

Descriptions

This is N-CHANNEL MOSFET in a TO-252 Plastic Package.

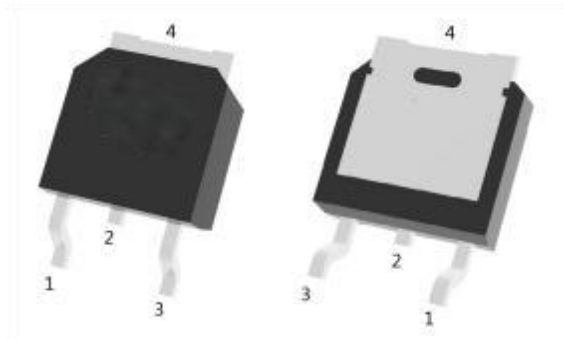
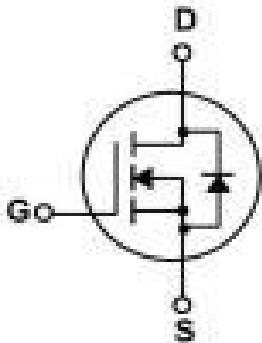
Features

- $V_{DS} (V) = 40V$
- $I_D = 54A (V_{GS} = \pm 20V)$
- $R_{DS(ON)}@10V \leq 8mR (Typ. 7.5mR)$
- HF Product.

Applications

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

Equivalent Circuit & Pinning



PIN1 : G

PIN 2 : D

PIN 3 : S

PIN 4 : D

Marking

See Marking Instructions.

Absolute Maximum Ratings(Ta=25°C)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	40	V
Drain Current		$I_D(T_C=25^{\circ}\text{C})$	54	A
Drain Current - Pulsed		I_{DM}	113	A
Gate-Source Voltage		V_{GS}	± 20	V
Single Pulsed Avalanche Energy		E_{AS}	67.6	mJ
Avalanche Current		I_{AS}	13	A
Power Dissipation		$P_D(T_C=25^{\circ}\text{C})$	39	W
Operating and Storage Temperature Range		T_J, T_{stg}	-55 to 150	$^{\circ}\text{C}$
Junction-to-Ambient	$t \leq 10$	$R_{\theta JA}$	25	$^{\circ}\text{C/W}$
Junction-to-Ambient	Steady-State		55	
Junction-to-Case	Steady-State	$R_{\theta JC}$	3.2	

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	40	47		V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =40V 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	1.6	2.5	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V I _D =20A		7.5	8	mΩ
		V _{GS} =4.5V I _D =10A		10	13	mΩ
Drain-Source Diode Forward Voltage	V _{SD}	V _{GS} =0V I _S =1A			1.2	V
Input Capacitance	C _{iss}	V _{DS} =25V V _{GS} =0V f=1.0MHz		850		pF
Output Capacitance	C _{oss}			115		
Reverse Transfer Capacitance	C _{rss}			30		
Gate resistance	R _g	V _{GS} =0V V _{DS} =0V f=1MHz		2.4		Ω
Total Gate Charge	Q _{g(10V)}	V _{GS} =10V V _{DS} =20V I _D =20A		21		nC
Total Gate Charge	Q _{g(4.5V)}			8.6		
Gate Source Charge	Q _{gs}			5.7		
Gate Drain Charge	Q _{gd}			3		
Turn-On Delay Time	t _{d(on)}	V _{GS} =10V V _{DS} =20V R _L =1.0Ω R _{GEN} =3.0Ω		7.5		ns
Turn-On Rise Time	t _r			2.1		
Turn-Off Delay Time	t _{d(off)}			23		
Turn-Off Fall Time	t _f			3		

Electrical Characteristic Curve

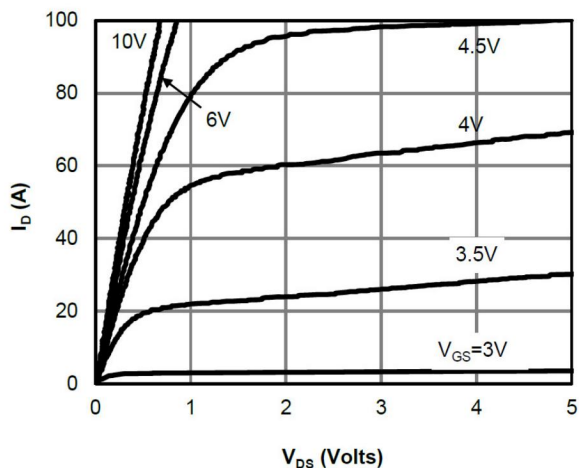


Figure 1: On-Region Characteristics

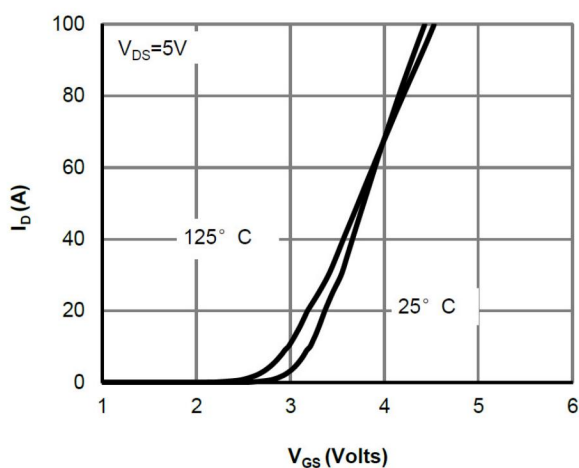


Figure 2: Transfer Characteristics

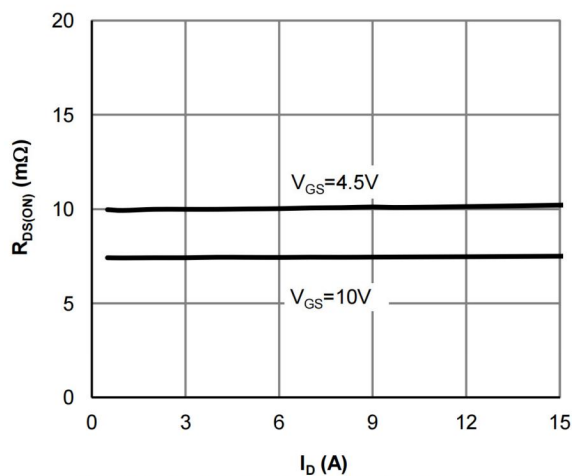


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

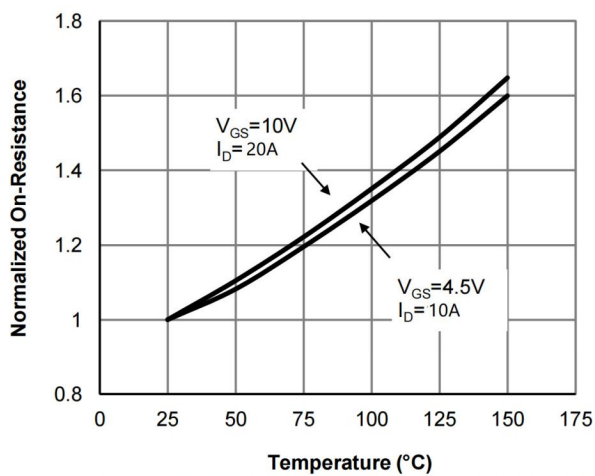


Figure 4: On-Resistance vs. Junction Temperature

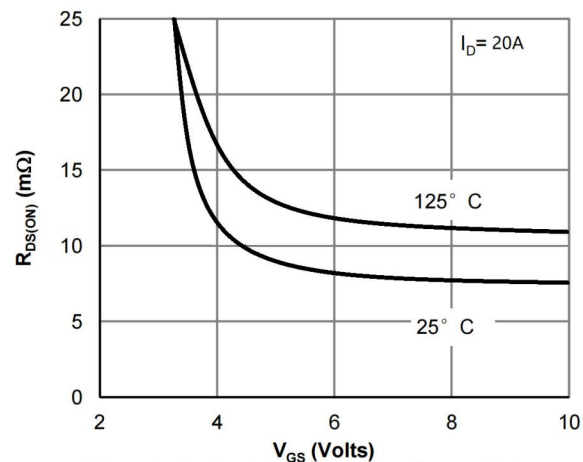


Figure 5: On-Resistance vs. Gate-Source Voltage

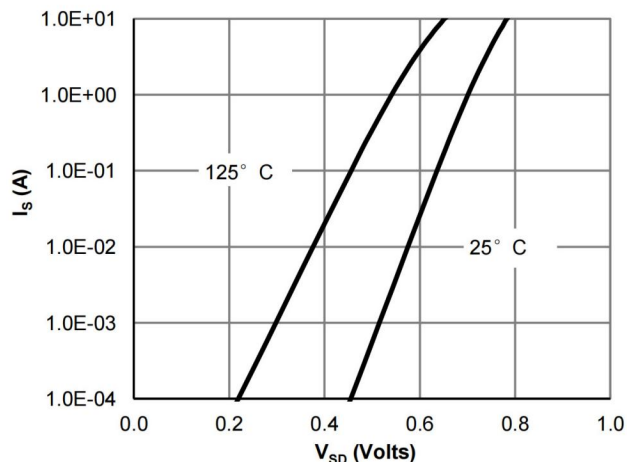
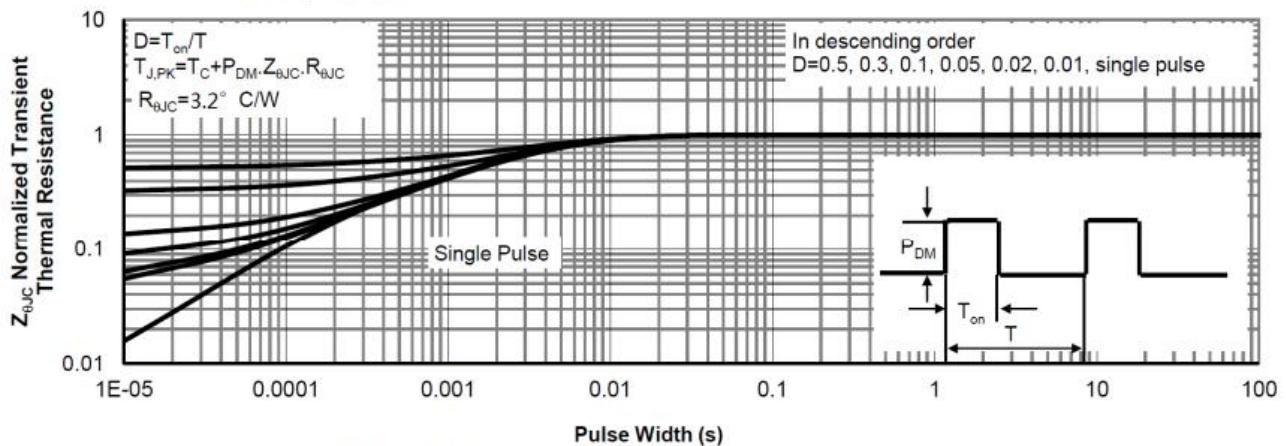
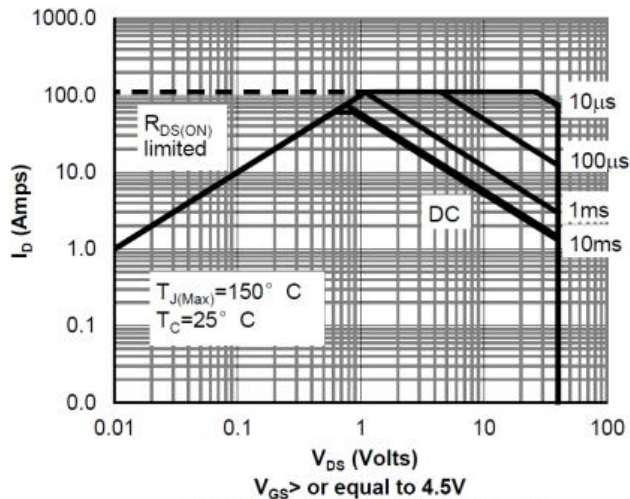
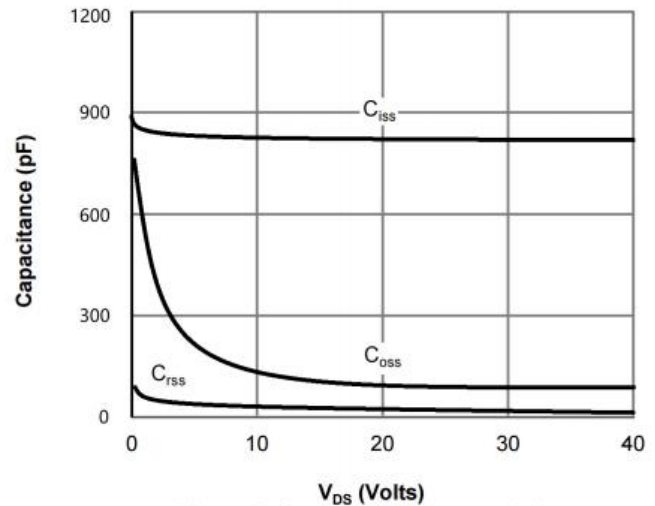
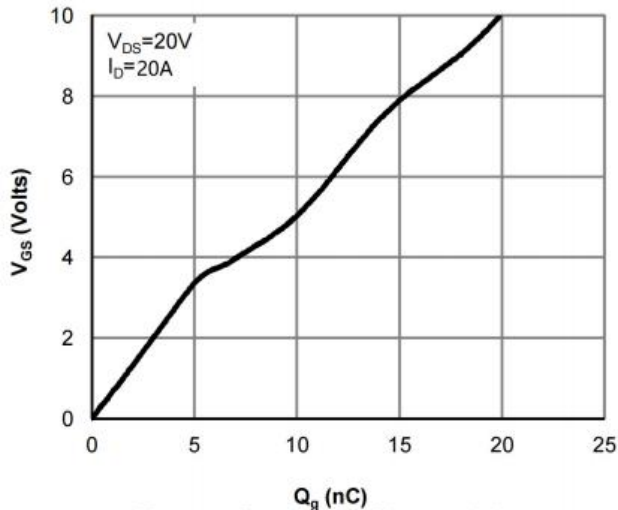


Figure 6: Body-Diode Characteristics

Electrical Characteristic Curve



Marking Instructions



Note:

COT: Company Code.

080N04: Product Type Code

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

Packaging SPEC

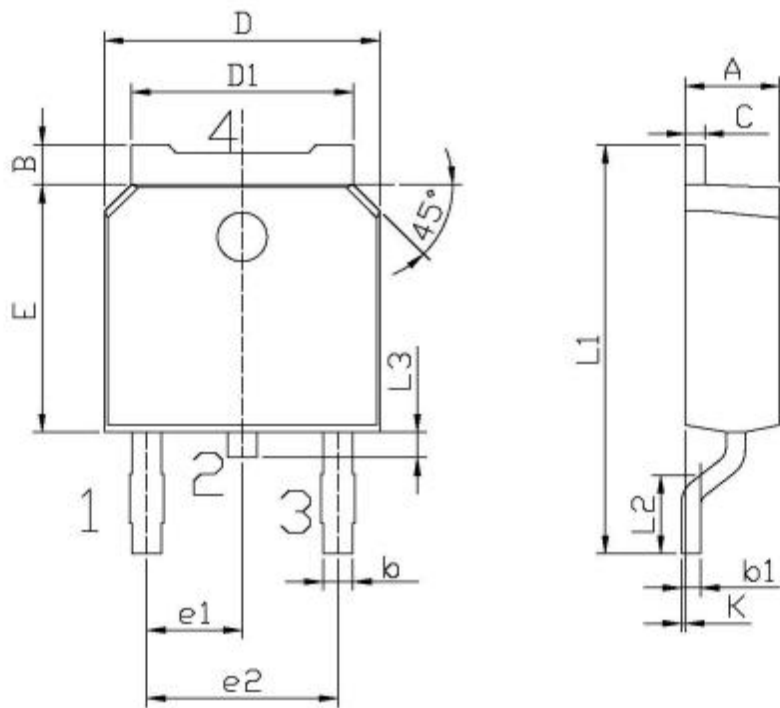
REEL

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

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-251/252	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