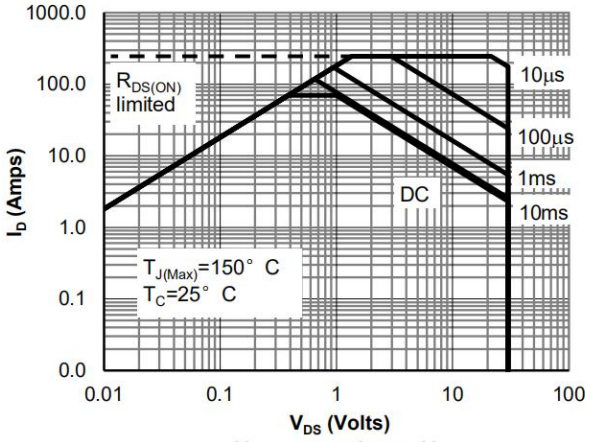


Figure 8: Capacitance Characteristics



V_{GS}> or equal to 4.5V

Figure 9: Maximum Forward Biased Safe Operating Area

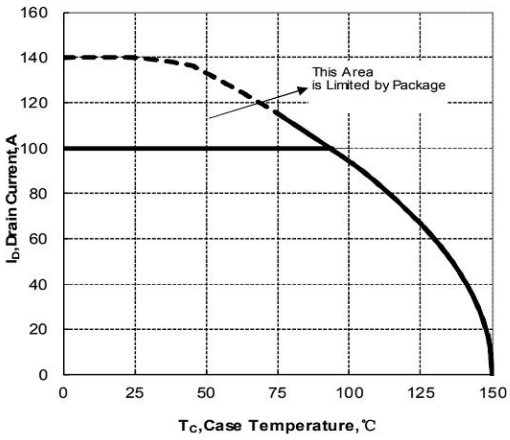


Figure 10. Maximum Continuous Drain Current vs Case Temperature

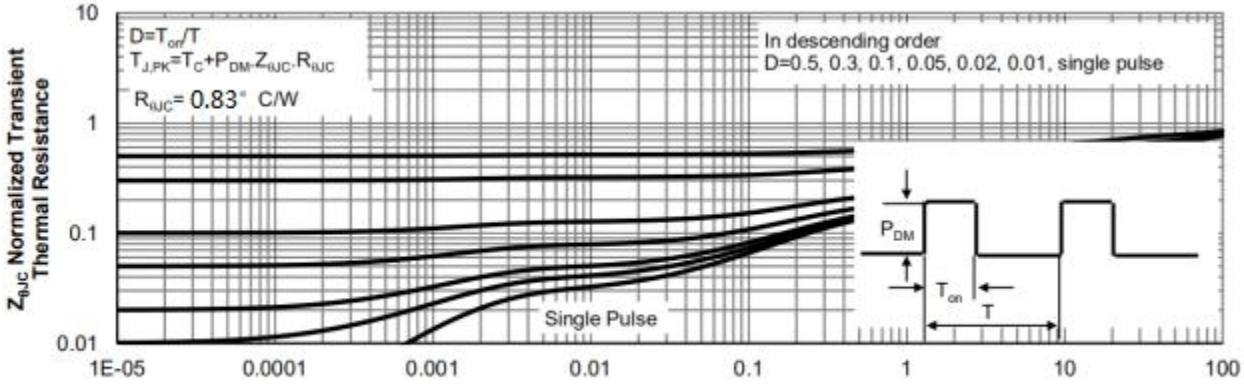
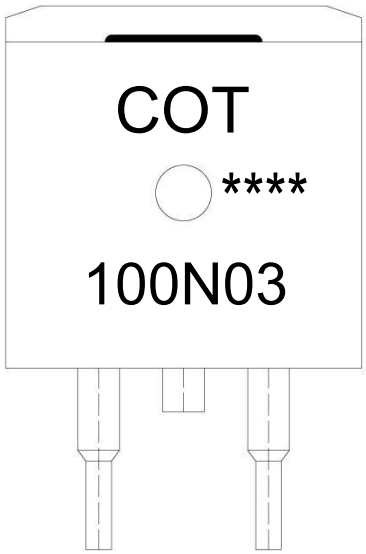


Figure 11: Normalized Maximum Transient Thermal Impedance

Marking Instructions



Note:

COT: Company Code

100N03: Product Type.

****: Lot No. Code, code change with Lot No.

Packaging SPEC.

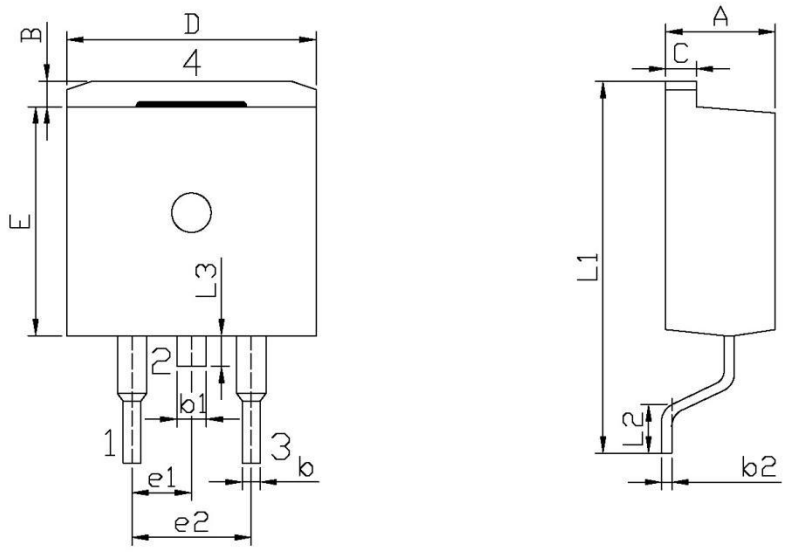
REEL INFORMATION

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-263	800	1	800	5	4,000	13″ ×24	360×360×50	385×257×392

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-263	50	20	1,000	5	5,000	532×33×7.0	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	4.30	4.70	E	9.00	9.40
B	1.00	1.40	e1	2.34	2.74
b	0.70	0.90	e2	4.88	5.28
b1	1.15	1.35	L1	15.00	16.00
b2	0.40	0.60	L2	2.24	2.84
C	1.20	1.40	L3	1.20	1.60
D	9.80	10.20			

TO-263