

P- Channel Enhancement Mode MOSFET
◆ DESCRIPTION

The MT2535 is the P-Channel logic enhancement mode power field effect transistor are produced using high cell density, DMOS trench technology.

This high density process is especially tailored to minimize on-state resistance.

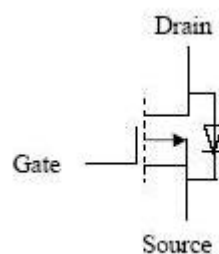
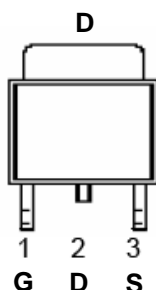
These devices are particularly suited for low voltage application such as cellular phone and notebook computer power management and other Battery powered circuits, and low in-line power loss are needed in a very small outline surface mount package.

◆ FEATURES

- -30V/-10A, $R_{DS(ON)} = 35m\Omega @ V_{GS} = -4.5V$
- -30V/-18A, $R_{DS(ON)} = 20m\Omega @ V_{GS} = -10V$
- Super high density cell design for extremely ultra low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- TO-252 package design

◆ APPLICATIONS

- POWER Management
- Portable Equipment
- DC/DC Converter
- Load Switch
- DSC

◆ PIN CONFIGURATION
TO-252(Top Site)


P- Channel Enhancement Mode MOSFET
◆ ABSOLUTE MAXIMUM RATINGS

 (T_A=25°C Unless Otherwise Noted)

Parameter		Symbol	Maximum	Unit
Drain-Source Voltage		V _{DS}	-30	V
Gate-Source Voltage		V _{GS}	±25	V
Continuous Drain Current	T _A = 25°C	I _D	-18	A
	T _A = 70°C		-13.5	
Pulsed Drain Current ^A		I _{DM}	-50	A
Power Dissipation	T _A = 25°C	P _D	41.6	W
	T _A = 70°C		26.6	
Operating junction temperature range		T _J	-55 to 150	°C
Storage temperature range		T _{STG}	-55 to 150	°C
Lead Temperature (1/16" from case for 10 sec)		T _L	275	°C

 Note^A: Pulse width limited by maximum junction temperature.

◆ THERMAL RESISTANCE RATINGS

Thermal Resistance	Symbol	Maximum	Unit
Junction-to-Case	R _{θJC}	3	°C/W
Junction-to-Ambient	R _{θJA}	75	°C/W

◆ ORDERING INFORMATION

Device	Package	Shipping
MT2535	TO-252	2,500 PCS / Tape & Reel

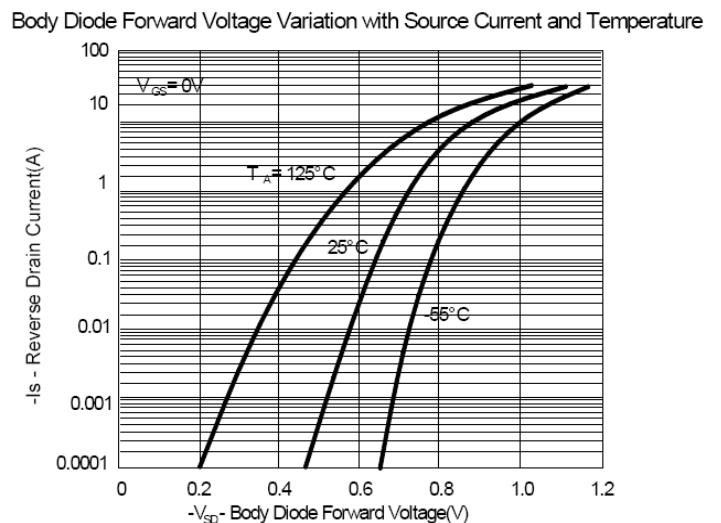
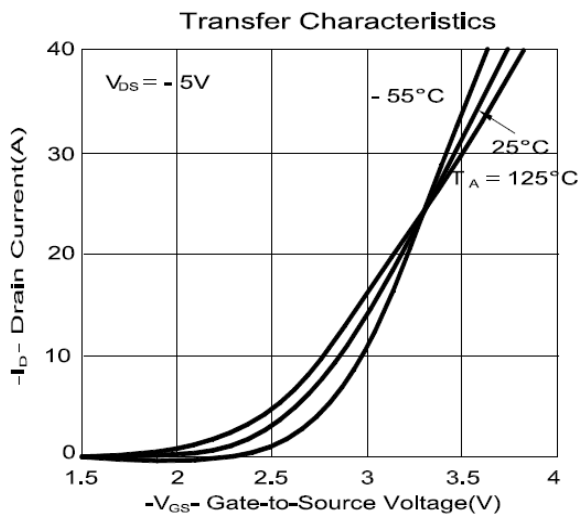
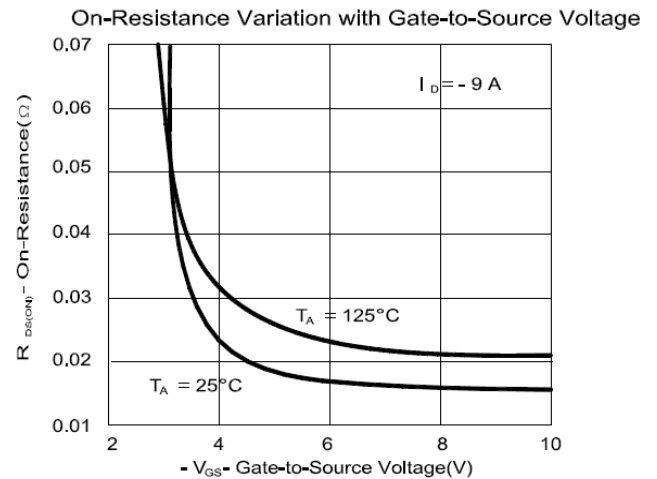
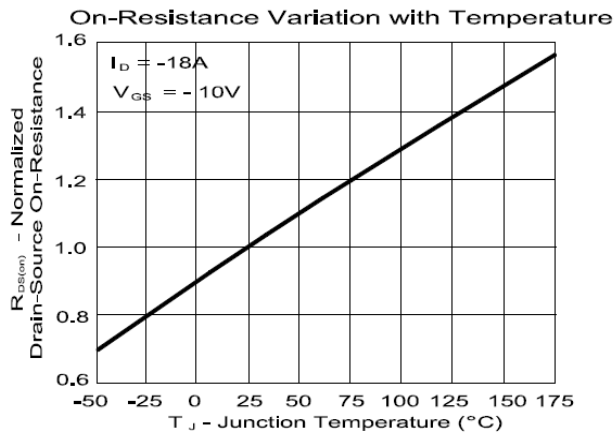
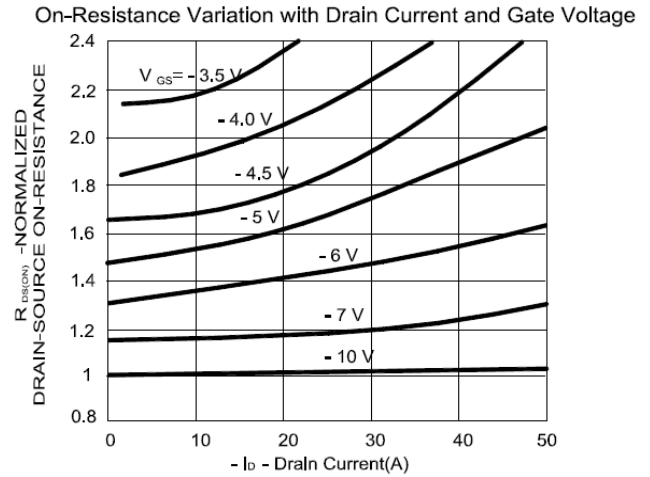
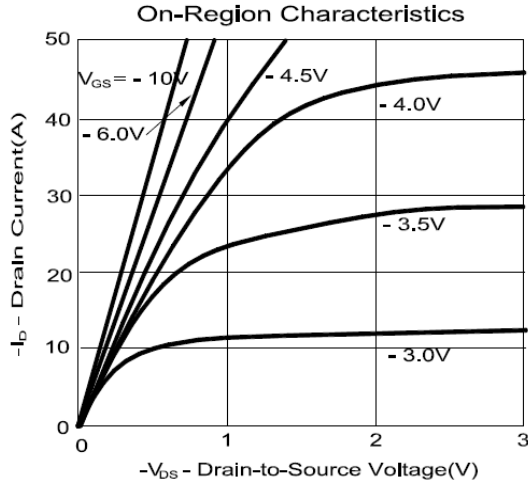
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◆ ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$ Unless Otherwise Noted)

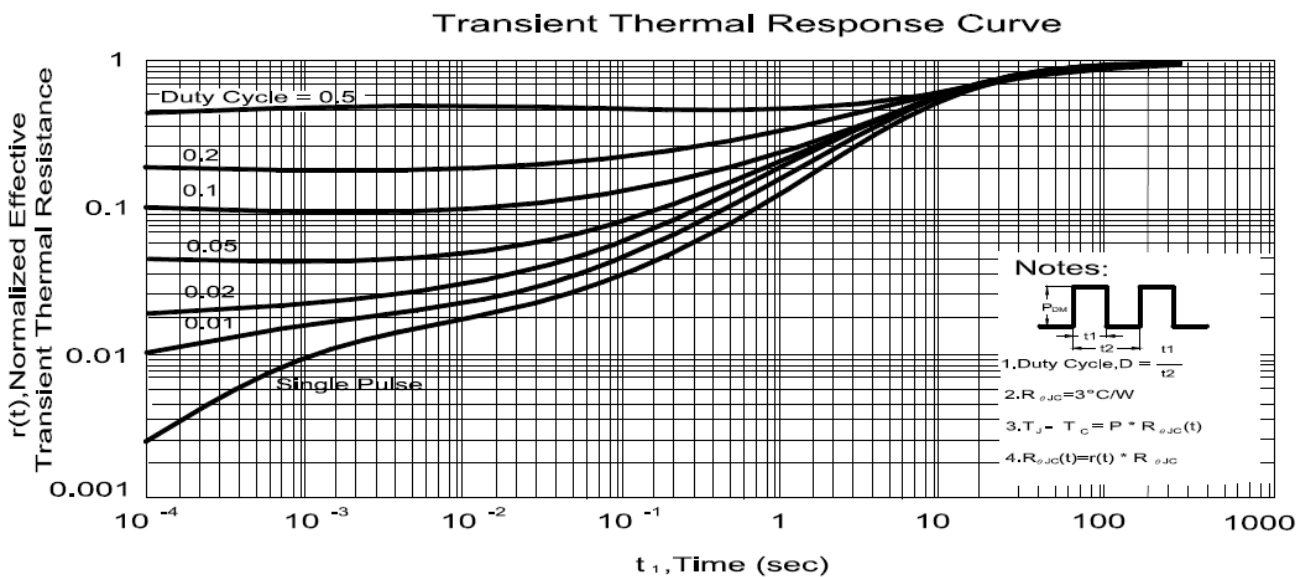
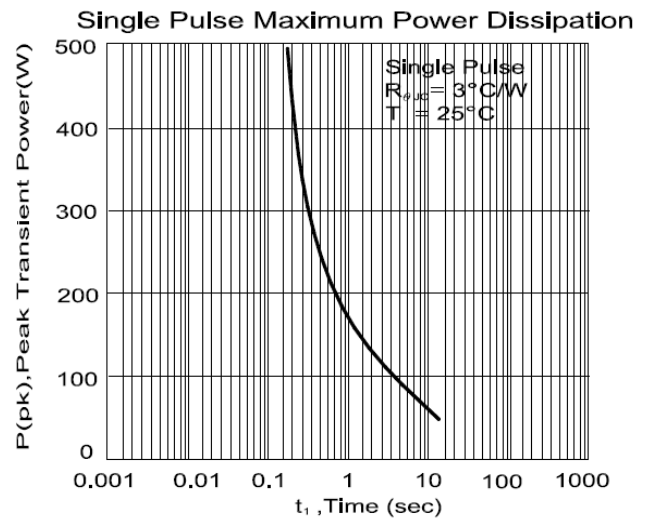
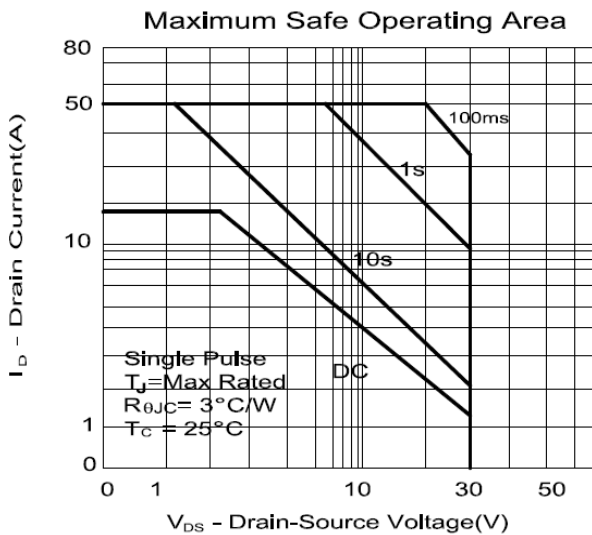
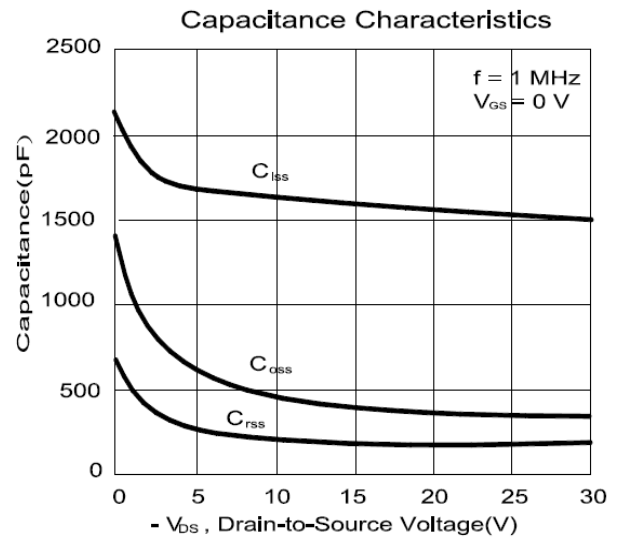
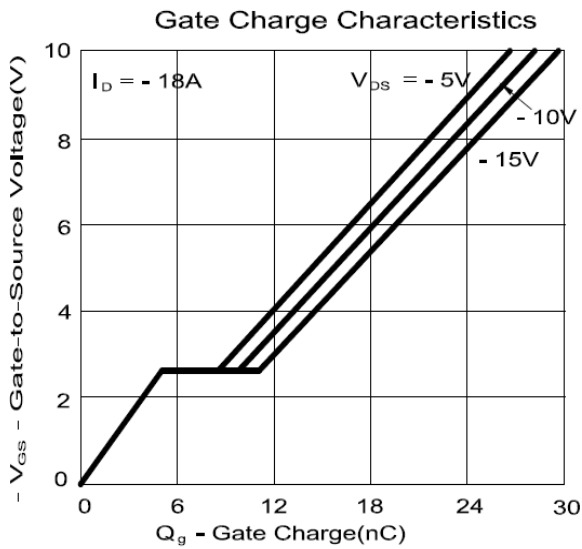
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static Parameters						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	-30	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{GS} = V_{DS}, I_D = 250\mu A$	-1	-1.5	-3	V
Gate Current	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 25V$	-	-	± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -24V, V_{GS} = 0V$	-	-	-1	μA
		$V_{DS} = -20V, V_{GS} = 0V, T_J = 125^\circ\text{C}$	-	-	-10	
On-State Drain Current ^B	$I_{D(ON)}$	$V_{DS} = -5V, V_{GS} = -10V$	-50	-	-	A
Drain-Source On Resistance ^B	$R_{DS(ON)}$	$V_{GS} = -4.5V, I_D = -10A$	-	25	35	m Ω
		$V_{GS} = -10V, I_D = -18A$	-	15	20	
Forward Trans conductance ^B	g_{fs}	$V_{DS} = -10V, I_D = -18A$	-	24	-	S
Dynamic Parameters						
Input Cap.	C_{iss}	$V_{DS} = -15V, V_{GS} = 0V, f = 1\text{MHz}$	-	1610	-	pF
Output Cap.	C_{oss}		-	410	-	
Reverse Transfer Cap.	C_{rss}		-	200	-	
Total Gate Charge ^C	Q_g	$V_{DS} = 0.5V_{(BR)DSS}, V_{GS} = -10V, I_D = -18A$	-	17	24	nC
Gate-Source Charge ^C	Q_{gs}		-	5	-	
Gate-Drain Charge ^C	Q_{gd}		-	6	-	
Turn-On Delay Time ^C	$T_{D(ON)}$	$V_{DS} = -15V, I_D \cong -1A, V_{GS} = -10V, R_{GS} = 6\Omega$	-	5.7	-	nS
Rise Time ^C	t_r		-	10	-	
Turn-Off Delay Time ^C	$T_{D(OFF)}$		-	18	-	
Fail Time ^C	t_f		-	5	-	
Source-Drain Diode Ratings And Characteristics						
Continuous Current	I_S		-	-	-18	A
Pulsed Current ^D	I_{SM}		-	-	-50	
Forward Voltage ^B	V_{SD}	$I_F = I_S, V_{GS} = 0V$	-	-	-1.3	V
Reverse Recovery Time	t_{rr}	$I_F = -18A, di_F/dt = 100A/\mu S$	-	29	-	nS
Reverse Recovery Charge	Q_{rr}		-	21	-	nC

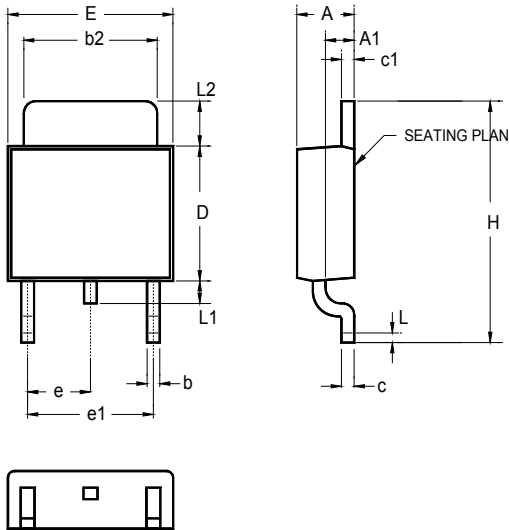
Note ^B: Pulse test: Pulse width $\leq 300\mu\text{sec}$, Duty Cycle $\leq 2\%$

Note ^C: Independent of operating temperature.

Note ^D: Pulse width limited by maximum junction temperature.

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◆ TYPICAL CHARACTERISTICS (25°C Unless Noted)


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◆ PHYSICAL DIMENSIONS
3-Pin Surface Mount TO-252 (B)


	INCHES			MILLIMETERS		
	MIN	TYP	MAX	MIN	TYP	MAX
A	0.086	-	0.094	2.18	-	2.39
A1	0.040	-	0.050	1.02	-	1.27
b	-	0.024	-	-	0.61	-
b2	0.205	-	0.215	5.21	-	5.46
c	0.018	-	0.023	0.46	-	0.58
c1	0.018	-	0.023	0.46	-	0.58
D	0.210	-	0.220	5.33	-	5.59
E	0.250	-	0.265	6.35	-	6.73
e	0.090 BSC			2.29 BSC		
e1	0.180 BSC			4.58 BSC		
H	0.370	-	0.410	9.40	-	10.41
L	0.020	-	-	0.51	-	-
L1	0.025	-	0.040	0.64	-	1.02
L2	0.060	-	0.080	1.52	-	2.03