

General Description

The MY484D is the high cell density trench N-CH MOSFETs, which provide excellent $R_{DS(ON)}$ and gate charge for most of the synchronous buck converter applications.

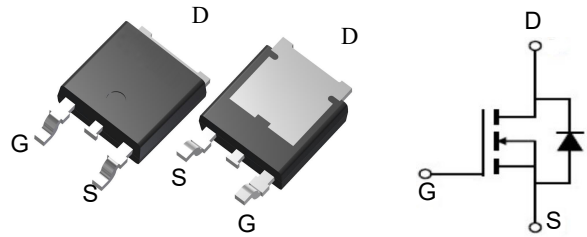


Features

V_{DSS}	30	V
I_D	30	A
$R_{DS(ON)}(at V_{GS}=10V)$	9.5	m Ω
$R_{DS(ON)}(at V_{GS}=4.5V)$	16	m Ω

Application

- Super Low Gate Charge
- 100% EAS Guaranteed
- Green Device Available
- Excellent CdV/dt effect decline
- Advanced high cell density Trench



Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
MY484D	TO-252	MY484D	2500

Absolute Maximum Ratings ($T_C=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Rating		Units
		10s	Steady State	
V_{DS}	Drain-Source Voltage	30		V
V_{GS}	Gate-Source Voltage	± 20		V
$I_{D@T_C=25^{\circ}\text{C}}$	Continuous Drain Current, $V_{GS} @ 10V^1$	30		A
$I_{D@T_C=100^{\circ}\text{C}}$	Continuous Drain Current, $V_{GS} @ 10V^1$	16		A
I_{DM}	Pulsed Drain Current ²	88		A
EAS	Single Pulse Avalanche Energy ³	18		mJ
I_{AS}	Avalanche Current	23.8		A
$P_D@T_C=25^{\circ}\text{C}$	Total Power Dissipation ⁴	11.5		W
T_{STG}	Storage Temperature Range	-55 to 175		$^{\circ}\text{C}$
T_J	Operating Junction Temperature Range	-55 to 175		$^{\circ}\text{C}$

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JC}$	Thermal Resistance Junction-Case ¹	---	9.26	$^{\circ}\text{C/W}$

Electrical Characteristics at $T_J=25\text{ }^{\circ}\text{C}$ unless otherwise specified

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	30	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =30V, V _{GS} =0V,	-	-	1.0	μA
I _{GSS}	Gate to Body Leakage Current	V _{DS} =0V, V _{GS} =±20V	-	-	±100	nA
On Characteristics						
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250μA	1.0	1.5	2.4	V
R _{DS(on)}	Static Drain-Source on-Resistance note3	V _{GS} =10V, I _D =10A		9.5	14	mΩ
		V _{GS} =4.5V, I _D =5A	-	16	21	
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =15V, V _{GS} =0V, f=1.0MHz	-	551	-	pF
C _{oss}	Output Capacitance		-	108	-	pF
C _{rss}	Reverse Transfer Capacitance		-	93	-	pF
Q _g	Total Gate Charge	V _{DS} =15V, I _D =10A, V _{GS} =10V	-	15	-	nC
Q _{gs}	Gate-Source Charge		-	4.7	-	nC
Q _{gd}	Gate-Drain(“Miller”) Charge		-	3.6	-	nC
Switching Characteristics						
t _{d(on)}	Turn-on Delay Time	V _{DS} =30V, I _D =20A, R _{GEN} =3Ω, V _{GS} =10V	-	5	-	ns
t _r	Turn-on Rise Time		-	8	-	ns
t _{d(off)}	Turn-off Delay Time		-	21	-	ns
t _f	Turn-off Fall Time		-	7	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I _S	Maximum Continuous Drain to Source Diode Forward Current		-	-	30	A
I _{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	80	A
V _{SD}	Drain to Source Diode Forward Voltage	V _{GS} =0V, I _S =20A	-	-	1.2	V
trr	Body Diode Reverse Recovery Time	I _F =20A,dI/dt=100A/μs	-	7	-	ns
Qrr	Body Diode Reverse Recovery Charge		-	5.9	-	nC

Notes:1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature

2. EAS condition: $T_J=25\text{ }^{\circ}\text{C}$, $V_{DD}=15V$, $V_G=10V$, $R_G=25\Omega$, $L=0.5mH$, $I_{AS}=8A$

3. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 0.5\%$

Typical Characteristics

Figure1: Output Characteristics

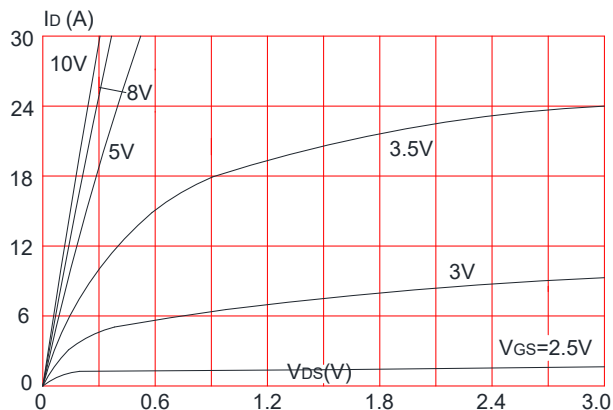


Figure 2: Typical Transfer Characteristics

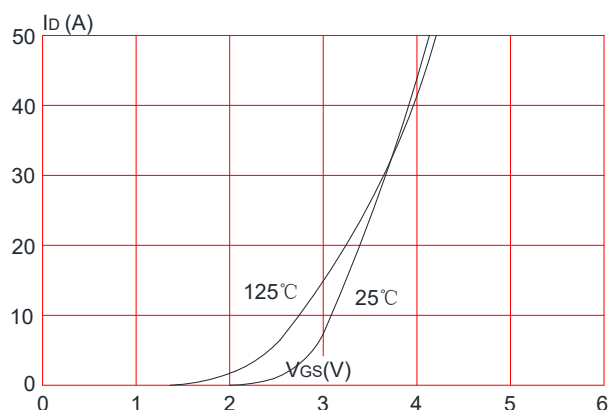


Figure 3: On-resistance vs. Drain Current

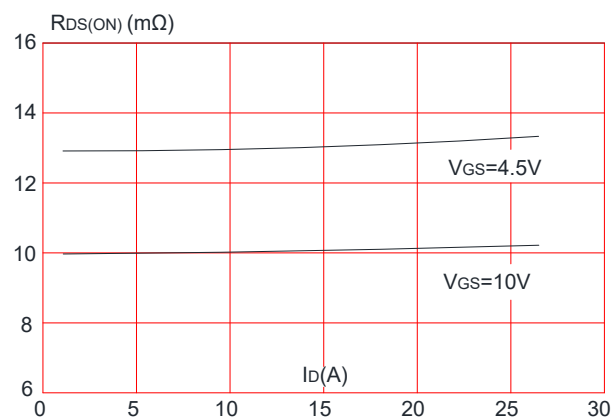


Figure 4: Body Diode Characteristics

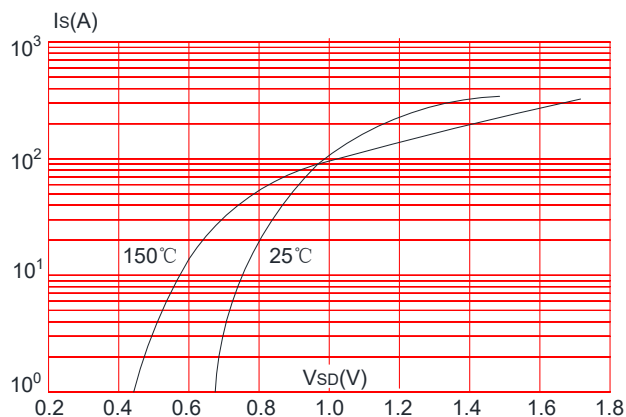


Figure 5: Gate Charge Characteristics

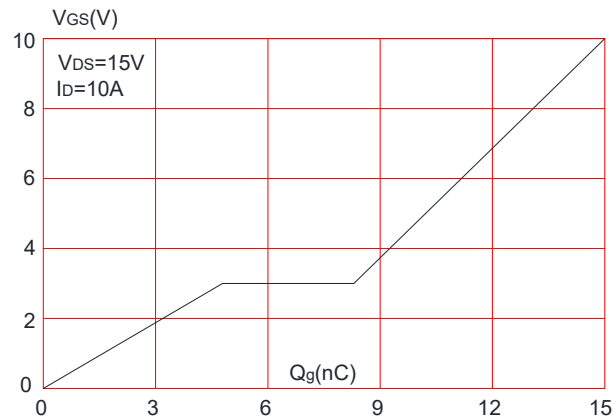


Figure 6: Capacitance Characteristics

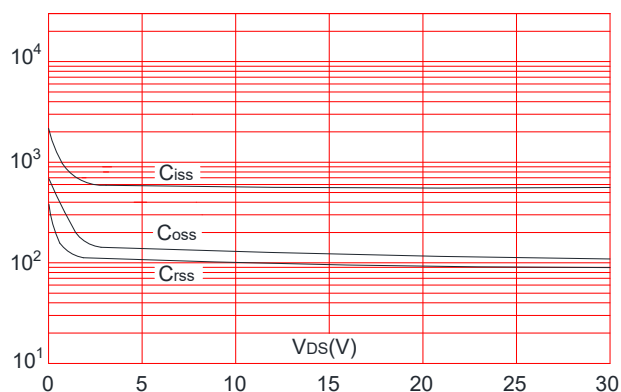


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

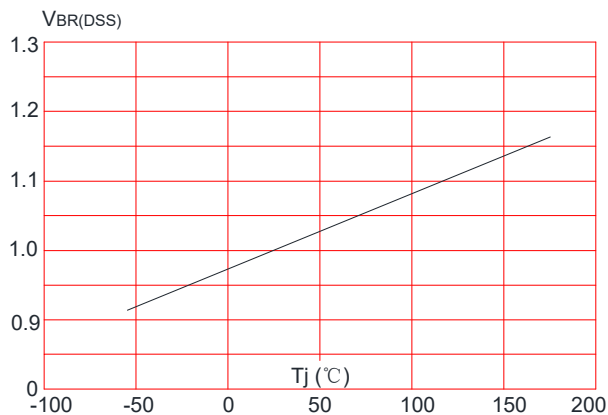


Figure 8: Normalized on Resistance vs. Junction Temperature

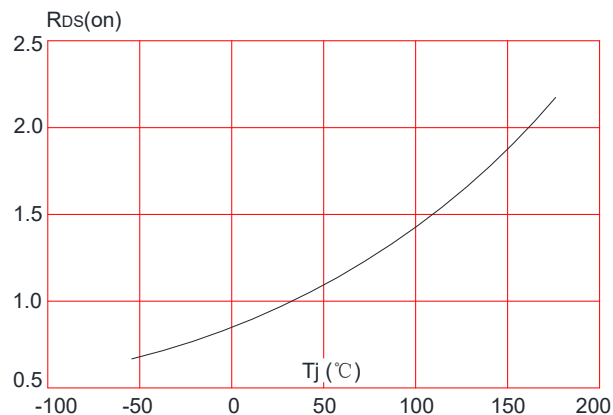


Figure 9: Maximum Safe Operating Area

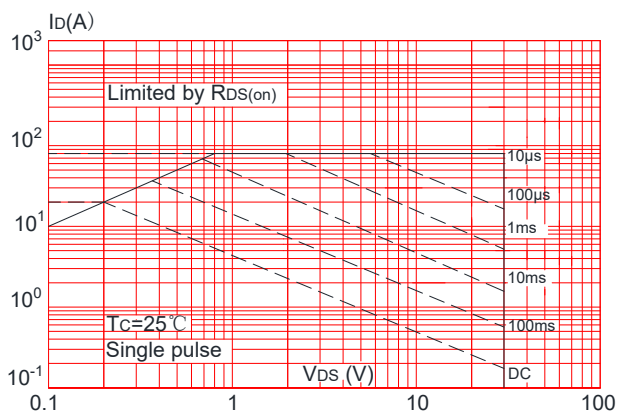
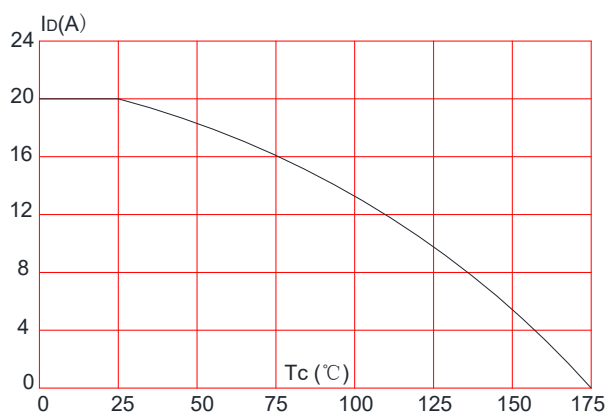
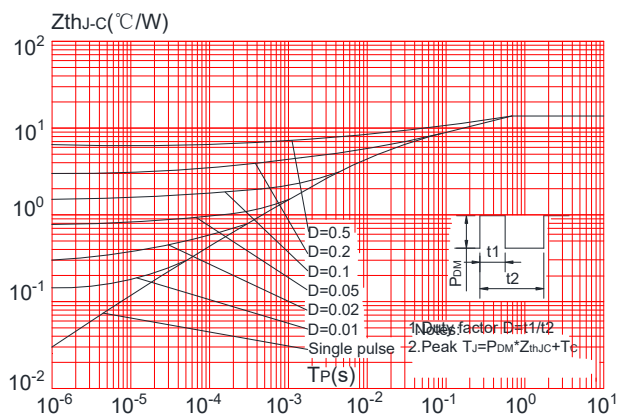


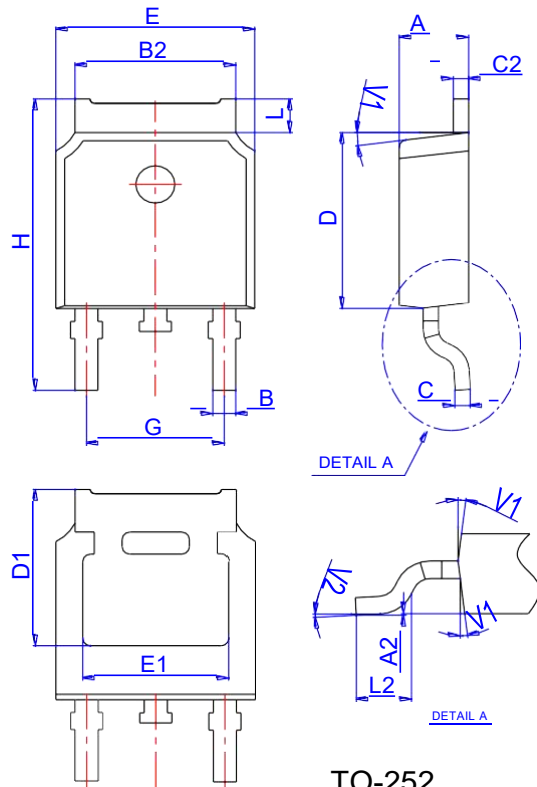
Figure 10: Maximum Continuous Drain Current vs. Case Temperature



Maximum Effective Transient Thermal Impedance, Junction-to-Case



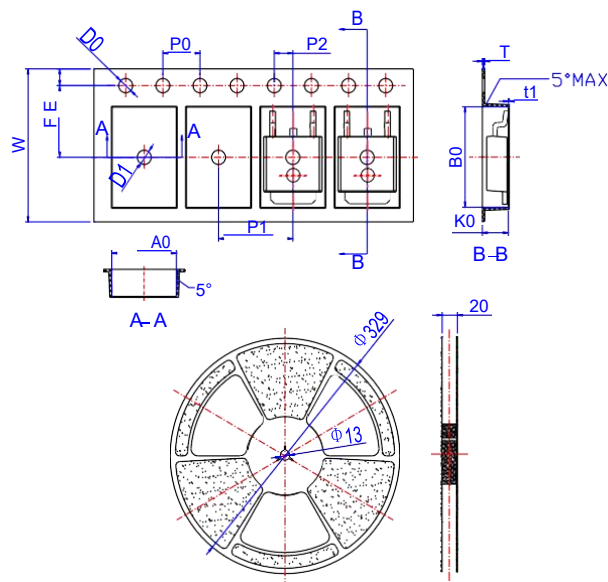
Package Mechanical Data TO-252



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