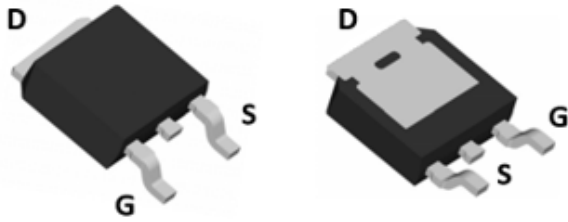
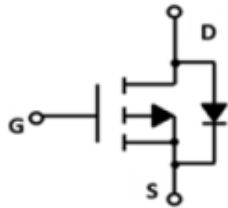


P-Channel Enhancement Mode Field Effect Transistor



TO-252



Product Summary

- V_{DS} -30V
- I_D -35A
- $R_{DS(ON)}$ (at $V_{GS}=-10V$) <20mohm
- $R_{DS(ON)}$ (at $V_{GS}=-4.5V$) <30mohm
- 100% UIS Tested
- 100% ∇V_{DS} Tested

General Description

- Trench Power LV MOSFET technology
- High density cell design for Low $R_{DS(ON)}$
- High Speed switching

Applications

- Battery management
- Load switch
- Power management

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

Parameter		Symbol	Limit	Unit
Drain-source Voltage		V_{DS}	-30	V
Gate-source Voltage		V_{GS}	± 20	V
Drain Current	$T_C=25^\circ\text{C}$	I_D	-35	A
	$T_C=100^\circ\text{C}$		-22	
Pulsed Drain Current ^A		I_{DM}	-140	A
Total Power Dissipation	$T_C=25^\circ\text{C}$	P_D	34	W
	$T_C=100^\circ\text{C}$		13.6	
Total Power Dissipation	$T_A=25^\circ\text{C}$	P_D	2.0	W
Single Pulse Avalanche Energy ^B		E_{AS}	64	mJ
Thermal Resistance Junction-to-Case ^C		$R_{\theta JC}$	3.67	$^\circ\text{C/W}$
Thermal Resistance Junction-to-Ambient ^C		$R_{\theta JA}$	62.5	$^\circ\text{C/W}$
Junction and Storage Temperature Range		T_J, T_{STG}	-55~+150	$^\circ\text{C}$

■ Ordering Information (Example)

PREFERRED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
YJD35P03A	F1	YJD35P03A	2500	/	25000	13" reel



YJD35P03A

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

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static Parameter						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0V, I _D =-250μA	-30			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-30V, V _{GS} =0V	T _J =25°C		-1	μA
			T _J =55°C		-5	
Gate-Body Leakage Current	I _{GSS}	V _{GS} = ±20V, V _{DS} =0V			±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D =-250μA	-1.0	-1.5	-2.5	V
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} = -10V, I _D =-20A		15.5	20	mΩ
		V _{GS} = -4.5V, I _D =-20A		23	30	
Diode Forward Voltage	V _{SD}	I _S =-20A, V _{GS} =0V			-1.2	V
Maximum Body-Diode Continuous Current	I _S				-35	A
Dynamic Parameters						
Input Capacitance	C _{iss}	V _{DS} =-15V, V _{GS} =0V, f=1MHZ		1572		pF
Output Capacitance	C _{oss}			176		
Reverse Transfer Capacitance	C _{rss}			147		
Gate Resistance	R _g	Drain open, f=1Mhz		9.0		Ω
Switching Parameters						
Total Gate Charge	Q _{g(10V)}	V _{GS} =-10V, V _{DS} =-15V, I _D =-5A		29.2		nC
	Q _{g(4.5V)}			13.5		
Gate-Source Charge	Q _{gs}			5.9		
Gate-Drain Charge	Q _{gd}			4.6		
Reverse Recovery Charge	Q _{rr}	I _F =-10A, di/dt=-100A/us		11		ns
Reverse Recovery Time	t _{rr}			3		
Turn-on Delay Time	t _{D(on)}	V _{GS} = -10V, V _{DD} = -15V, R _G =6Ω, I _D =1A		4.8		
Turn-on Rise Time	t _r			18.7		
Turn-off Delay Time	t _{D(off)}			53		
Turn-off fall Time	t _f			33		

A. Pulse Test: Pulse Width≤300us, Duty cycle ≤2%.

B. T_J=25°C, V_{DD}=-20V, V_G=-10V, L=0.5mH, I_{AS}=16A.

C. R_{θJA} is the sum of the junction-to-case and case-to-ambient thermal resistance, where the case thermal reference is defined as the solder mounting surface of the drain pins. R_{θJC} is guaranteed by design, while R_{θJA} is determined by the board design. The maximum rating presented here is based on mounting on a 1 in 2 pad of 2oz copper.



■ Typical Performance Characteristics

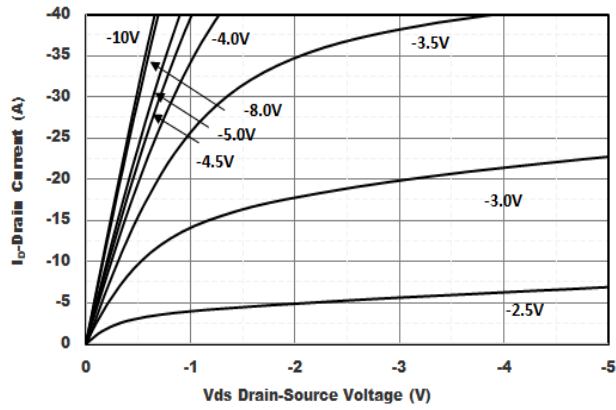


Figure1. Output Characteristics

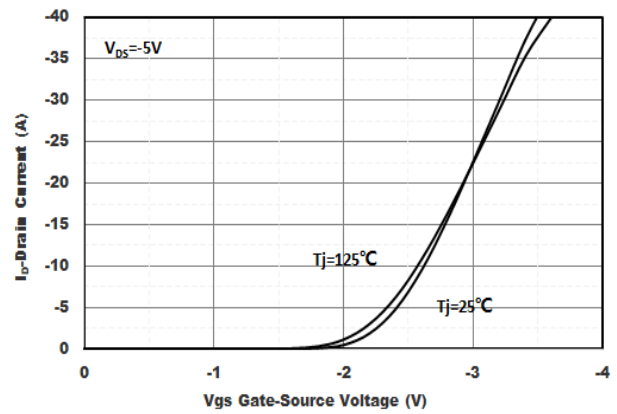


Figure2. Transfer Characteristics

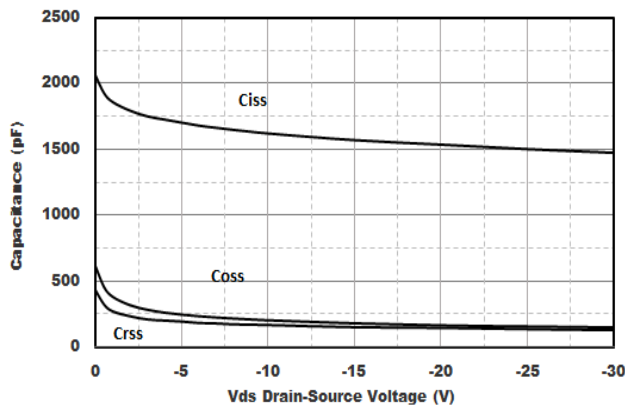


Figure3. Capacitance Characteristics

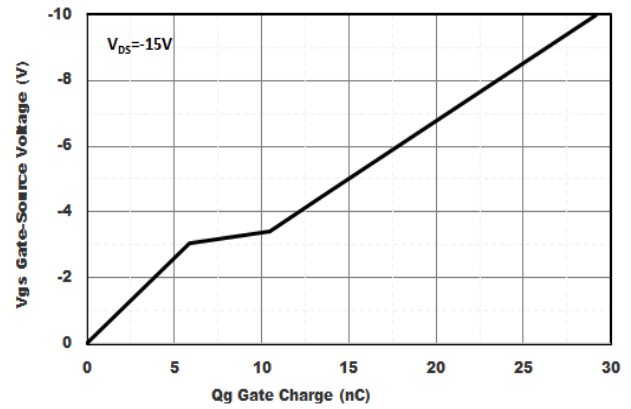


Figure4. Gate Charge

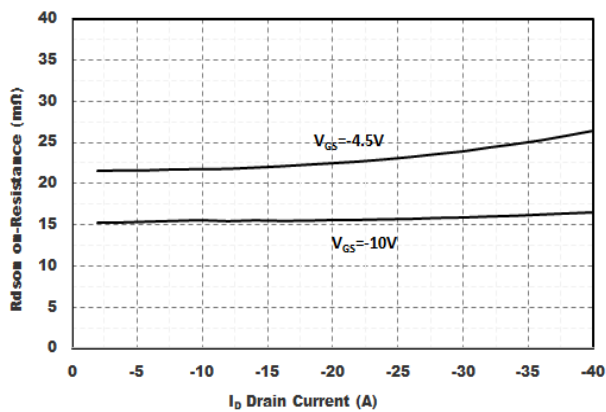


Figure5. Drain-Source on Resistance

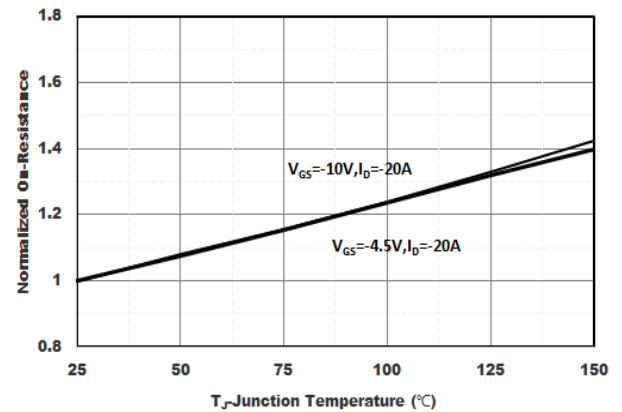


Figure6. Drain-Source on Resistance



YJD35P03A

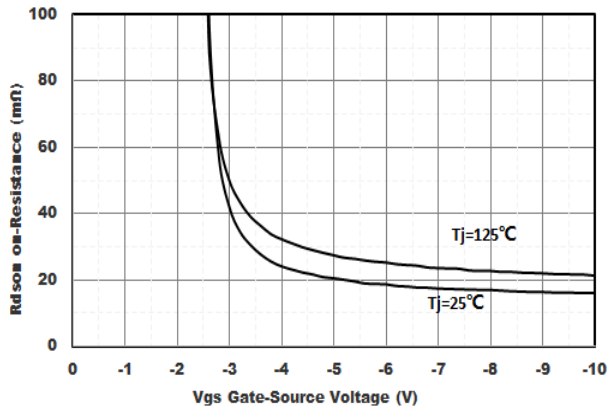


Figure7. On-Resistance vs V_{GS}

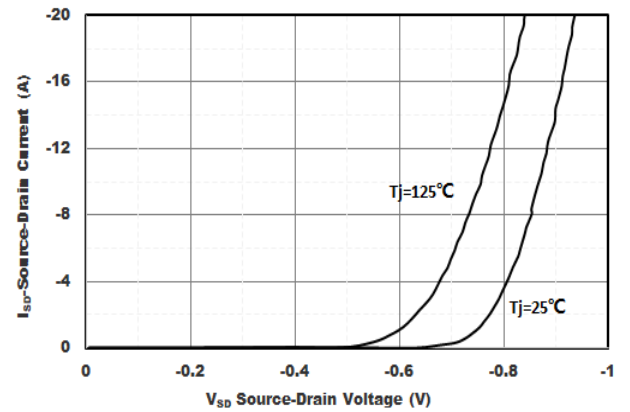


Figure8. Drain current vs. Case Temperature

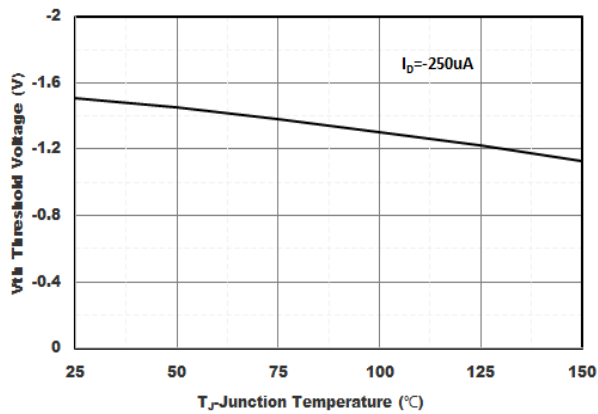


Figure9. Threshold Voltage vs Temperature

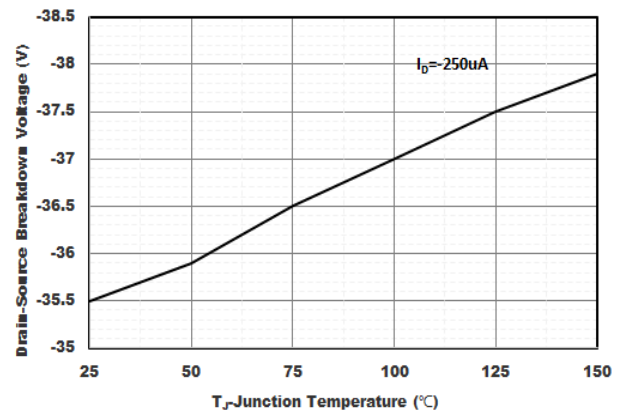


Figure10. Breakdown Voltage vs Temperature

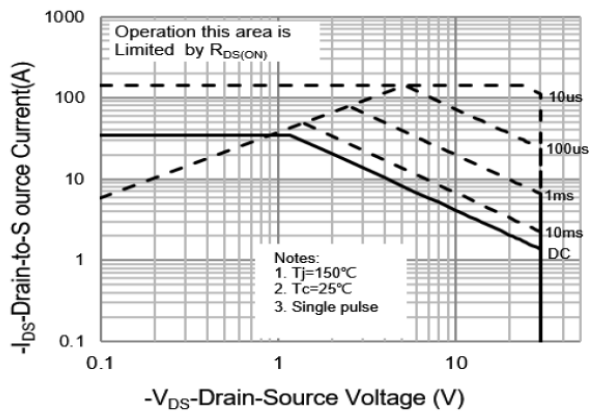


Figure11. Safe Operation Area

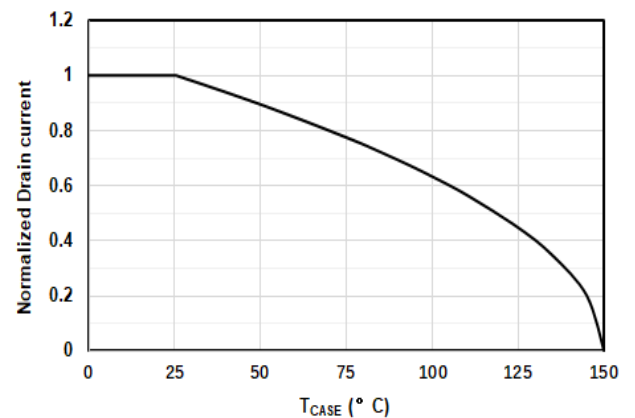


Figure12. Drain current vs. Case Temperature

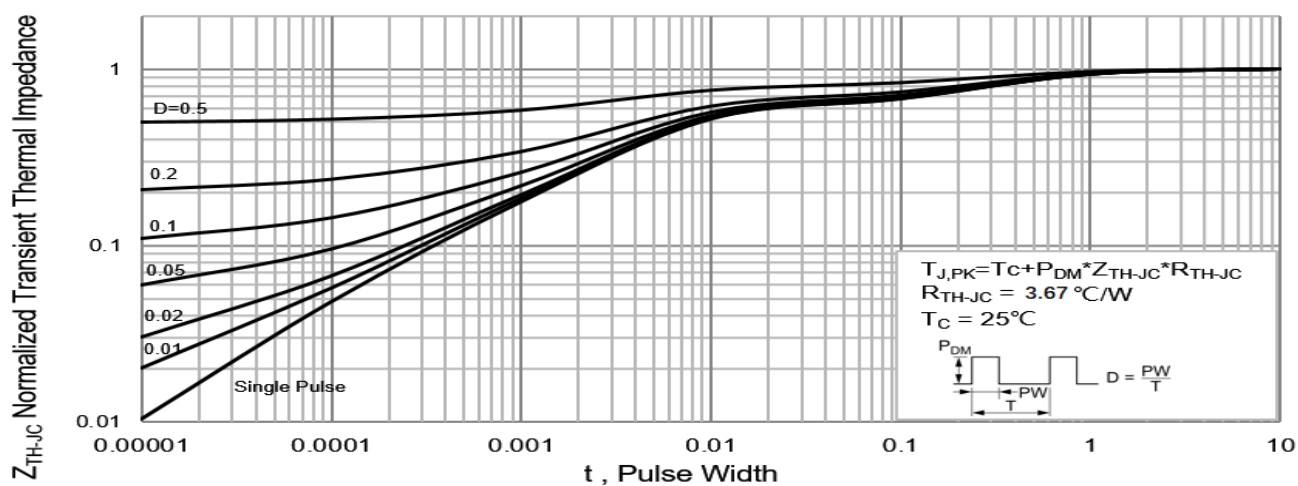
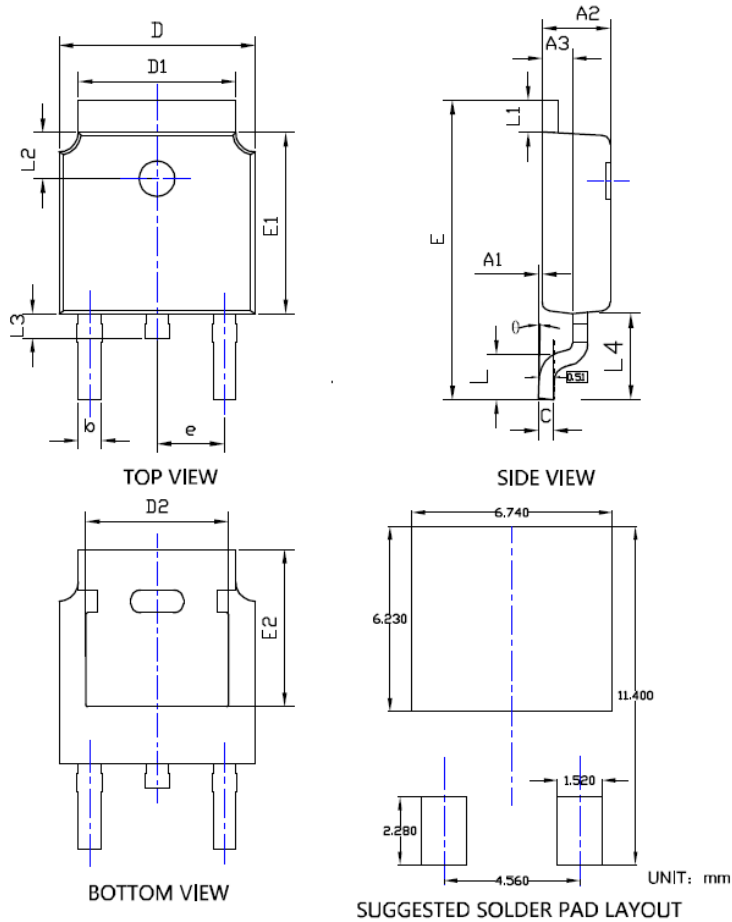


Figure13. Normalized Maximum Transient Thermal Impedance



YJD35P03A

■ TO-252-B Package information



SYMBOL	DIMENSIONS					
	INCHES			Millimeter		
	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.
A1	0.000	---	0.008	0.000	---	0.200
A2	0.087	0.091	0.094	2.200	2.300	2.400
A3	0.035	0.039	0.043	0.900	1.000	1.100
b	0.026	0.030	0.034	0.660	0.760	0.860
c	0.018	0.020	0.023	0.460	0.520	0.580
D	0.256	0.260	0.264	6.500	6.600	6.700
D1	0.203	0.209	0.215	5.150	5.300	5.450
D2	0.181	0.189	0.195	4.600	4.800	4.950
E	0.390	0.398	0.406	9.900	10.100	10.300
E1	0.236	0.240	0.244	6.000	6.100	6.200
E2	0.203	0.209	0.215	5.150	5.300	5.450
e	0.090BSC			2.286BSC		
L	0.049	0.059	0.069	1.250	1.500	1.750
L1	0.035	---	0.050	0.900	---	1.270
L2	0.055	---	0.075	1.400	---	1.900
L3	0.240	0.310	0.039	0.600	0.800	1.000
L4	0.114REF			2.900REF		
θ	0°	---	10°	0°	---	10°

NOTE:

- 1.PACKAGE BODY SIZES EXCLUDE MOLD FLASH AND GATE BURRS.
- 2.TOLERANCE 0.1mm UNLESS OTHERWISE SPECIFIED.
- 3.THE PAD LAYOUT IS FOR REFERENCE PURPOSES ONLY.



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