Descriptions

This -100V, -14A N-Channel MOSFET in a TO-252 Plastic Package.

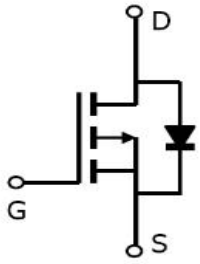
Features

- Low On-Resistance,
- Fast switching.
- Halogen-free Product.

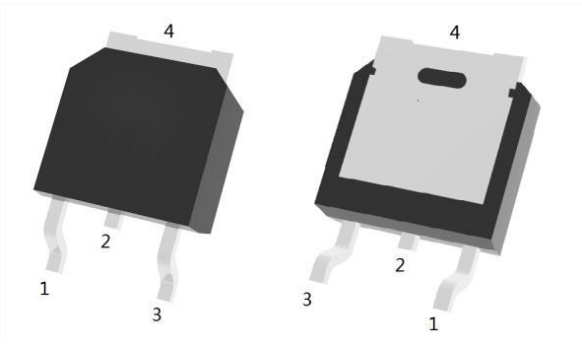
Applications

Power Management of Industrial DC/DC Converter.

Equivalent Circuit



Pinning



PIN 1：G PIN 2：D
PIN 3：S PIN 4：D

Absolute Maximum Ratings(Ta=25℃)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	-100	V
Drain Current - Continuous		I_D(T_c=25℃)	-14	A
Drain Current – Pulsed		I_{DM}	-30	A
Gate-Source Voltage		V_{GS}	±20	V
Power Dissipation		P_D(T_c=25℃)	30	W
Single Pulse Avalanche Energy(L=0.5mH)		E_{AS}	176.4	mJ
Avalanche Current(L=0.5mH)		I_{AS}	-21	A
Junction and Storage Temperature Range		T_j, T_{stg}	-55 to 150	℃
Thermal resistance, junction - ambient	t ≤ 10s	$R_{\theta JA}$	16.7	℃/W
	Steady-State		41.7	
Thermal resistance, junction - case	Steady-State	$R_{\theta JC}$	4.2	

Electrical Characteristics(Ta=25℃)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	I_D=-250μA V_{GS}=0V	-100	-113		V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-100V V_{GS}=0V			-1	uA
Gate-Body leakage current	I_{GSS}	V_{DS}=0V, V_{GS}= ±20V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=VGS I_D=-250μA	-1	-2.0	-2.5	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=-10V, I_D=-10A		67	70	mΩ
		V_{GS}=-4.5V, I_D=-6A		70	85	
Diode Forward Voltage	V_{SD}	I_S=-1A, V_{GS}=0V			-1.2	V
Input Capacitance	C_{iss}	V_{DS}=-15V V_{GS}=0V f=1.0MHz		2820		pF
Output Capacitance	C_{oss}			840		
Reverse Transfer Capacitance	C_{rss}			670		
Gate resistance	R_g	V_{GS}=0V V_{DS}=0V f=1MHz		2.7		Ω
Total Gate Charge	$Q_{g(10V)}$	V_{GS}=-10V, V_{DS}=-50V, I_D=-5A		5.9		nC
Total Gate Charge	$Q_{g(4.5V)}$			2.7		
Gate Source Charge	Q_{gs}			1.2		
Gate Drain Charge	Q_{gd}			1.2		

Electrical Characteristics(Ta=25℃)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	V_{GS}=-10V V_{DS}=-50V R_L=10Ω R_{GEN}=3Ω		6		ns
Turn-On Rise Time	t_r			2.4		
Turn-Off Delay Time	$t_{d(off)}$			19		
Turn-Off Fall Time	t_f			2.6		

Electrical Characteristic Curve

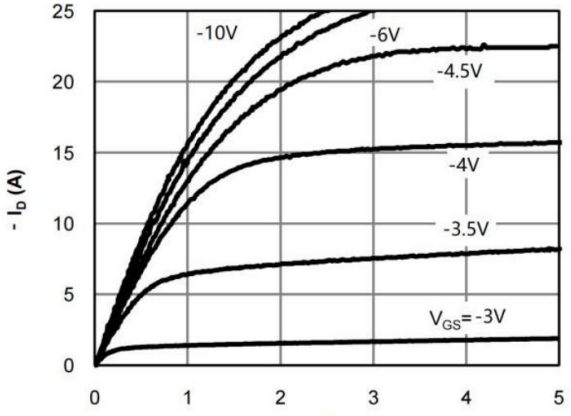


Fig 1: On-Region Characteristics

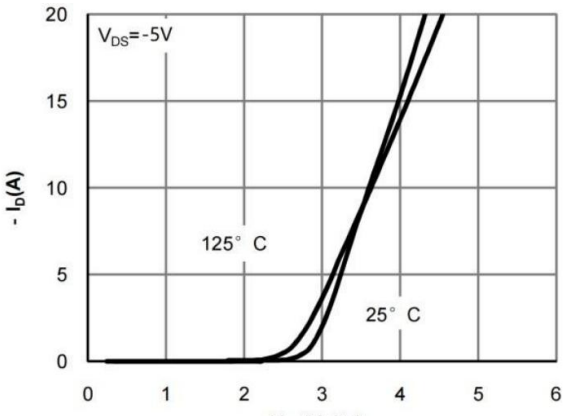


Figure 2: Transfer Characteristics

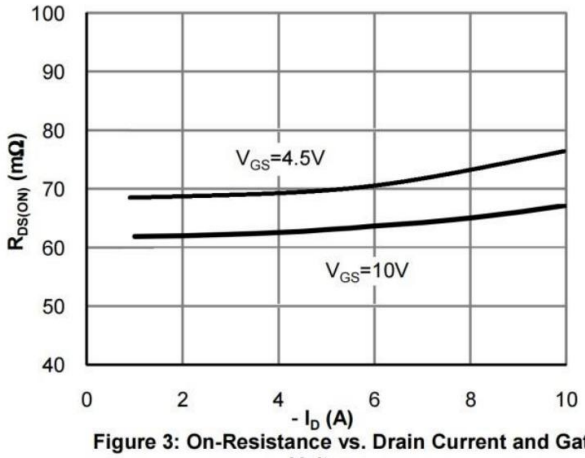


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

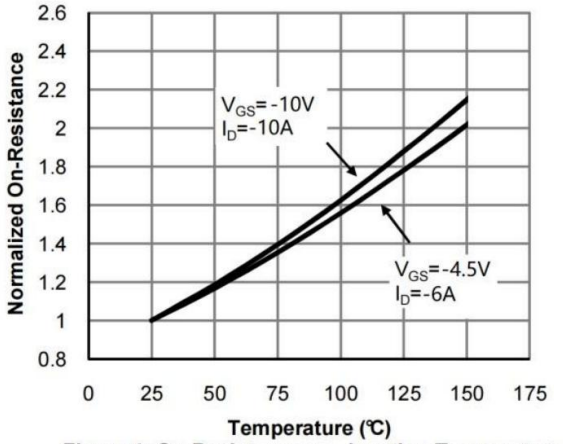


Figure 4: On-Resistance vs. Junction Temperature

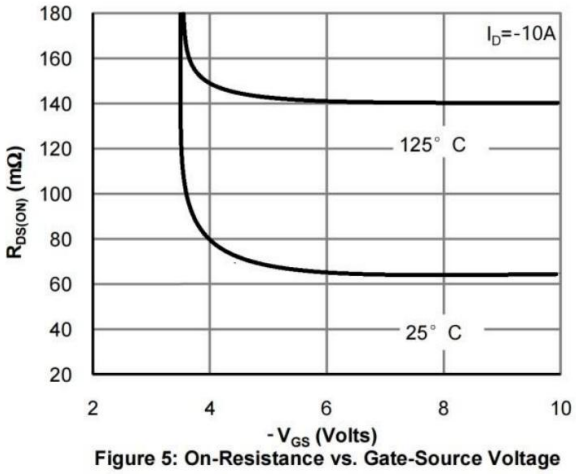


Figure 5: On-Resistance vs. Gate-Source Voltage

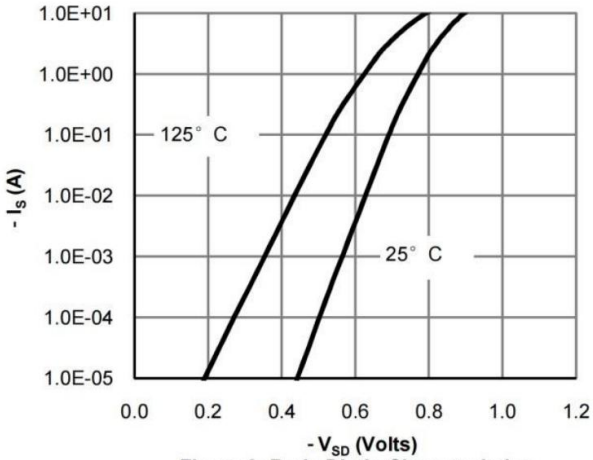


Figure 6: Body-Diode Characteristics

Electrical Characteristic Curve

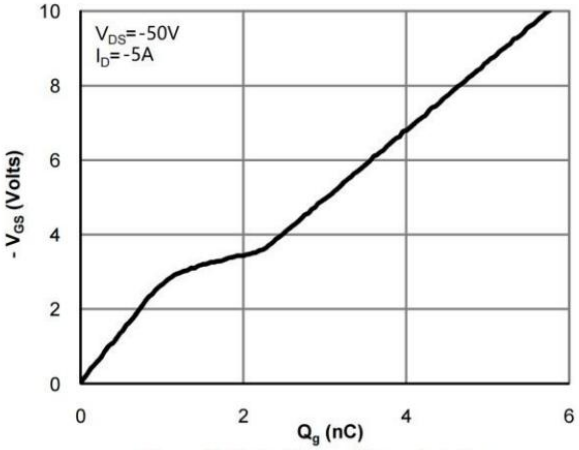


Figure 7: Gate-Charge Characteristics

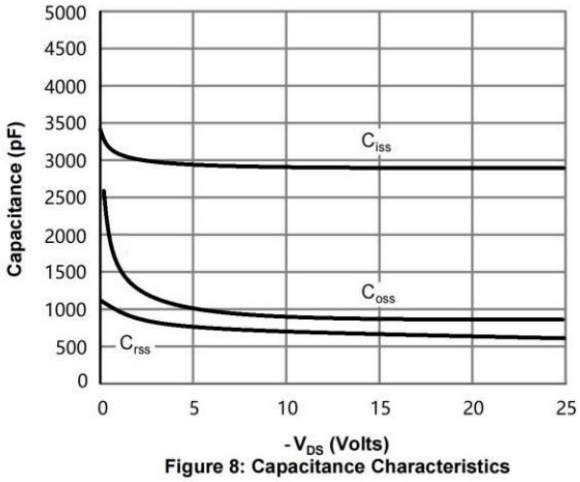


Figure 8: Capacitance Characteristics

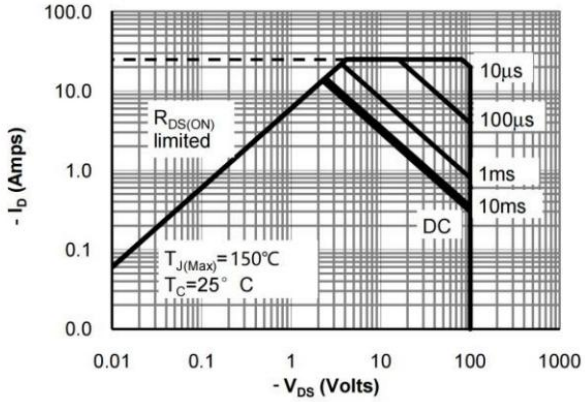


Figure 9: Maximum Forward Biased Safe Operating Area

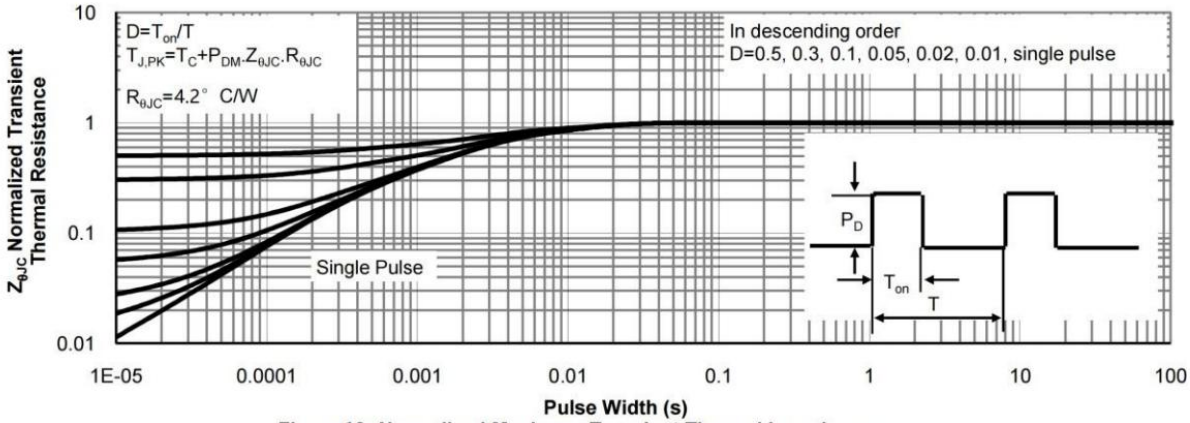
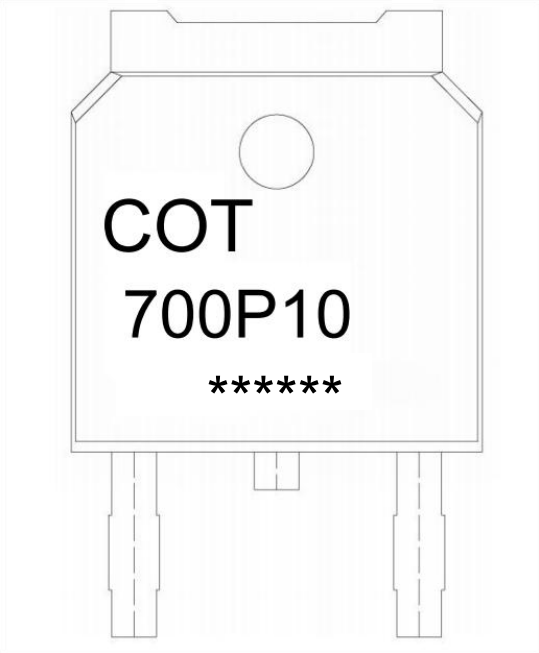


Figure 10: Normalized Maximum Transient Thermal Impedance

Marking Instructions



Note:

COT: Company Logo

700P10: Product Type.

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

Packaging SPEC

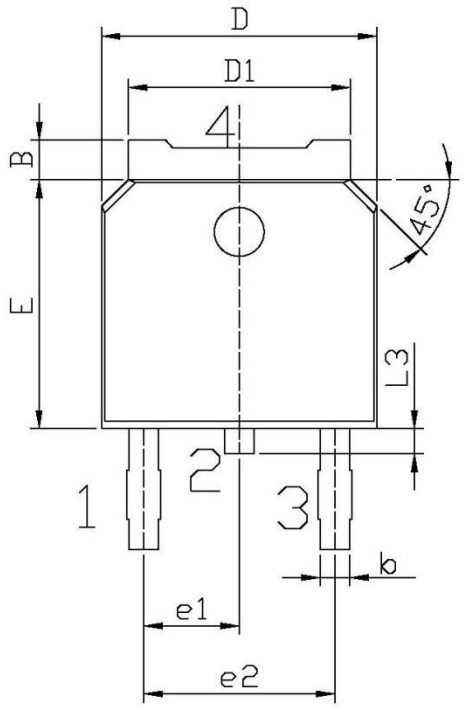
REEL INFORMATION

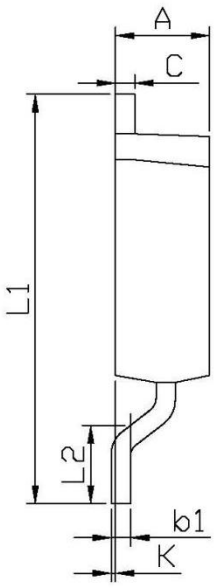
Package Type	Units					Dimension (unit：mm³)		
	Units/Reel	Reels/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	Reel	Inner Box	Outer Box
TO-252	2,500	2	5,000	6	30,000	13″ ×16	360×360×50	380×335×366

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