

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
30V	6.5mΩ@10V	80A
	10mΩ@ 5V	

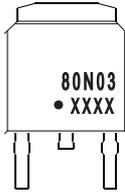
FEATURES

- High density cell design for ultra low $R_{DS(ON)}$
- Fully characterized Avalanche voltage and current
- Good stability and uniformity with high E_{AS}
- Excellent package for good heat dissipation
- Special process technology for high ESD capability

APPLICATIONS

- Power switching application
- Uninterruptible Power Supply
- Hard switched and high frequency circuits

MARKING



TO-252

1. GATE
2. DRAIN
3. SOURCE

EQUIVALENT CIRCUIT

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

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	$I_D^{①}$	80	A
Pulsed Drain Current	$I_{DM}^{②}$	320	A
Single Pulsed Avalanche Energy	$E_{AS}^{③}$	306	mJ
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	100	$^{\circ}C/W$
Junction Temperature	T_J	150	$^{\circ}C$
Storage Temperature Range	T_{stg}	-55 ~+150	$^{\circ}C$
Lead Temperature for Soldering Purposes(1/8" from case for 10s)	T_L	260	$^{\circ}C$

MOSFET ELECTRICAL CHARACTERISTICS

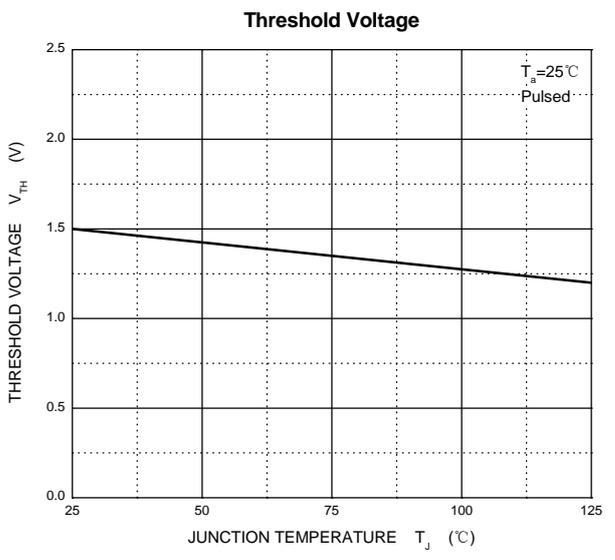
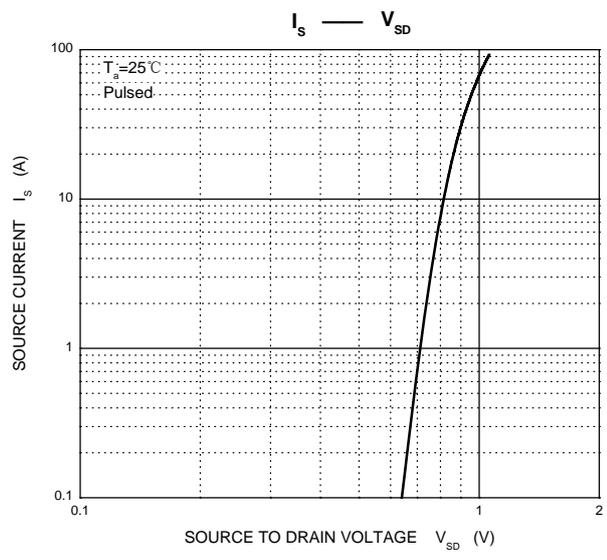
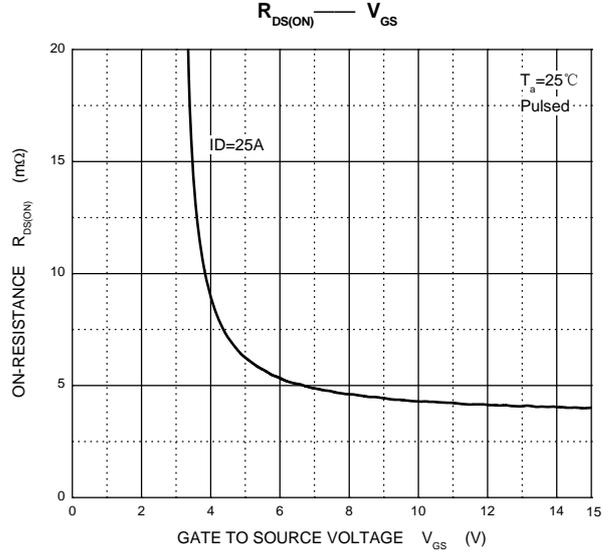
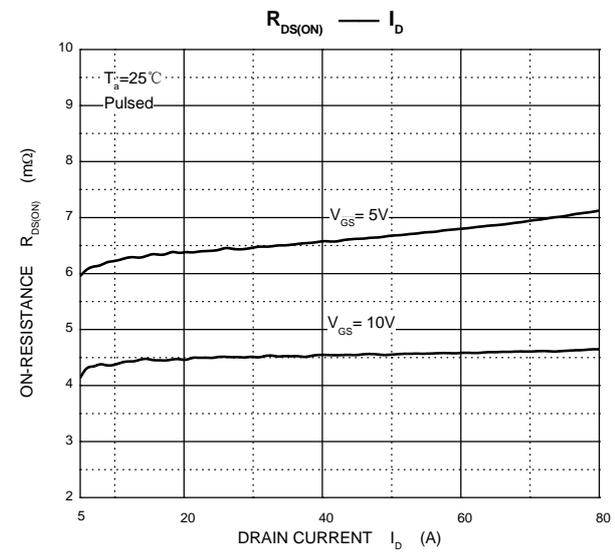
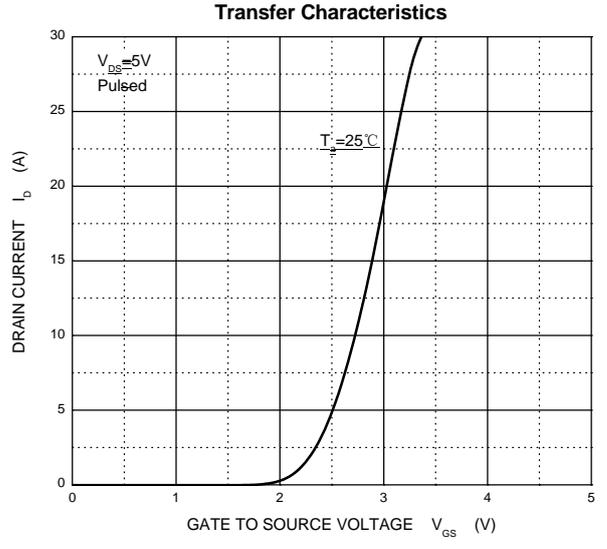
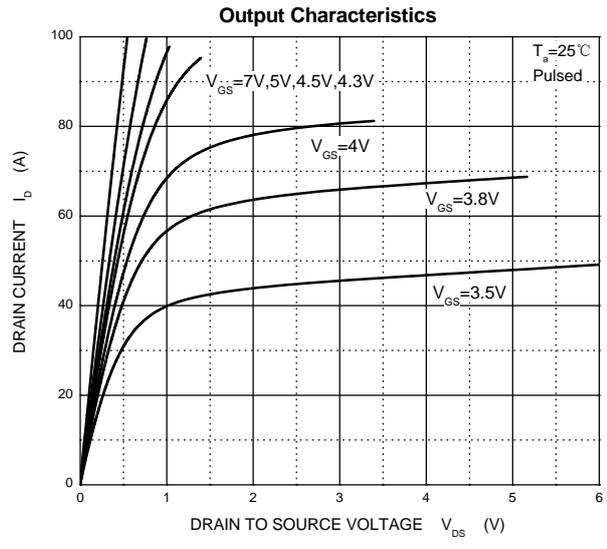
$T_a=25^\circ\text{C}$ unless otherwise specified

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Off characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	30			V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = 30V, V_{GS} = 0V$			1	μA
Gate-body leakage current	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$			± 100	nA
On characteristics ^④						
Gate-threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.0	1.4	3.0	V
Static drain-source on-state resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 30A$		4.5	6.5	$m\Omega$
		$V_{GS} = 5V, I_D = 24A$		6.3	10	$m\Omega$
Forward transconductance	g_{fs}	$V_{DS} = 5V, I_D = 24A$	20			S
Dynamic characteristics ^{④ ⑤}						
Input capacitance	C_{iss}	$V_{DS} = 15V, V_{GS} = 0V,$ $f = 1MHz$		2160		pF
Output capacitance	C_{oss}			272		
Reverse transfer capacitance	C_{rss}			264		
Switching characteristics ^{④ ⑤}						
Total gate charge	Q_g	$V_{DS} = 10V, V_{GS} = 10V,$ $I_D = 30A$		44		nC
Gate-source charge	Q_{gs}			6		
Gate-drain charge	Q_{gd}			11		
Turn-on delay time	$t_{d(on)}$	$V_{DD} = 15V, I_D = 30A,$ $V_{GS} = 10V, R_G = 2.7\Omega$		20		ns
Turn-on rise time	t_r			15		
Turn-off delay time	$t_{d(off)}$			60		
Turn-off fall time	t_f			10		
Drain-Source Diode Characteristics						
Drain-source diode forward voltage	V_{SD} ^④	$V_{GS} = 0V, I_S = 24A$			1.2	V
Continuous drain-source diode forward current	I_S ^①				80	A
Pulsed drain-source diode forward current	I_{SM} ^②				320	A

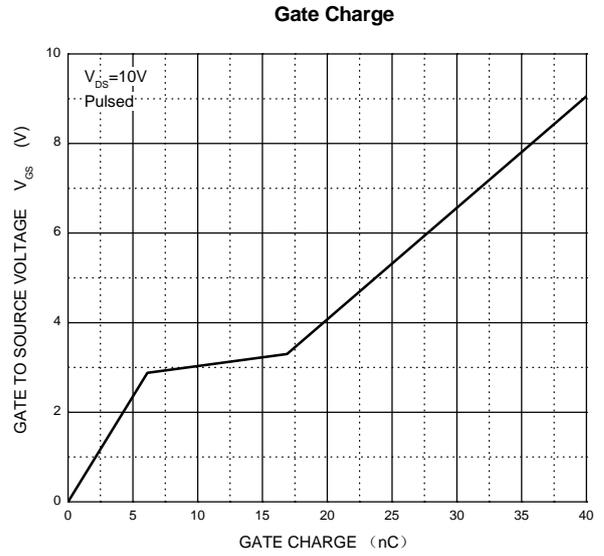
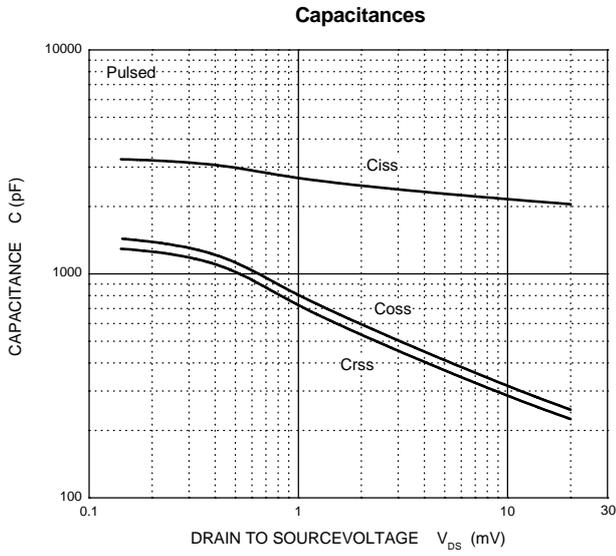
Notes:

1. $T_c = 25^\circ\text{C}$ Limited only by maximum temperature allowed.
2. $P_w \leq 10\mu s$, Duty cycle $\leq 1\%$.
3. EAS condition: $V_{DD} = 30V, V_{GS} = 10V, L = 0.5mH, R_G = 25\Omega$ Starting $T_J = 25^\circ\text{C}$.
4. Pulse Test : Pulse Width $\leq 300\mu s$, duty cycle $\leq 2\%$.
5. Guaranteed by design, not subject to production.

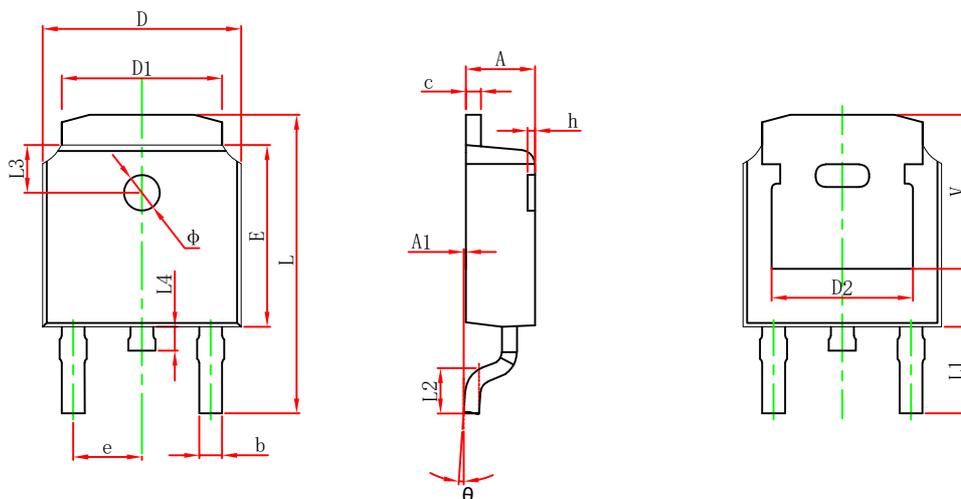
Typical Characteristics



Typical Characteristics

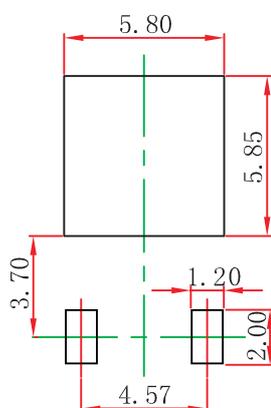


Package Dimension



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	0.700	0.860	0.025	0.030
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	6.300	0.236	0.244
e	2.186	2.386	0.086	0.094
L	9.712	10.312	0.382	0.406
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	5.250 REF.		0.207 REF.	

TO-252-2L Suggest Pad Layout



NOTE:

1. Controlling dimension: in millimeters.
2. General tolerance: ±0.05mm.
3. The pad layout is for reference purposes only.