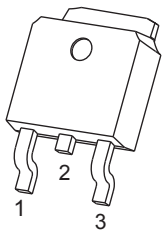
GP30P03DM

30V P-Channel MOSFET

Product Summary

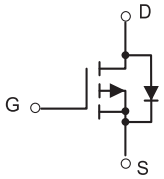
$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-30V	14mΩ@-10V	-30A
	22mΩ@-4.5V	

TO-252



1. GATE
2. DRAIN
3. SOURCE

Schematic diagram



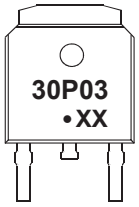
Feature

- TrenchFET Power MOSFET
- Excellent $R_{DS(on)}$
- Low Gate Charge

ApplicationS

- Load Switch for Portable Devices
- Battery Switch

MARKING:



30P03 = Device code

XX = Date Code

Solid dot = Green molding compound device,

If none, the normal device.

ABSOLUTE MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	-30	A
Pulsed Drain Current	I_{DM}	-120	A
Power Dissipation	P_D	1.25	W
Thermal Resistance from Junction to Ambient(t≤10s)	$R_{\theta JA}$	100	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55~ +150	℃

MOSFET ELECTRICAL CHARACTERISTICS (T_a=25℃ unless otherwise noted)

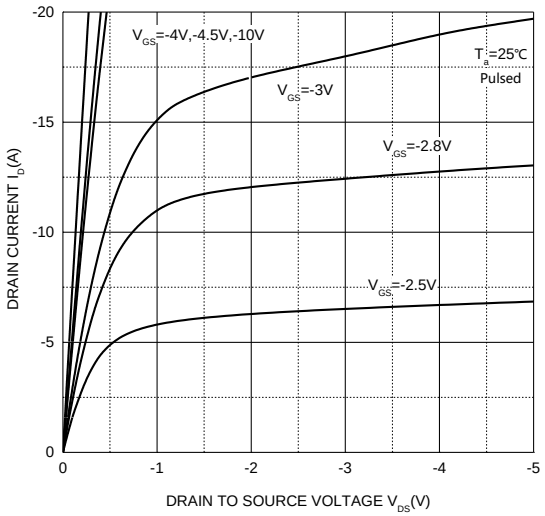
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =-250μA	-30			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =-30V,V_{GS} = 0V			-1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±20V, V_{DS} = 0V			±0.1	μA
On characteristics(1)						
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =-250μA	-1.0	-1.5	-2.5	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} =-10V, I_D =-20A		14	18	mΩ
		V_{GS} =-4.5V, I_D =-10A		22	30	
Forward tranconductance	g_{FS}	V_{DS} =-10V, I_D =-20A		14		S
Dynamic characteristics(2)						
Input capacitance	C_{iss}	V_{DS} =-15V,V_{GS} =0V,f =1MHz		1700		pF
Output capacitance	C_{oss}			210		
Reverse transfer capacitance	C_{rss}			190		
Switching characteristics(2)						
Total gate charge	Q_g	V_{DS}=-15V, V_{GS}=-10V, I_D=-15A			30	nC
Gate-source charge	Q_{gs}				8.5	
Gate-drain charge	Q_{gd}				14	
Turn-on delay time	$t_{d(on)}$	V_{DD}=-15V ,V_{GS}=-10V,R_G=1Ω ,R_L=15Ω			18	ns
Turn-on rise time	t_r				18	
Turn-off delay time	$t_{d(off)}$				84	
Turn-off fall time	t_f				30	
Drain-Source Diode Characteristics						
Drain-source diode forward voltage(1)	V_{SD}	V_{GS} =0V, I_S=-10A			-1.2	V
Continuous drain-source diode forward current	I_S				-30	A
Pulsed drain-source diode forward current	I_{SM}				-120	

Notes:

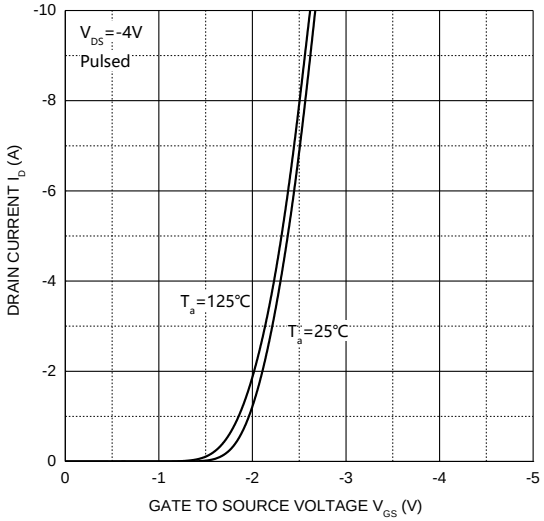
1. Pulse test; pulse width≤300μs, duty cycle≤2%.
2. Guaranteed by design, not subject to production testing.

Typical Electrical and Thermal Characteristics

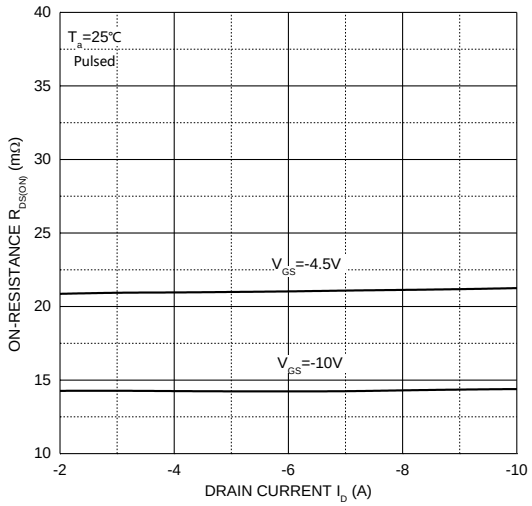
Output Characteristics



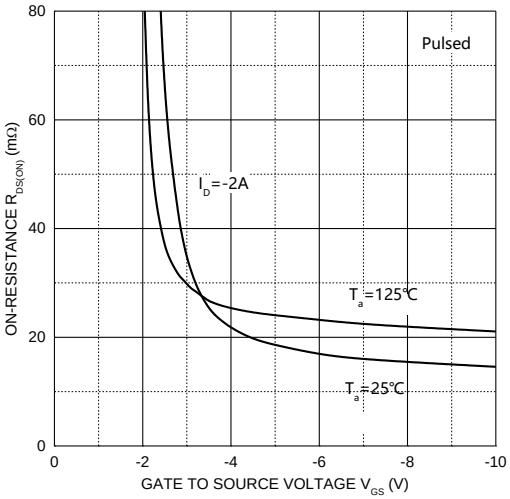
Transfer Characteristics



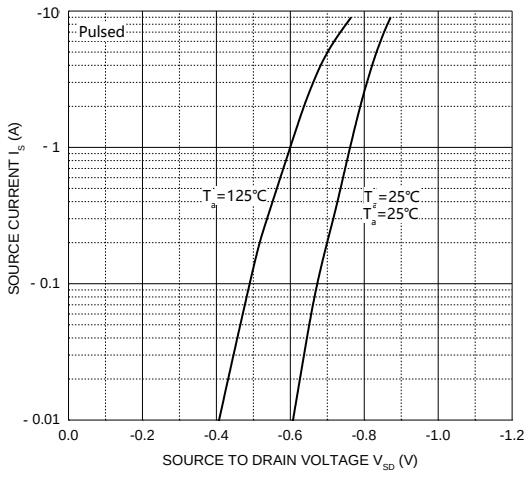
$R_{DS(ON)}$ – I_D



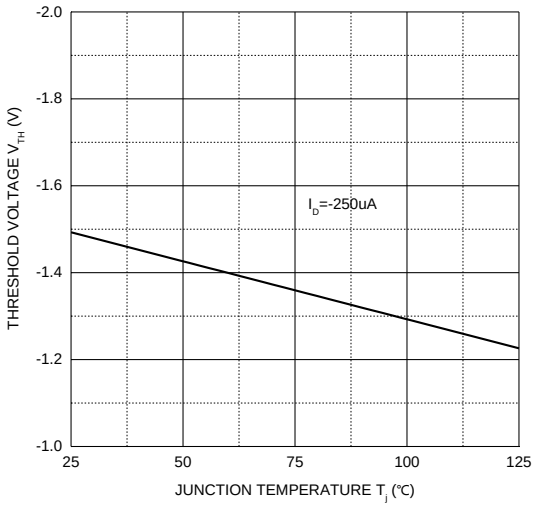
$R_{DS(ON)}$ - V_{GS}



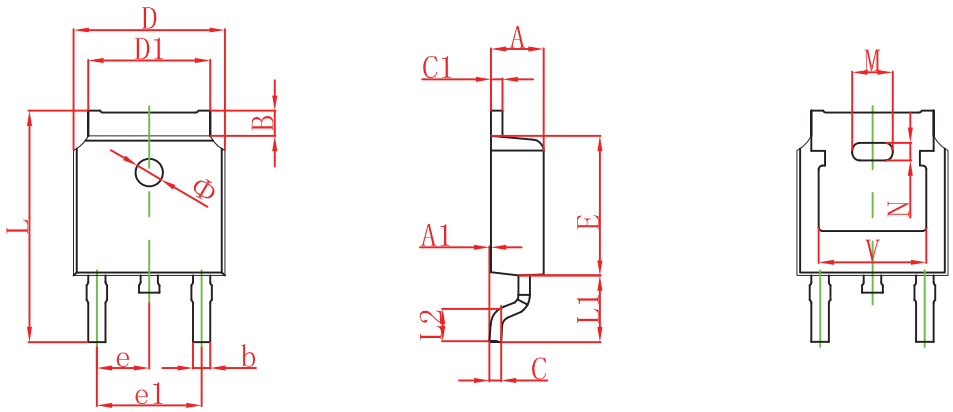
I_S - V_{SD}



Threshold Voltage



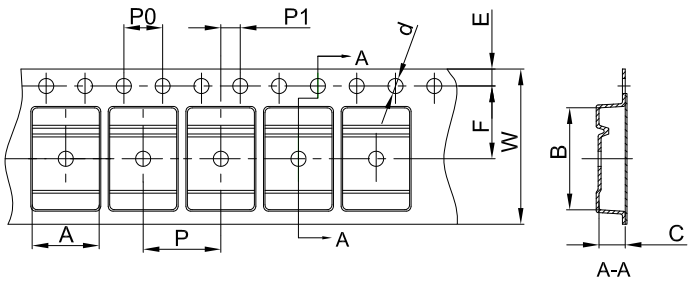
TO-252 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.380	0.087	0.094
A1	0.000	0.100	0.000	0.004
B	0.800	1.400	0.031	0.055
b	0.710	0.810	0.028	0.032
c	0.460	0.560	0.018	0.022
c1	0.460	0.560	0.018	0.022
D	6.500	6.700	0.256	0.264
D1	5.130	5.460	0.202	0.215
E	6.000	6.200	0.236	0.244
e	2.286 TYP.		0.090 TYP.	
e1	4.327	4.727	0.170	0.186
M	1.778REF.		0.070REF.	
N	0.762REF.		0.018REF.	
L	9.800	10.400	0.386	0.409
L1	2.9REF.		0.114REF.	
L2	1.400	1.700	0.055	0.067
V	4.830 REF.		0.190 REF.	
Φ	1.100	1.300	0.043	0.051

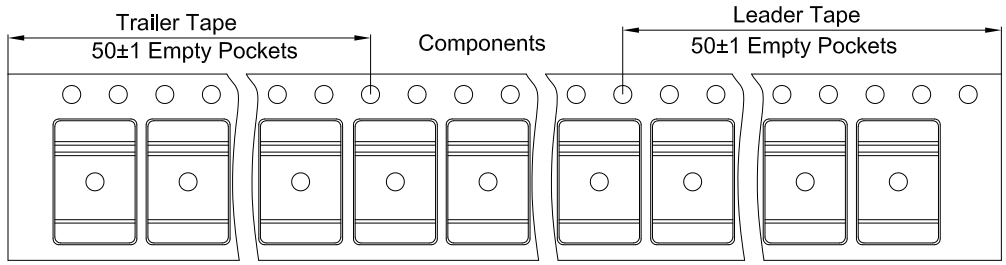
TO-252 Package Information

TO-252 Embossed Carrier Tape

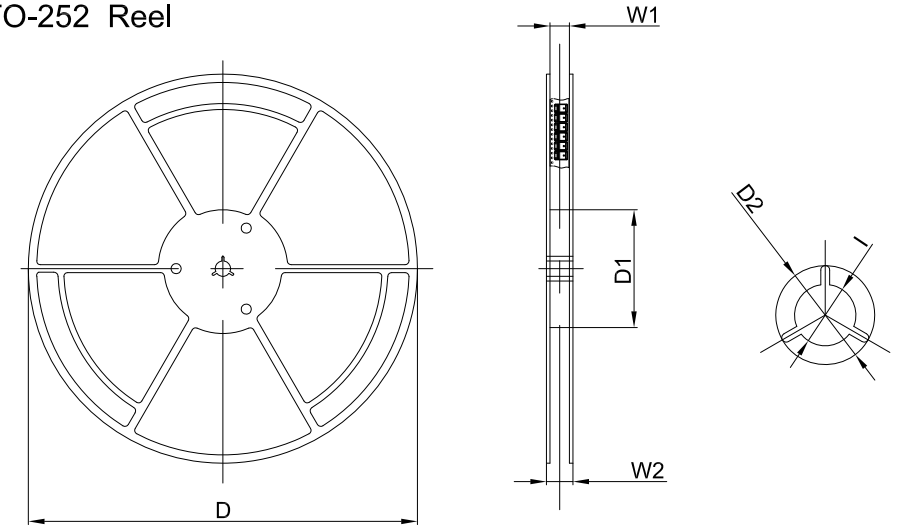


Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
TO-252	6.90	10.50	2.70	Ø1.55	1.75	7.50	4.00	8.00	2.00	16.00

TO-252 Tape Leader and Trailer



TO-252 Reel



Dimensions are in millimeter						
Reel Option	D	D1	D2	W1	W2	I
13"Dia	330.00	100.00	Ø21.00	16.40	21.00	Ø13.00

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
2,500 pcs	13inch	2,500 pcs	340×336×29	25,000 pcs	353×346×365	