

Description

This 30V,45A N-Channel MOSFET in a TO-252 Plastic Package.

Features

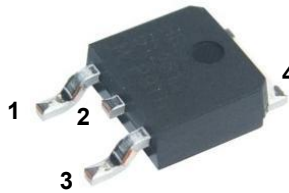
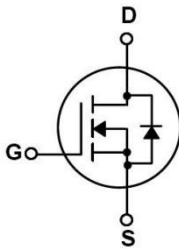
- Low $R_{DS(on)}$
- Low gate charge
- Low C_{rss}
- Fast speed switching
- Halogen-free Product

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

V_{DSS}	$R_{DS(on)}$ Typ	I_D
30V	7m Ω	45A

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_{DS}	30	V
Drain Current	$I_D(T_c=25^{\circ}\text{C})$	45	A
Drain Current	$I_D(T_c=100^{\circ}\text{C})$	35.4	A
Drain Current - Pulsed	I_{DM}	200	A
Gate-Source Voltage	V_{GS}	± 20	V
Single Pulsed Avalanche Energy	E_{AS}	490	mJ
Repetitive Avalanche Energy	E_{AR}	12	mJ
Power Dissipation	$P_D(T_c=25^{\circ}\text{C})$	30	W
Junction Temperature Range	T_j	150	℃
Storage Temperature Range	T_{stg}	-55~150	℃

Electrical Characteristics(Ta=25℃)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DS}	$V_{GS}=0V$ $I_D=250\mu A$	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}	$V_{GS}=\pm 20V$ $V_{DS}=0V$			± 0.1	μA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=250\mu A$	1		2.5	V
Total Gate Charge	Q_g	$V_{DS}=15V$ $I_D=20A$ $V_{GS}=10V$		14	22	nC
Static Drain-Source On-Resistance	$R_{DS(on)1}$	$V_{GS}=10V$ $I_D=50A$		7	9	m Ω
	$R_{DS(on)2}$	$V_{GS}=4.5V$ $I_D=25A$			17	m Ω
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS}=0V$ $I_S=50A$			1.5	V
Input Capacitance	C_{iss}	$V_{DS}=25V$ $V_{GS}=0V$ $f=1.0MHz$		1140		pF
Output Capacitance	C_{oss}			137		
Reverse Transfer Capacitance	C_{rss}			118		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=30V$ $I_D=25A$ $R_G=25\Omega$		20	50	ns
Turn-On Rise Time	t_r			100	210	
Turn-Off Delay Time	$t_{d(off)}$			80	170	
Turn-Off Fall Time	t_f			85	180	

Electrical Characteristic Curve

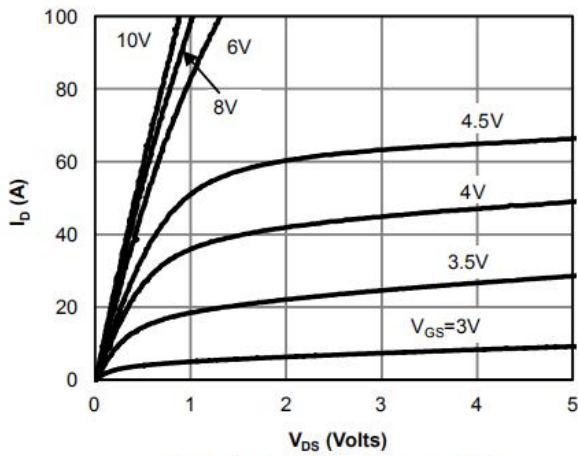


Figure 1: On-Region Characteristics

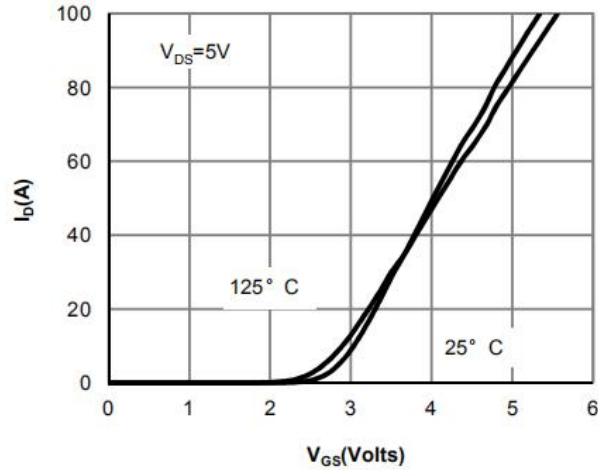


Figure 2: Transfer Characteristics

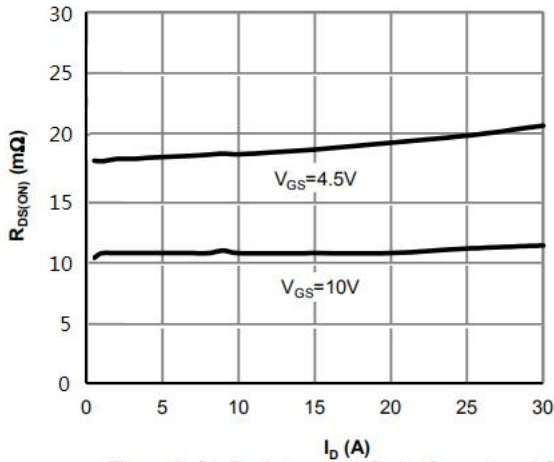


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

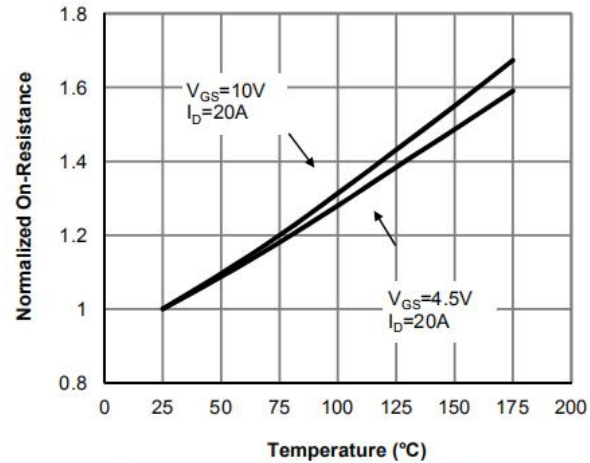


Figure 4: On-Resistance vs. Junction Temperature

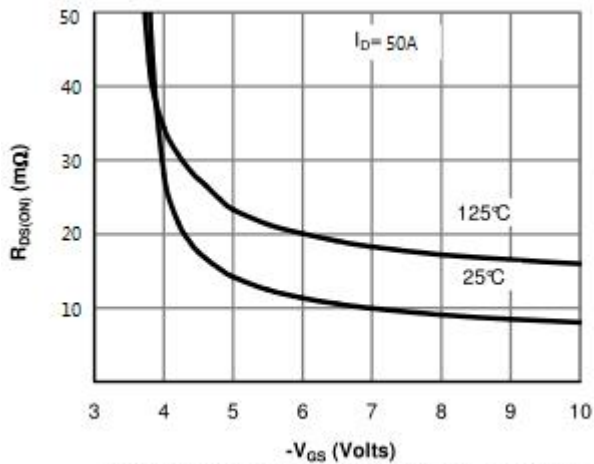


Figure 5: On-Resistance vs. Gate-Source Voltage

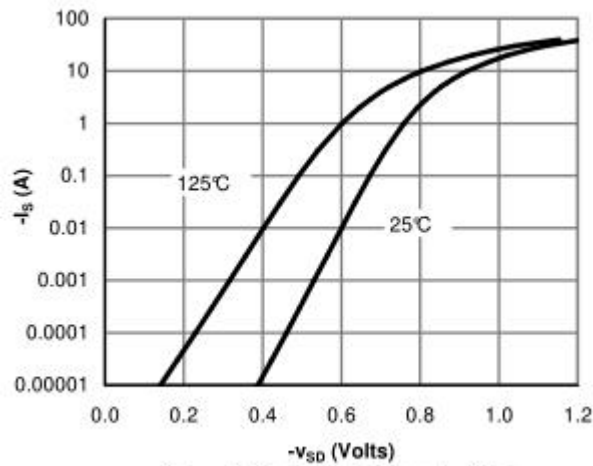
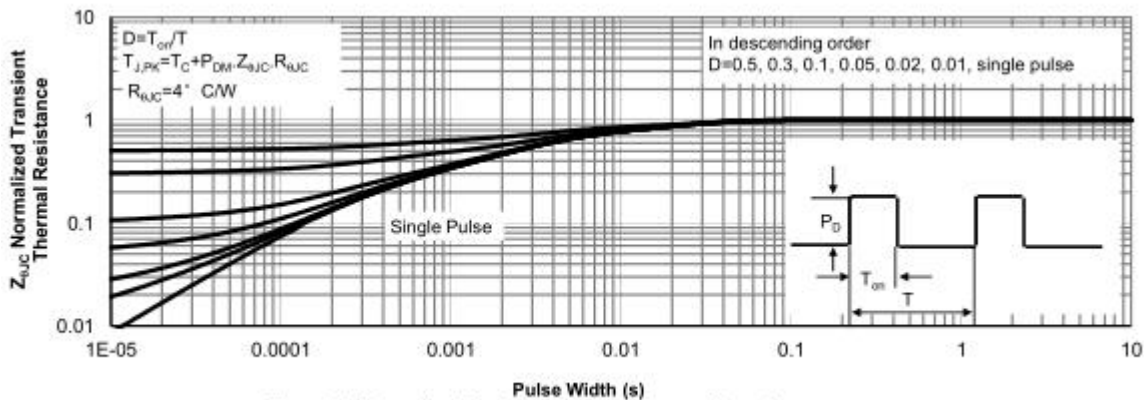
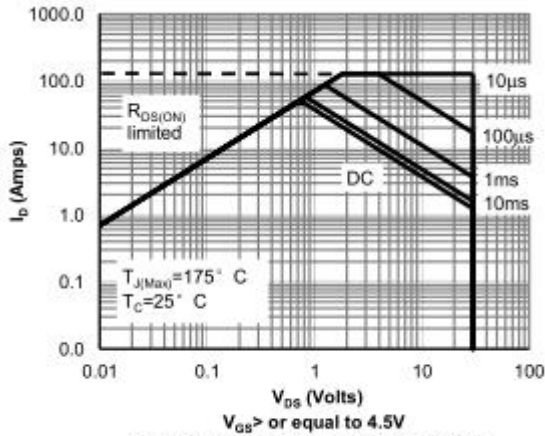
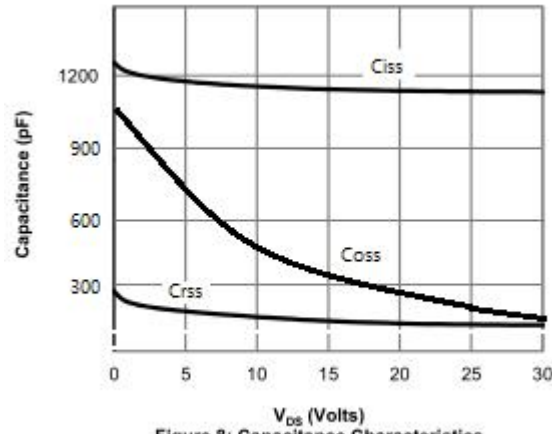
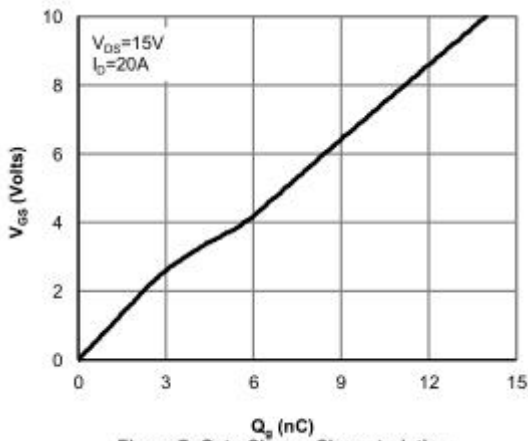


Figure 6: Body-Diode Characteristics

Electrical Characteristic Curve



Marking Instructions



Note:

COT: Company Code.

50N03: Product Type.

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

Packaging SPEC.

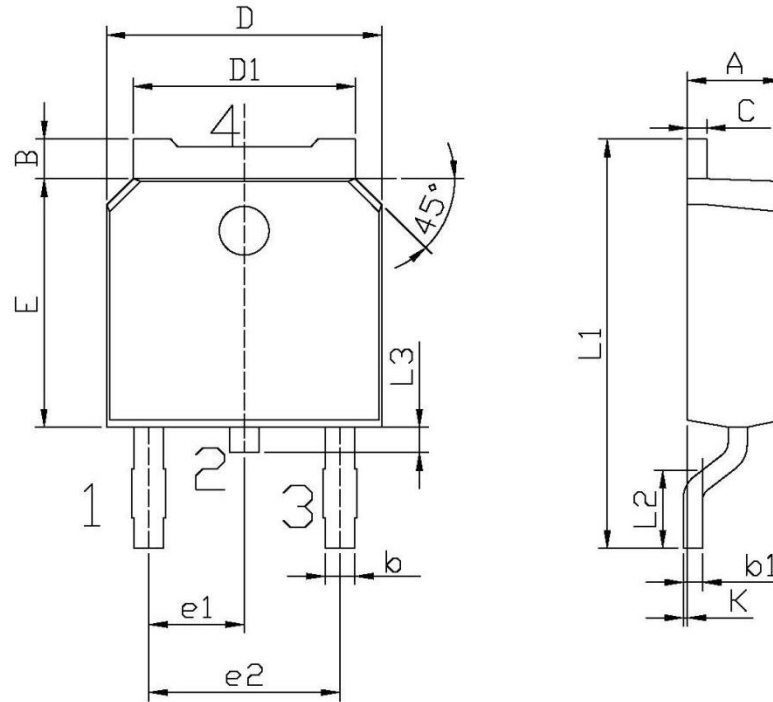
REEL INFORMATION

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