

## Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	$I_D$
30V	2mΩ@10V	100A
	3mΩ@4.5V	

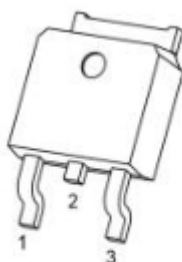
## Feature

- Fast Switching
- Low Gate Charge and Rdson
- 100% Single Pulse avalanche energy Test

## Application

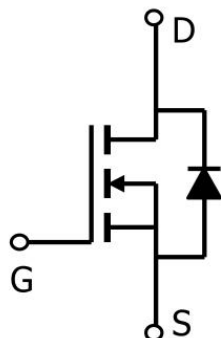
- Power switching application
- DC-DC Converter
- Power Management

## Package

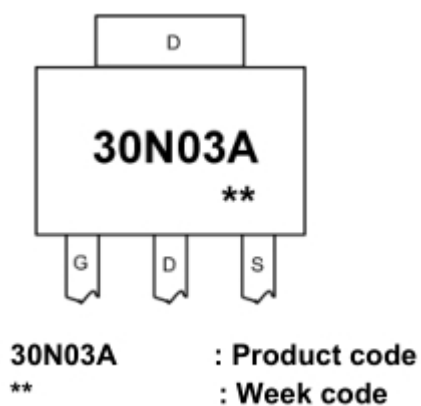


TO-252(1:G 2:D 3:S)

## Circuit diagram



## Marking



## Absolute maximum ratings

( $T_a=25^\circ\text{C}$  unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain source voltage	$V_{DS}$	30	V
Gate source voltage	$V_{GS}$	$\pm 20$	V
Continuous drain current( $T_c=25^\circ\text{C}$ )	$I_D$	100	A
Pulsed drain current	$I_{DM}$	400	A
Power dissipation( $T_c=25^\circ\text{C}$ )	$P_D$	115	W
Single pulsed avalanche energy <sup>1)</sup>	$E_{AS}$	245	mJ
Thermal resistance, junction-case	$R_{\theta JC}$	1.08	$^\circ\text{C/W}$
Operation and storage temperature	$T_{STG}, T_J$	-55 to 150	$^\circ\text{C}$

## Electrical characteristics

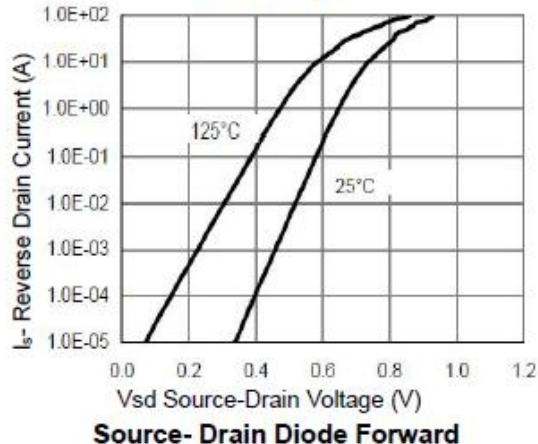
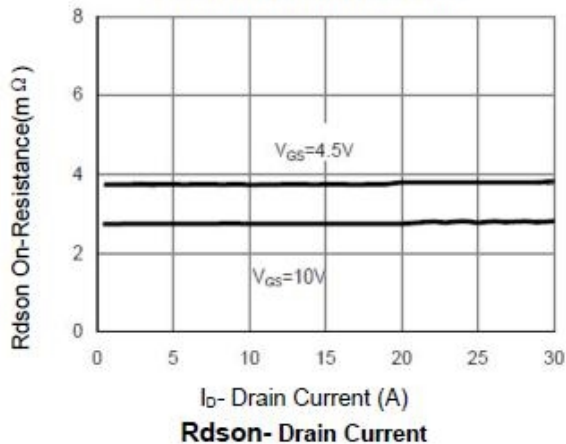
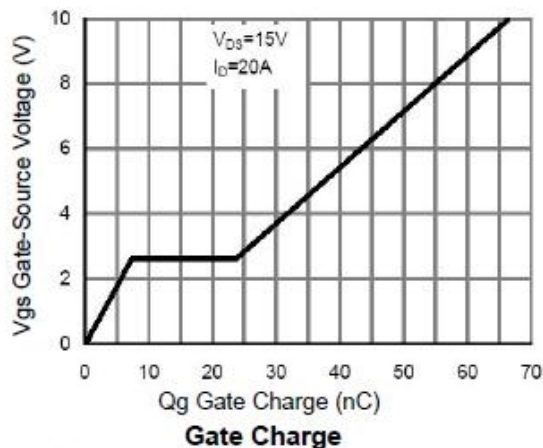
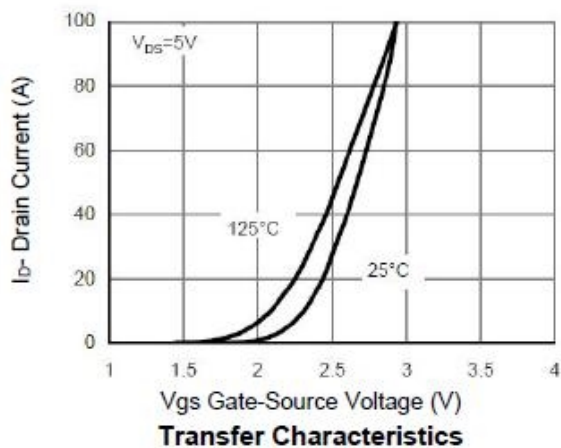
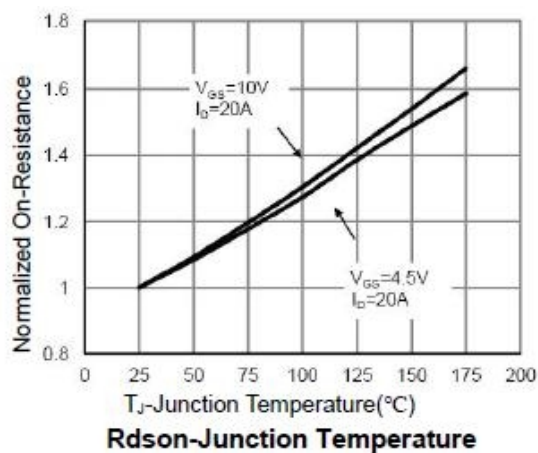
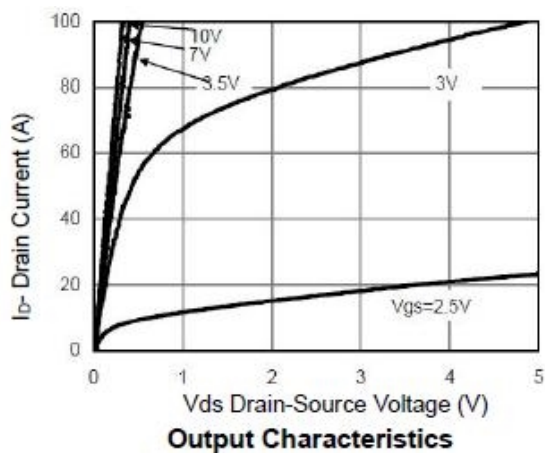
(T<sub>A</sub>=25°C, unless otherwise noted)

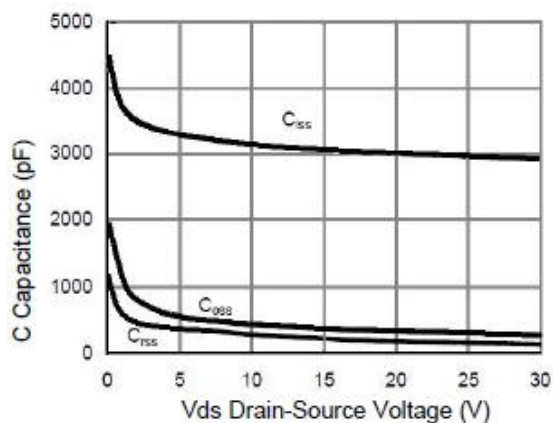
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$BV_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	30			V
Drain Cut-Off Current	$I_{DSS}$	$V_{DS} = 24V, V_{GS} = 0V$			1	$\mu A$
Gate-body leakage current	$I_{GSS}$	$V_{GS} = \pm 20V, V_{DS} = 0V$			$\pm 0.1$	$\mu A$
Gate-source threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1	1.5	2.5	V
Drain-source on-resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 20A$		2.8	3.5	m $\Omega$
		$V_{GS} = 4.5V, I_D = 10A$		5	6.6	
Dynamic Characteristics						
Input Capacitance	$C_{iss}$	$V_{DS} = 10V, V_{GS} = 0V,$ $f = 1MHz$		3000		pF
Output Capacitance	$C_{oss}$			450		
Reverse Transfer Capacitance	$C_{rss}$			400		
Switching Characteristics						
Total Gate Charge	$Q_g$	$V_{DS} = 15V, V_{GS} = 10V,$ $I_D = 20A$		66		pF
Gate-Source Charge	$Q_{gs}$			7		
Gate-Drain Charge	$Q_{gd}$			17		
Turn-On Delay Time	$T_{d(on)}$	$V_{GS} = 10V, V_{DS} = 15,$ $I_D = 20A, R_G = 3\Omega$		11		nS
Rise Time	$T_r$			14		
Turn-Off Delay Time	$T_{d(off)}$			36		
Fall Time	$T_f$			12		
Drain-Source Diode Characteristics						
Source-Drain Diode Forward Voltage	$V_{SD}$	$V_{GS} = 0V, I_S = 1A$			1.2	V

### Note:

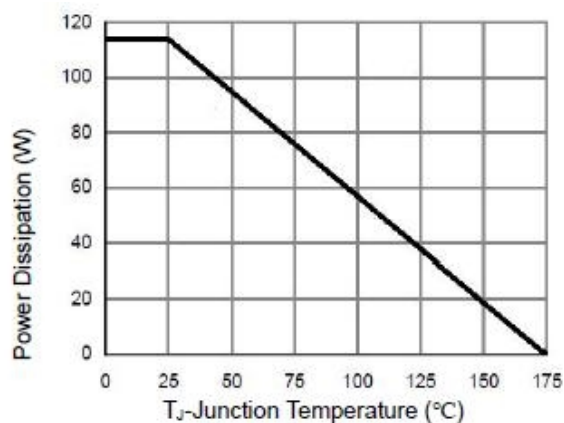
1. E<sub>AS</sub> is tested at starting T<sub>j</sub> = 25°C, V<sub>DD</sub> = 15V, V<sub>GS</sub> = 10V, L = 0.5mH, R<sub>G</sub> = 25Ω;

## Typical Characteristics

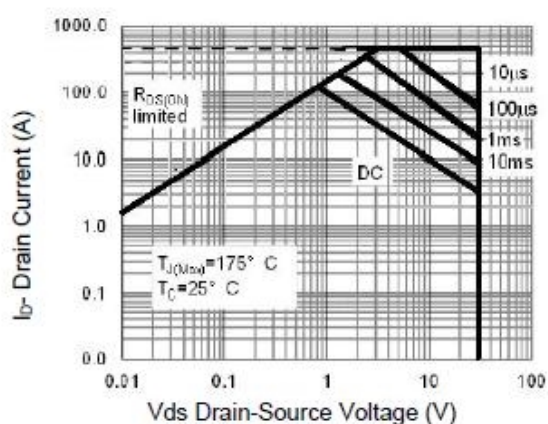




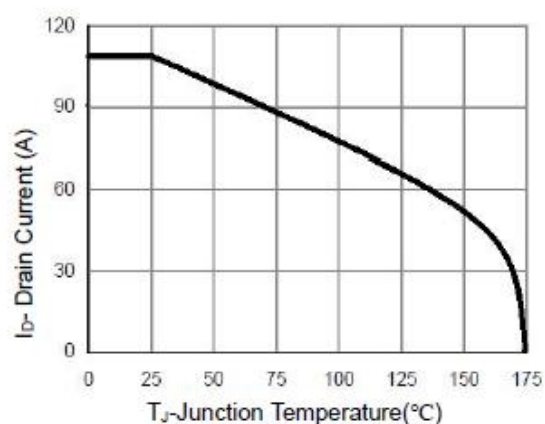
F Capacitance vs Vds



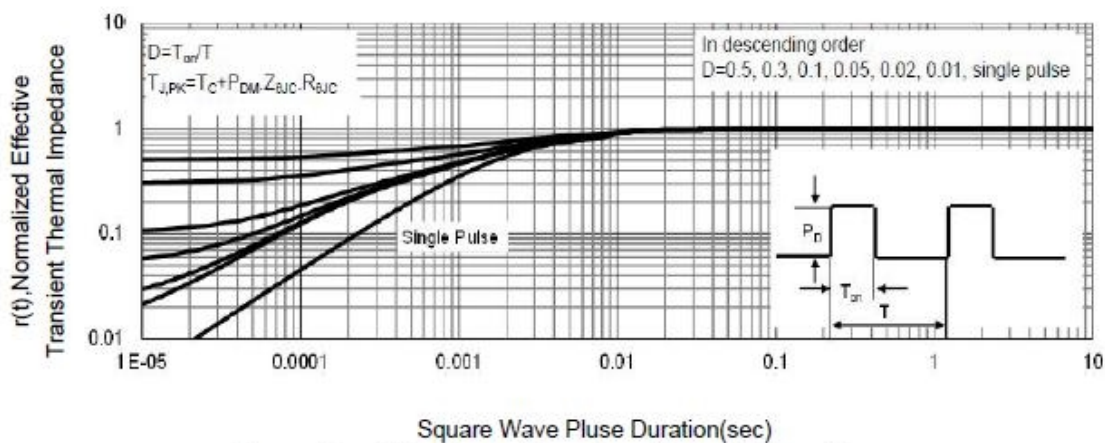
Power De-rating



Safe Operation Area

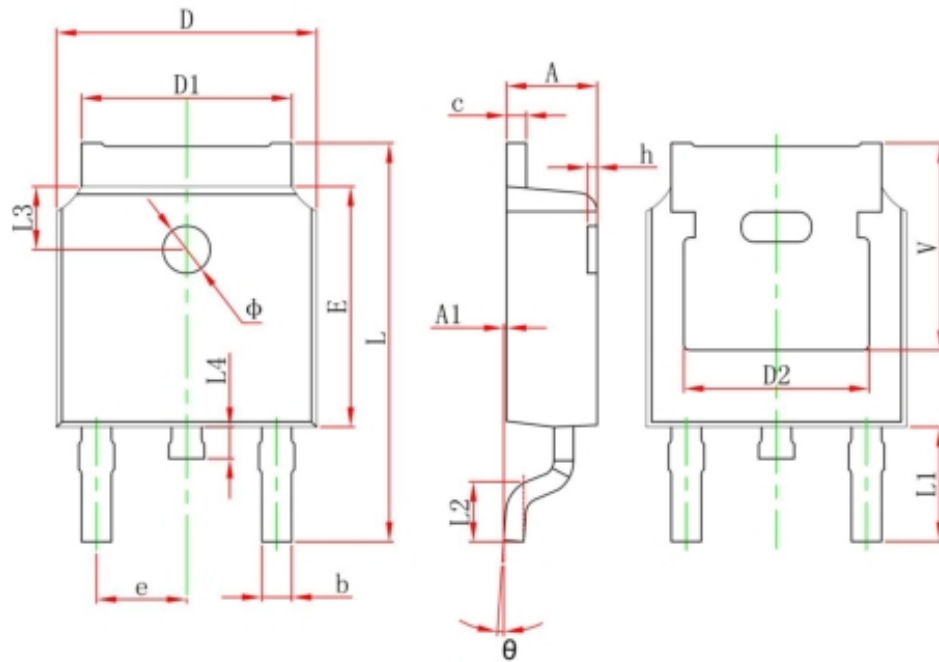


ID Current Derating



Normalized Maximum Transient Thermal Impedance

## TO-252 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
b	0.660	0.860	0.026	0.034
c	0.460	0.580	0.018	0.023
D	6.500	6.700	0.256	0.264
D1	5.100	5.460	0.201	0.215
D2	4.830 REF.		0.190 REF.	
E	6.000	6.200	0.236	0.244
e	2.186	2.386	0.086	0.094
L	9.800	10.400	0.386	0.409
L1	2.900 REF.		0.114 REF.	
L2	1.400	1.700	0.055	0.067
L3	1.600 REF.		0.063 REF.	
L4	0.600	1.000	0.024	0.039
Φ	1.100	1.300	0.043	0.051
θ	0°	8°	0°	8°
h	0.000	0.300	0.000	0.012
V	5.350 REF.		0.211 REF.	