

Description

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

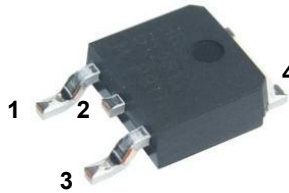
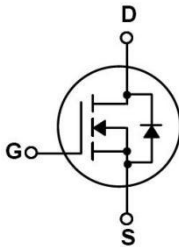
Features

- Low $R_{DS(on)}$,
- Low gate charge,
- Low C_{iss} ,
- Fast switching.
- Halogen-free Product.

Applications

- Suited for low voltage applications such as automotive
- DC/DC Converters
- And high efficiency switching for power management in portable and battery operated products
- Meet the stringent requirements of automotive applications.

V_{DSS}	$R_{DS(on)}$ (Typ)	I_D
30V	4.3m Ω	100A

Equivalent Circuit & Pinning


PIN1 : Gate PIN 2 : Drain PIN 3 : Source PIN 4 : Drain

Absolute Maximum Ratings(Ta=25°C)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V _{DSS}	30	V
Drain Current	I _D (Tc=25°C)	100	A
Drain Current - Pulsed	I _{DM}	215	A
Gate-Source Voltage	V _{GS}	±20	V
Avalanche Current	I _{AS}	23.5	A
Single Pulsed Avalanche Energy(L=0.5mH)	E _{AS}	220.9	mJ
Power Dissipation	P _D (Tc=25°C)	85	W
Junction and Storage Temperature Range	T _J , T _{STG}	-55 to 150	°C
Thermal Resistance-Junction to Ambient	t ≤ 10s	R _{θJA}	°C/W
	Steady-State		
Thermal Resistance-Junction to Case	Steady-State	R _{θJC}	1.47

Electrical Characteristics(Ta=25°C)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V I _D =250μA	30			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =30V V _{GS} =0V			1.0	μA
Gate-Body Leakage Current Forward	I _{GSS}	V _{GS} =±20V V _{DS} =0V			±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} I _D =250μA	1.0	1.7	2.5	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V I _D =20A		4.3	5	mΩ
		V _{GS} =4.5V I _D =10A		6.7	8	
Drain-Source Diode Forward Voltage	V _{SD}	V _{GS} =0V I _S =1A		0.72	1.4	V
Gate resistance	R _g	V _{GS} =0V V _{DS} =0V, f=1MHz		3.1		Ω
Input Capacitance	C _{iss}	V _{DS} =25V V _{GS} =0V f=1.0MHz		2030		pF
Output Capacitance	C _{oss}			168		
Reverse Transfer Capacitance	C _{rss}			163		
Total Gate Charge	Q _{g(10V)}	V _{GS} =10V, V _{DS} =15V, I _D =20A		40		nC
Total Gate Charge	Q _{g(4.5V)}			22		
Gate Source Charge	Q _{gs}			11		
Gate Drain Charge	Q _{gd}			5		

Electrical Characteristics(Ta=25°C)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=10V$ $V_{DS}=15V$ $R_L=0.75\ \Omega$ $R_{GEN}=3\ \Omega$		11		ns
Turn-On Rise Time	t_r			14		
Turn-Off Delay Time	$t_{d(off)}$			38		
Turn-Off Fall Time	t_f			10		

Electrical Characteristic Curve

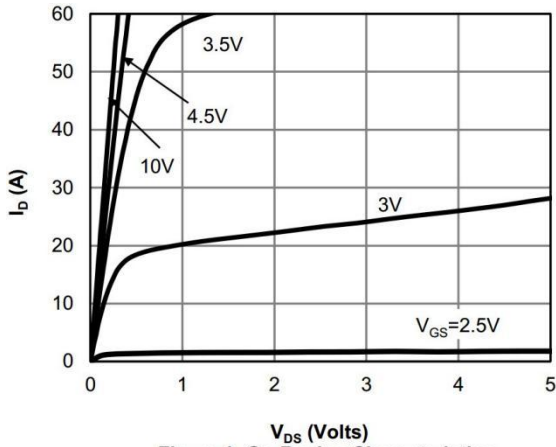


Figure 1: On-Region Characteristics

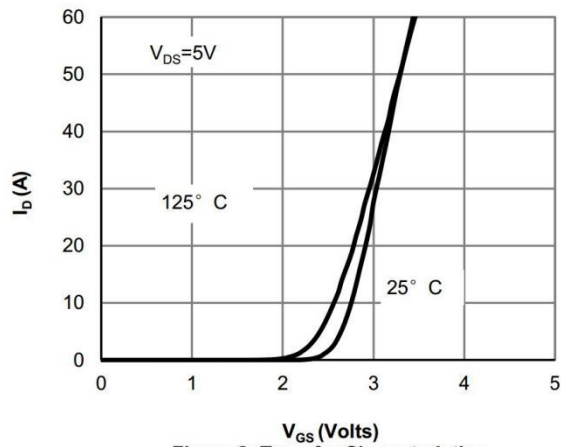


Figure 2: Transfer Characteristics

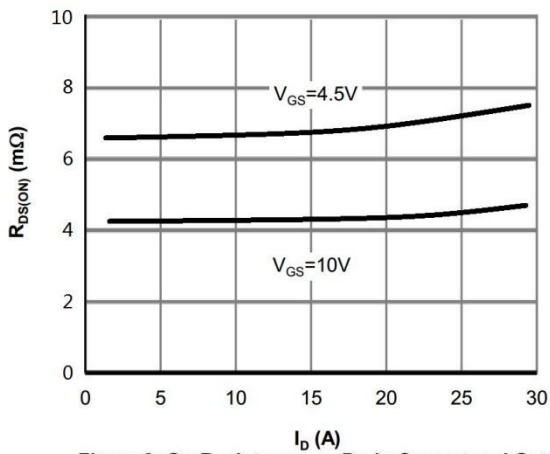


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

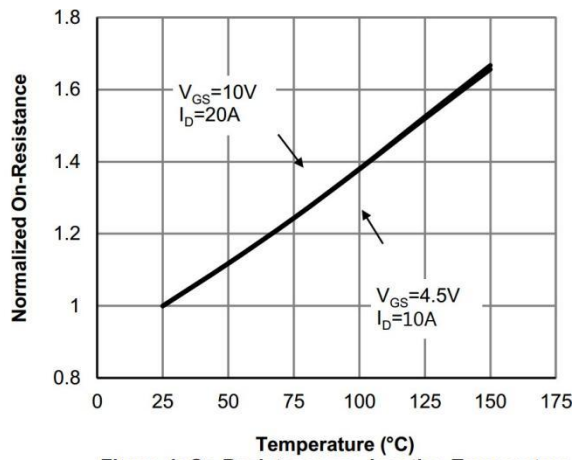


Figure 4: On-Resistance vs. Junction Temperature

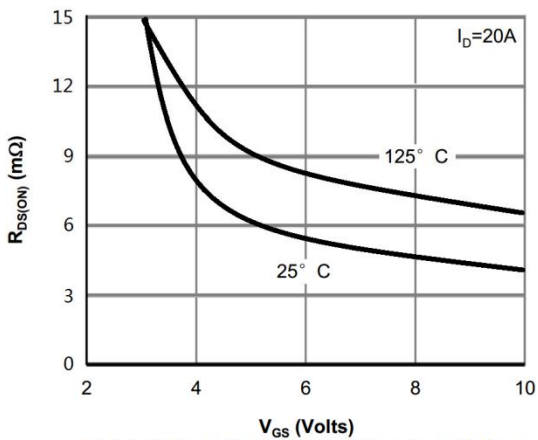


Figure 5: On-Resistance vs. Gate-Source Voltage

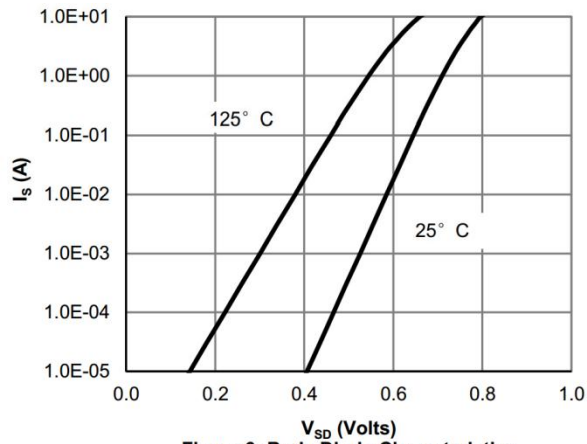


Figure 6: Body-Diode Characteristics

Electrical Characteristic Curve

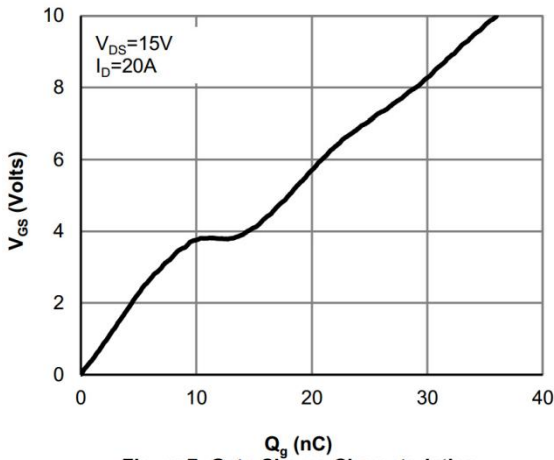


Figure 7: Gate-Charge Characteristics

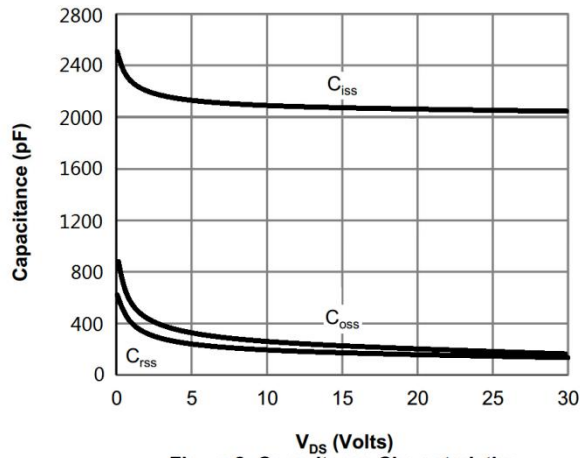


Figure 8: Capacitance Characteristics

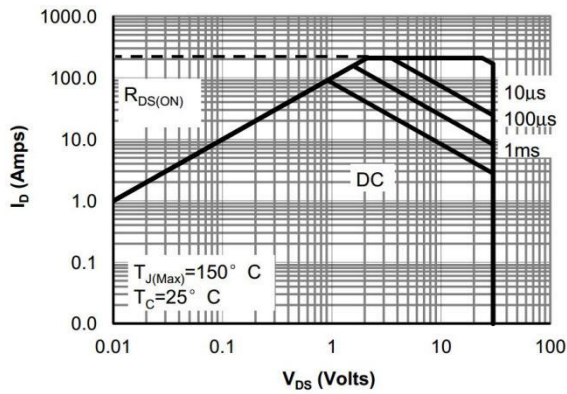


Figure 9: Maximum Forward Biased Safe Operating Area

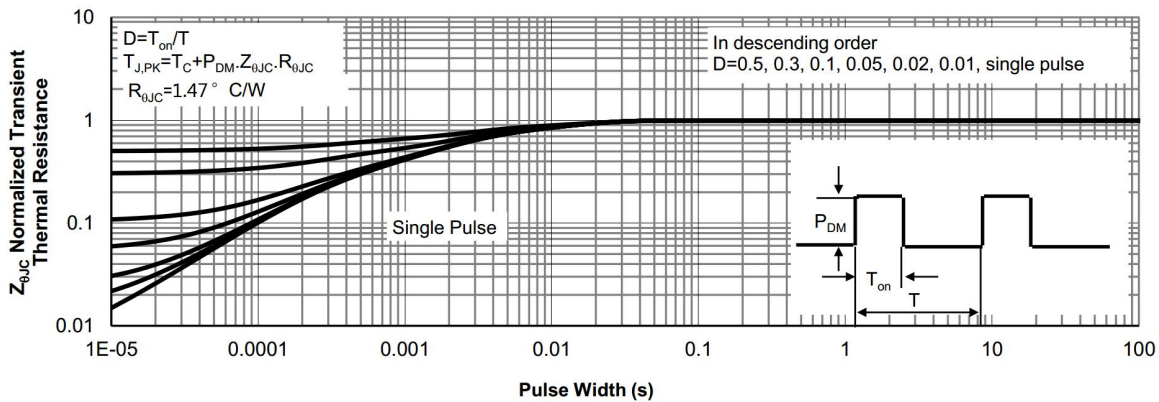
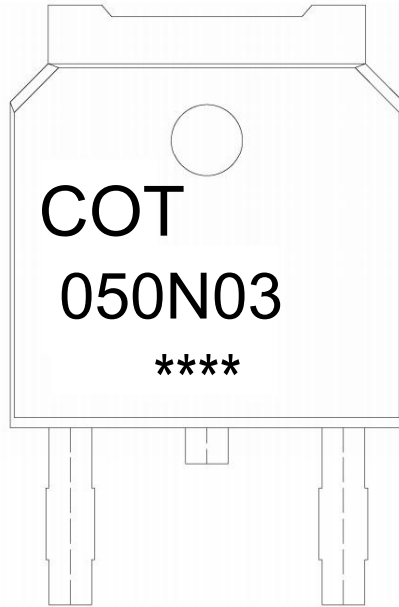


Figure 10: Normalized Maximum Transient Thermal Impedance

Marking Instructions


Note:

COT: Company Logo

050N03: Product Type.

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

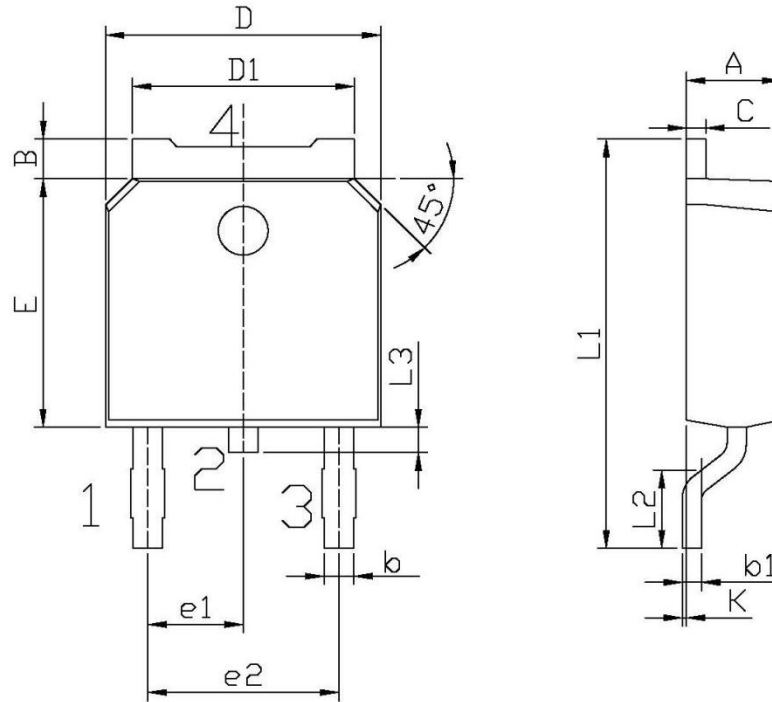
Packaging SPEC.
REEL INFORMATION

Package Type	Units					Dimension (unit: mm ³)		
	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: mm ³)		
	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