General Description

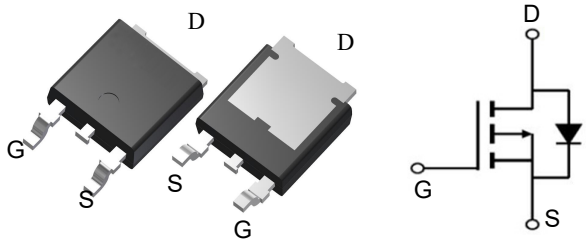
The MY100P03D uses advanced trench technology to provide excellent R_{DS}(ON), low gate charge and low gate resistance. With the excellent thermal resistance of the DPAK package, this device is well suited for high current load applications.

Features

V_{DSS}	-30	V
I_D	-100	A
$R_{DS(ON)}$(atV_{GS}=-10V)	3.5	mΩ
$R_{DS(ON)}$(atV_{GS}=-4.5V)	4.8	mΩ

Application

- Battery protection
- Load switch
- Uninterruptible power supply



Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
MY100P03D	TO-252-2L	MY100P03D	2500

Absolute Maximum Ratings (T_C=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	T_C=25°C	I_D	-100	A
	T_C=100°C		-67	
Pulsed Drain Current[1]		I_{DM}	-360	A
Single Pulse Avalanche Energy[2]		EAS	125	mJ
Total Power Dissipation	T_C=25°C	P_D	60	W
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55 to 150	°C

Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal Resistance from Junction-to-Ambient[3]	$R_{\theta JA}$	50	°C/W
Thermal Resistance from Junction-to-Case	$R_{\theta JC}$	1.58	°C/W

Electrical Characteristics (T_J=25 °C, unless otherwise noted)

Parameter		Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics							
Drain-Source Breakdown Voltage		$V_{(BR)DSS}$	V_{GS} = 0V, I_D = -250μA	-30	-	-	V
Gate-body Leakage current		I_{GSS}	V_{DS} = 0V, V_{GS} = ±20V	-	-	±100	nA
Zero Gate Voltage Drain Current	T_J=25°C	I_{DSS}	V_{DS} = -30V, V_{GS} = 0V	-	-	-1	μA
	T_J=100°C			-	-	-100	
Gate-Threshold Voltage		$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = -250μA	-1.0	-1.6	-2.5	V
Drain-Source On-Resistance[4]		$R_{DS(on)}$	V_{GS} = -10V, I_D = -30A	-	3.5	4.5	mΩ
			V_{GS} = -4.5V, I_D = -15A	-	4.8	6.2	
Forward Transconductance[4]		g_{fs}	V_{DS} = -10V, I_D = -30A	-	90	-	S
Dynamic Characteristics[5]							
Input Capacitance		C_{iss}	V_{DS} = -15V, V_{GS} =0V, f =1MHz	-	5070	-	pF
Output Capacitance		C_{oss}		-	695	-	
Reverse Transfer Capacitance		C_{rss}		-	580	-	
Gate resistance		R_g	f =1MHz	-	4	-	Ω
Switching Characteristics[5]							
Total Gate Charge		Q_g	V_{GS} = -10V,V_{DS} = -15V, I_D= -30A	-	146	-	nC
Gate-Source Charge		Q_{gs}		-	21.5	-	
Gate-Drain Charge		Q_{gd}		-	39	-	
Turn-On Delay Time		$t_{d(on)}$	V_{GS} = -10V, V_{DD} = -15V, R_G = 3Ω, I_D= -30A	-	23	-	ns
Rise Time		t_r		-	15	-	
Turn-Off Delay Time		$t_{d(off)}$		-	129	-	
Fall Time		t_f		-	28	-	
Drain-Source Body Diode Characteristics							
Diode Forward Voltage[4]		V_{SD}	I_S = -30A, V_{GS} = 0V	-	-	-1.2	V
Continuous Source Current	T_C=25°C	I_S	-	-	-	-100	A

Note :

1. Repetitive rating, pulse width limited by junction temperature $T_{J(MAX)}$=150°C
2. The EAS data shows Max. rating . The test condition is V_{DD}= -25V, V_{GS}= -10V, L= 0.1mH, I_{AS}= -50A
3. The data tested by surface mounted on a 1 inch2 FR-4 board with 2OZ copper, The value in any given application depends on the user's specific board design.

Typical Characteristics

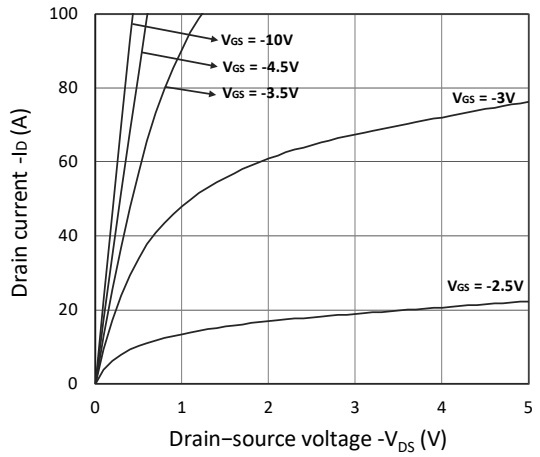


Figure 1. Output Characteristics

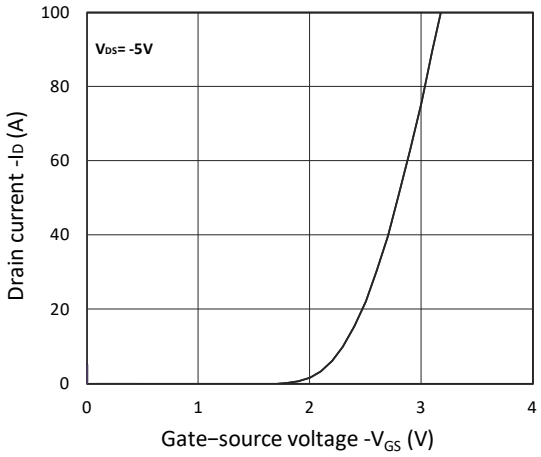


Figure 2. Transfer Characteristics

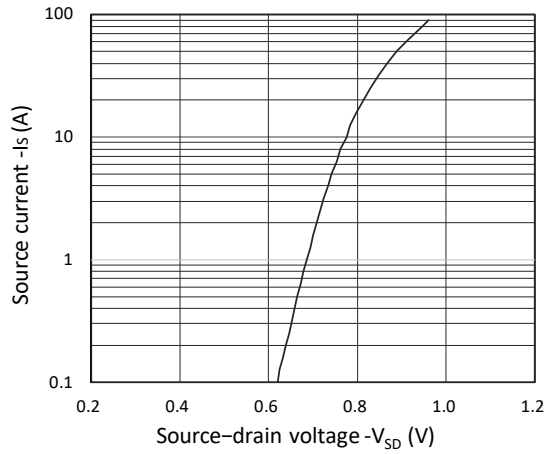


Figure 3. Forward Characteristics of Reverse

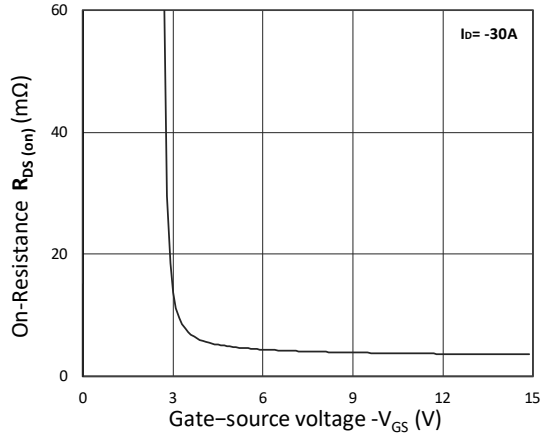


Figure 4. $R_{DS(ON)}$ vs. V_{GS}

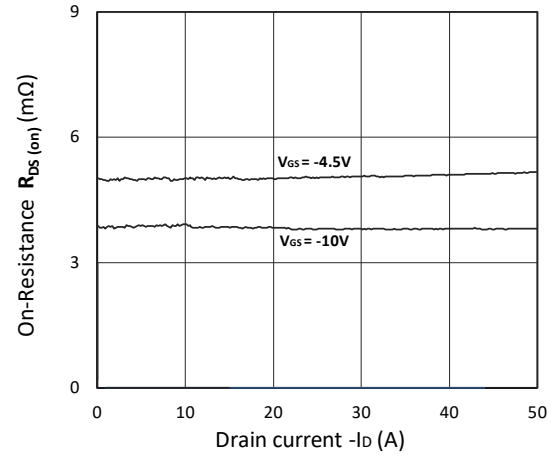


Figure 5. $R_{DS(ON)}$ vs. I_D

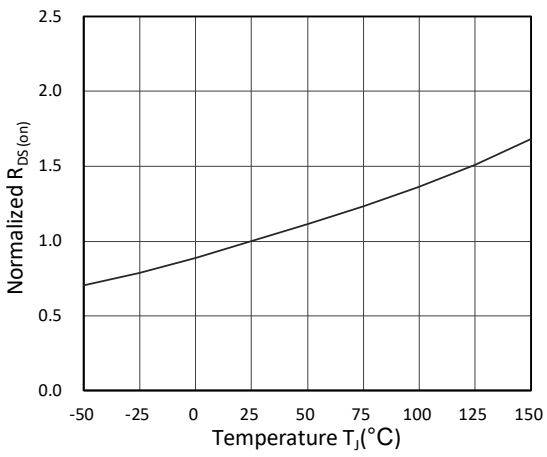


Figure 6. Normalized $R_{DS(on)}$ vs. Temperature

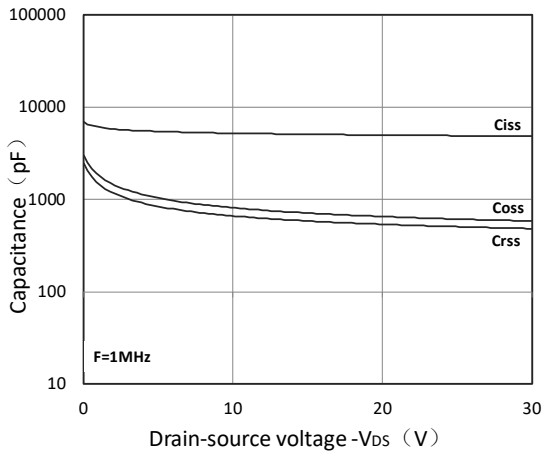


Figure 7. Capacitance Characteristics

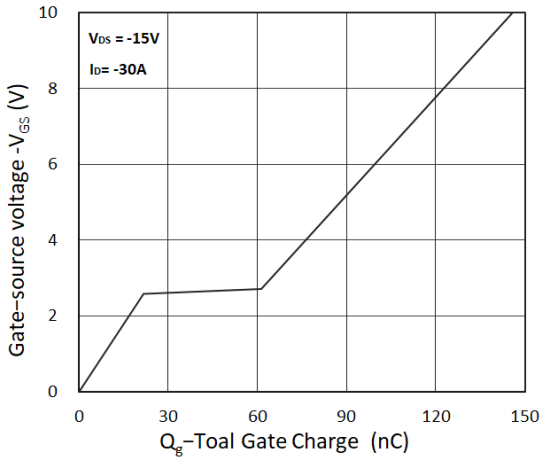


Figure 8. Gate Charge Characteristics

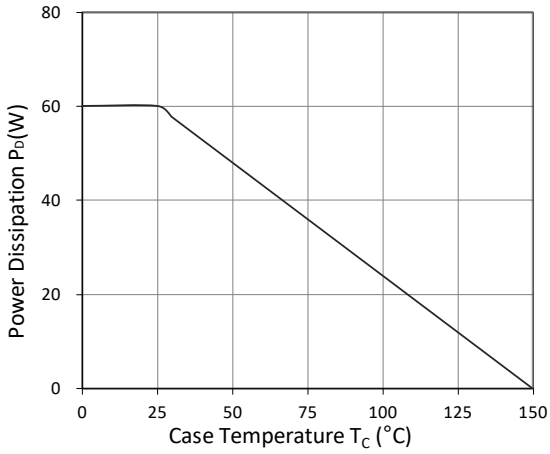


Figure 9. Power Dissipation

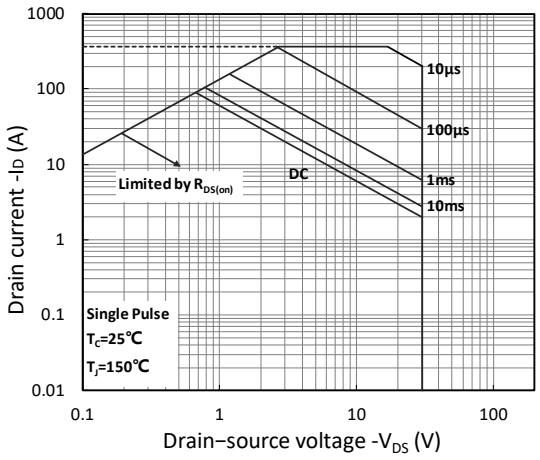


Figure10. Safe Operating Area

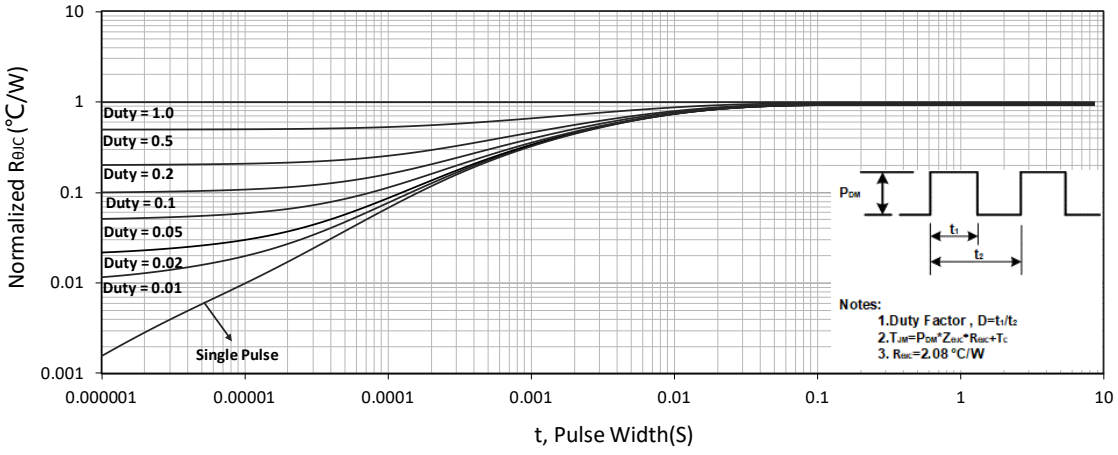
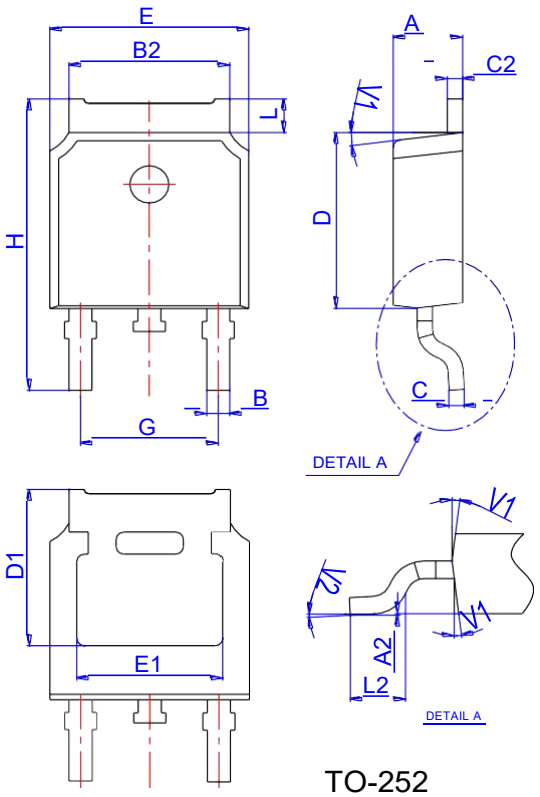


Figure 11. Normalized Maximum Transient Thermal Impedance

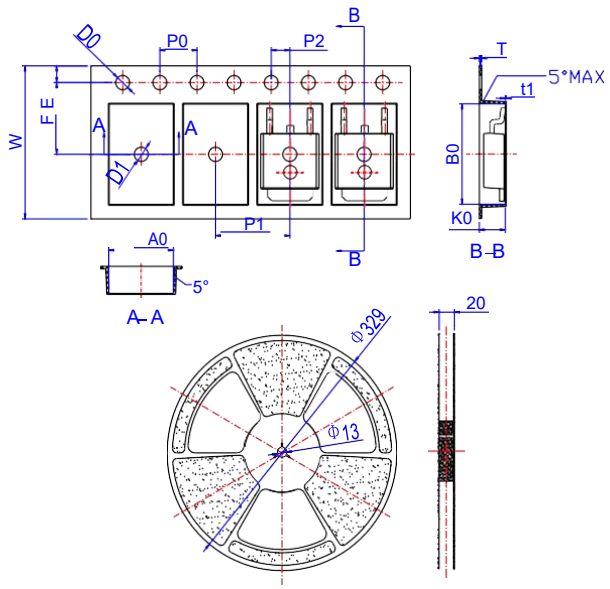
Package Mechanical Data



TO-252

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.10		2.50	0.083		0.098
A2	0		0.10	0		0.004
B	0.66		0.86	0.026		0.034
B2	5.18		5.48	0.202		0.216
C	0.40		0.60	0.016		0.024
C2	0.44		0.58	0.017		0.023
D	5.90		6.30	0.232		0.248
D1	5.30REF			0.209REF		
E	6.40		6.80	0.252		0.268
E1	4.63			0.182		
G	4.47		4.67	0.176		0.184
H	9.50		10.70	0.374		0.421
L	1.09		1.21	0.043		0.048
L2	1.35		1.65	0.053		0.065
V1		7°			7°	
V2	0°		6°	0°		6°

Reel Specification-TO-252



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
W	15.90	16.00	16.10	0.626	0.630	0.634
E	1.65	1.75	1.85	0.065	0.069	0.073
F	7.40	7.50	7.60	0.291	0.295	0.299
D0	1.40	1.50	1.60	0.055	0.059	0.063
D1	1.40	1.50	1.60	0.055	0.059	0.063
P0	3.90	4.00	4.10	0.154	0.157	0.161
P1	7.90	8.00	8.10	0.311	0.315	0.319
P2	1.90	2.00	2.10	0.075	0.079	0.083
A0	6.85	6.90	7.00	0.270	0.271	0.276
B0	10.45	10.50	10.60	0.411	0.413	0.417
K0	2.68	2.78	2.88	0.105	0.109	0.113
T	0.24		0.27	0.009		0.011
t1	0.10			0.004		
10P0	39.80	40.00	40.20	1.567	1.575	1.583