Descriptions

This 100V,59A N-Channel MOSFET in a TO-252 Plastic Package.

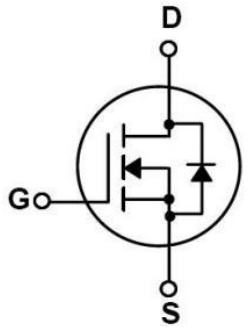
Features

- Low On-Resistance
- Fast 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 PIN 4：Drain

Absolute Maximum Ratings(Ta=25℃)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DSS}	100	V
Drain Current		I_D(Tc=25℃)	59	A
Pulsed Drain Current		I_{DM}	240	A
Gate-Source Voltage		V_{GSS}	±20	V
Avalanche Current		I_{AR}	15	A
Single Pulsed Avalanche Energy		E_{AS}	170	mJ
Total Power Dissipation		P_D(Tc=25℃)	73	W
Junction and Storage Temperature Range		T_J,T_{STG}	-55 to 150	℃
Junction-to-Ambient	t ≤ 10s	$R_{\theta JA}$	20	℃/W
Junction-to-Ambient	Steady-State		50	
Junction-to-Case	Steady-State	$R_{\theta JC}$	1.7	

Electrical Characteristics(Ta=25℃)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=250μA	100	102		V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=100V V_{GS}=0V			1	μA
		V_{DS}=100V V_{GS}=0V T_J=125℃			5	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±20V V_{DS}=0V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} I_D=250μA	2.0	2.6	4.0	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V I_D=35A		14	18	mΩ
Diode Forward Voltage	V_{SD}	V_{GS}=0V I_S=35A T_J=25℃			1.3	V

Electrical Characteristics(Ta=25℃)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Input Capacitance	C_{iss}	V_{DS}=25V V_{GS}=0V f=1MHz		4780		pF
Output Capacitance	C_{oss}			110		
Reverse Transfer Capacitance	C_{rss}			140		
Gate resistance	R_g	V_{GS}=0V, V_{DS}=0V, f=1MHz		1		Ω
Total Gate Charge	$Q_{g(10V)}$	V_{GS}=10V, V_{DS}=50V, I_D=20A		16		nC
Gate Source Charge	Q_{gs}			5		
Gate Drain Charge	Q_{gd}			3		
Turn-On Delay Time	$t_{d(on)}$	V_{GS}=10V V_{DS}=50V R_L=2.5Ω R_{GEN}=3Ω		7.5		ns
Turn-On Rise Time	t_r			2.5		
Turn-Off Delay Time	$t_{d(off)}$			16.5		
Turn-Off Fall Time	t_f			3		

Electrical Characteristic Curve

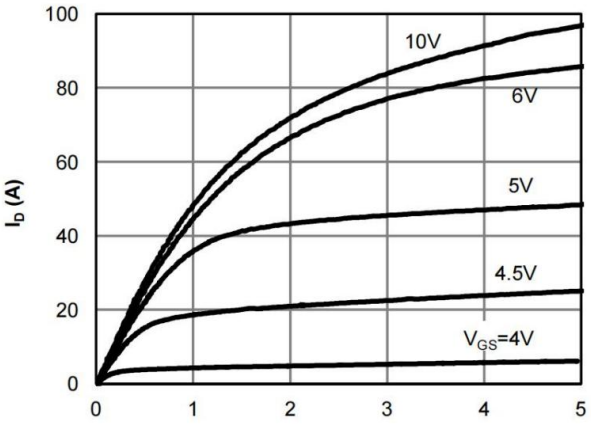


Fig 1: On-Region Characteristics

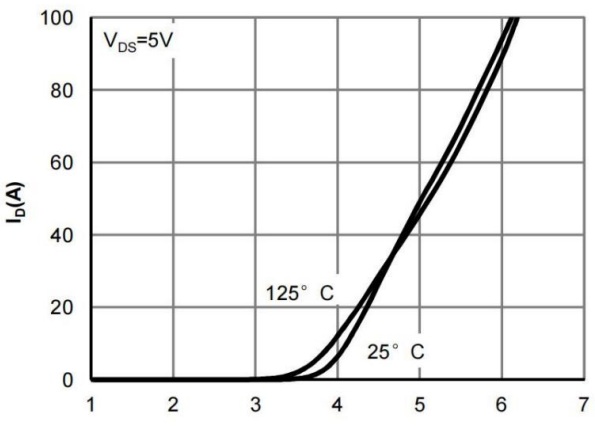


Figure 2: Transfer Characteristics

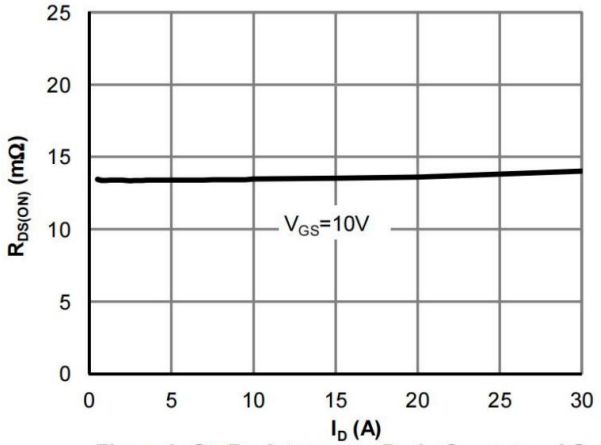


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

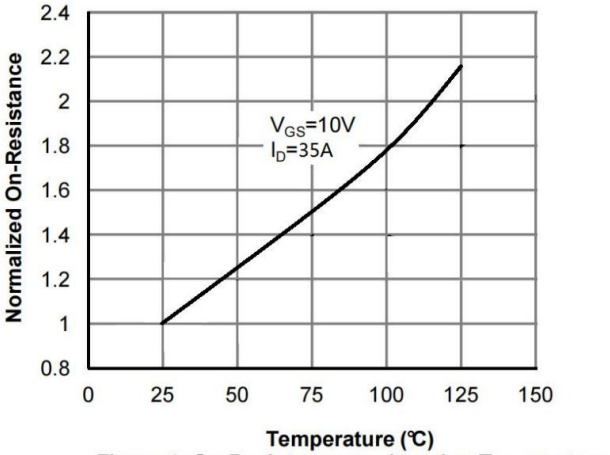


Figure 4: On-Resistance vs. Junction Temperature

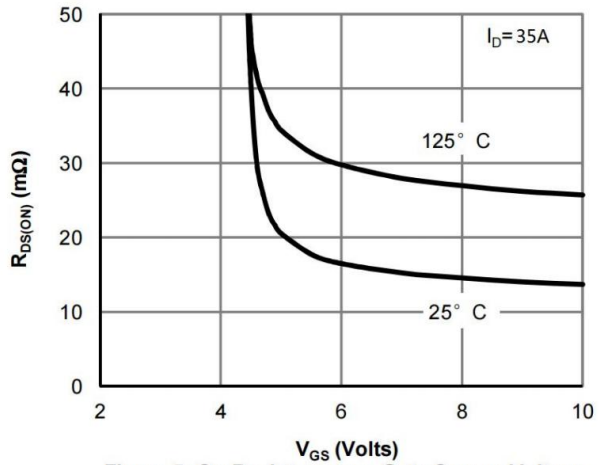


Figure 5: On-Resistance vs. Gate-Source Voltage

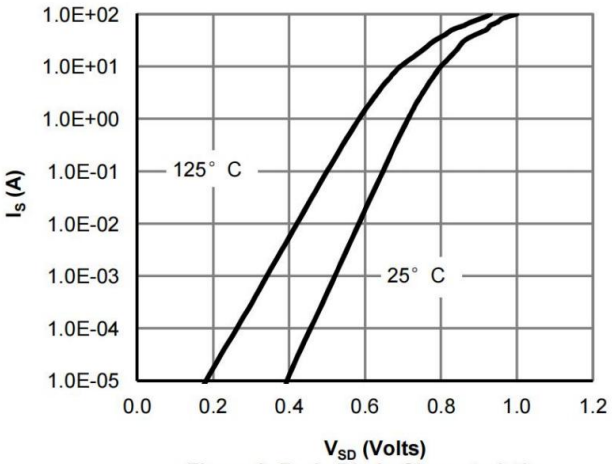


Figure 6: Body-Diode Characteristics

Electrical Characteristic Curve

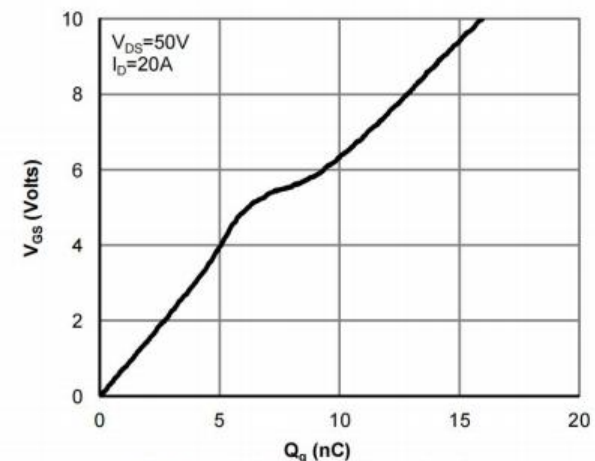


Figure 7: Gate-Charge Characteristics

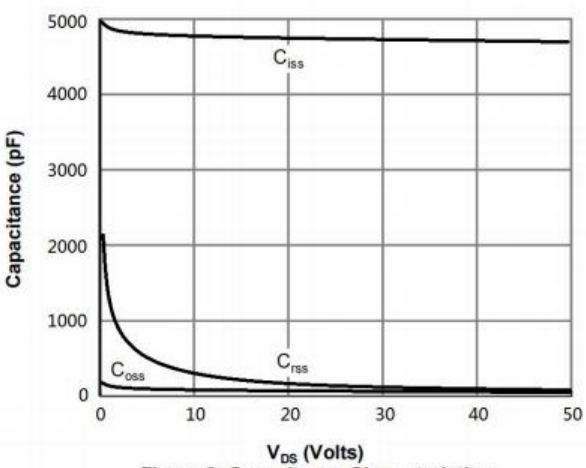


Figure 8: Capacitance Characteristics

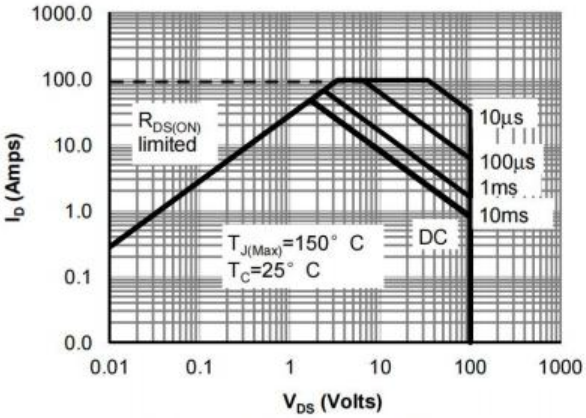


Figure 9: Maximum Forward Biased Safe Operating Area

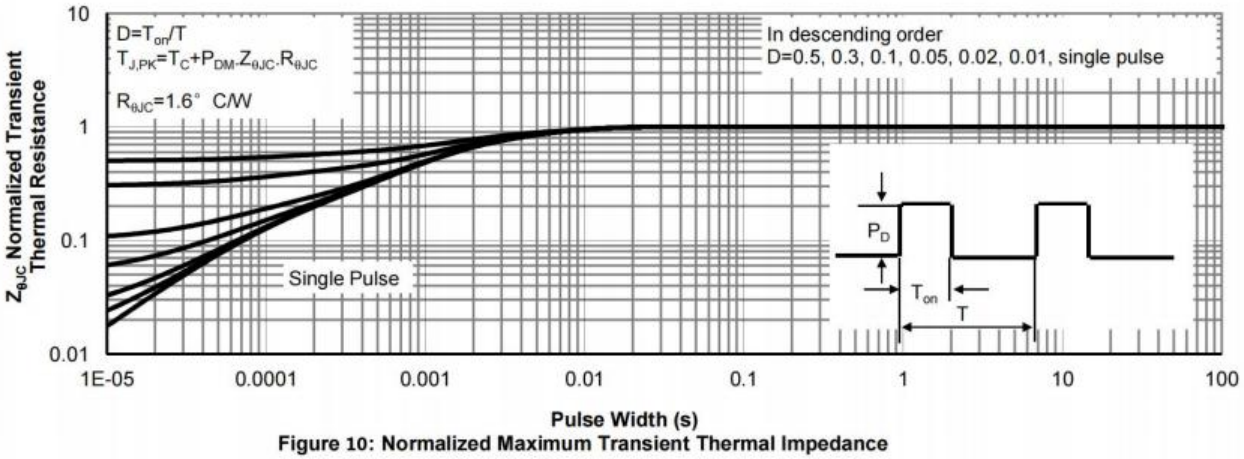
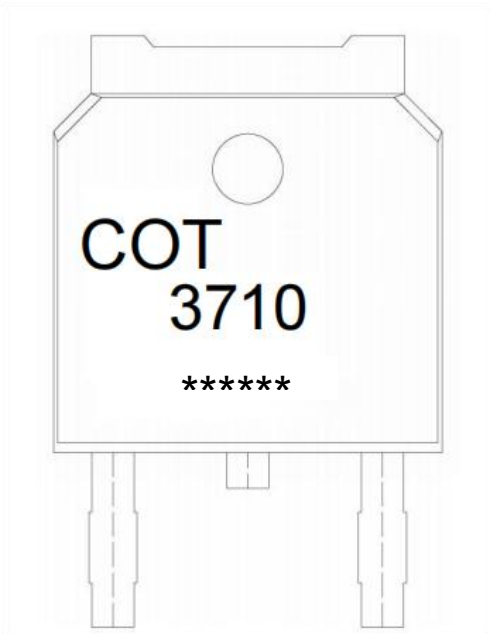


Figure 10: Normalized Maximum Transient Thermal Impedance

Marking Instructions



Note:

COT: Company Code.

3710: Product Type.

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

Packaging SPEC

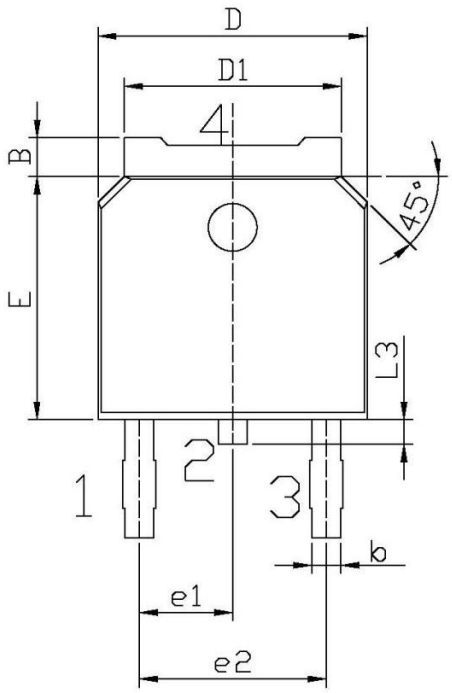
REEL INFORMATION

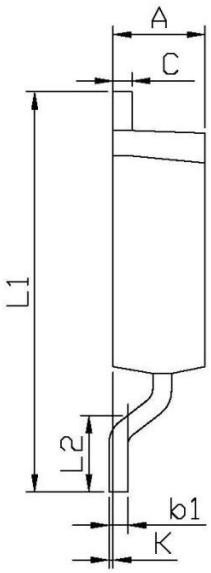
Package Type	Units					Dimension (unit：mm³)		
	Units/Reel	Reels/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	Reel	Inner Box	Outer Box
TO-252	2,500	2	5,000	6	30,000	13″ ×16	360×360×50	380×335×366

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