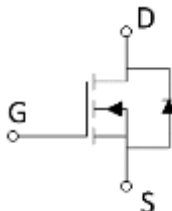


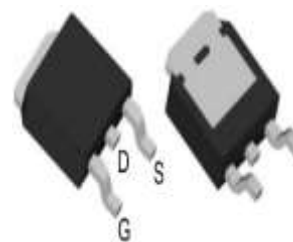
40V_{DS}/±20V_{GS} N-Channel Enhancement Mode MOSFET

Features

- V_{DS}=40V, I_D=160A
- R_{DS(ON)}=4.5mΩ (TYP.) V_{GS}=10V
- R_{DS(ON)}=6mΩ (TYP.) V_{GS}=4.5V
- Reliable and Rugged
- Avalanche Rated
- Low On-Resistance
- High Current Capability
- Load Switch
- Power management in portable/desktop PCs
- DC/DC conversion



TO-252



Ordering Information

Device	package	Device Marking	Package Qty.
JMTK1404A	TO-252	**	2500/PCS

Absolute Maximum Ratings (T_C=25°C, unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage (V _{GS} =0V)	V _{DS}	40	V
Gate-Source Voltage (V _{GS} =0V, static)	V _{GS}	±20	V
Continuous Drain Current (T _C =25°C)	I _D	160	A
Continuous Drain Current (T _C =100°C)		80	A
Pulsed Drain Current	I _{DM}	320	A
Maximum Power Dissipation	P _D	142	W
Single pulse avalanche energy	E _{as}	156	mJ
Operating, Storage Temperature Range	T _J , T _{STG}	-55~175	°C

Thermal Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit
Thermal Resistance, Junction-to-Case	R _{θJC}	-	0.88	-	°C/W

Electrical Characteristics

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250μA	40	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =30V, V _{GS} =0V	-	-	1	μA
Gate -Source 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	1.2	-	2.5	V
Drain-Source On-state Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =20A	-	3.6	4.5	mΩ
		V _{GS} =4.5V, I _D =20A	-	4.8	6	

Reverse Diode Characteristics

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Body Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _{SD} =1A	-	-	1.2	V
Reverse Recovery Time	t _{rr}	V _{GS} =0V, I _{SD} =20A	-	16	-	ns
Reverse Recovery Charge	Q _{rr}	d _i /d _t =500A/μs	-	10	-	nC

Dynamic Characteristics

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Input capacitance	C_{iss}	$V_{DS}=15V$ $V_{GS}=0V$ $f=1MHz$	-	3777	-	pF
Output capacitance	C_{oss}		-	266	-	
Reverse transfer capacitance	C_{rss}		-	223	-	
Gate Resistance	R_g	$f=1MHz$	-	1.5	-	Ω
Total Gate Charge	Q_g	$V_{DS}=15V$ $V_{GS}=10V$ $I_D=20A$	-	14	-	nC
Gate Source Charge	Q_{gs}		-	15	-	
Gate Drain Charge	Q_{gd}		-	58	-	
Turn-on delay Time	$t_{d(on)}$	$V_{GS}=10V$ $V_{DS}=15V$ $R_L=0.75\Omega$ $R_G=3\Omega$	-	11	-	ns
Rise time	t_r		-	28	-	
Turn-off delay Time	$t_{d(off)}$		-	59	-	
Fall time	t_f		-	15	-	

Electrical Characteristics Diagrames

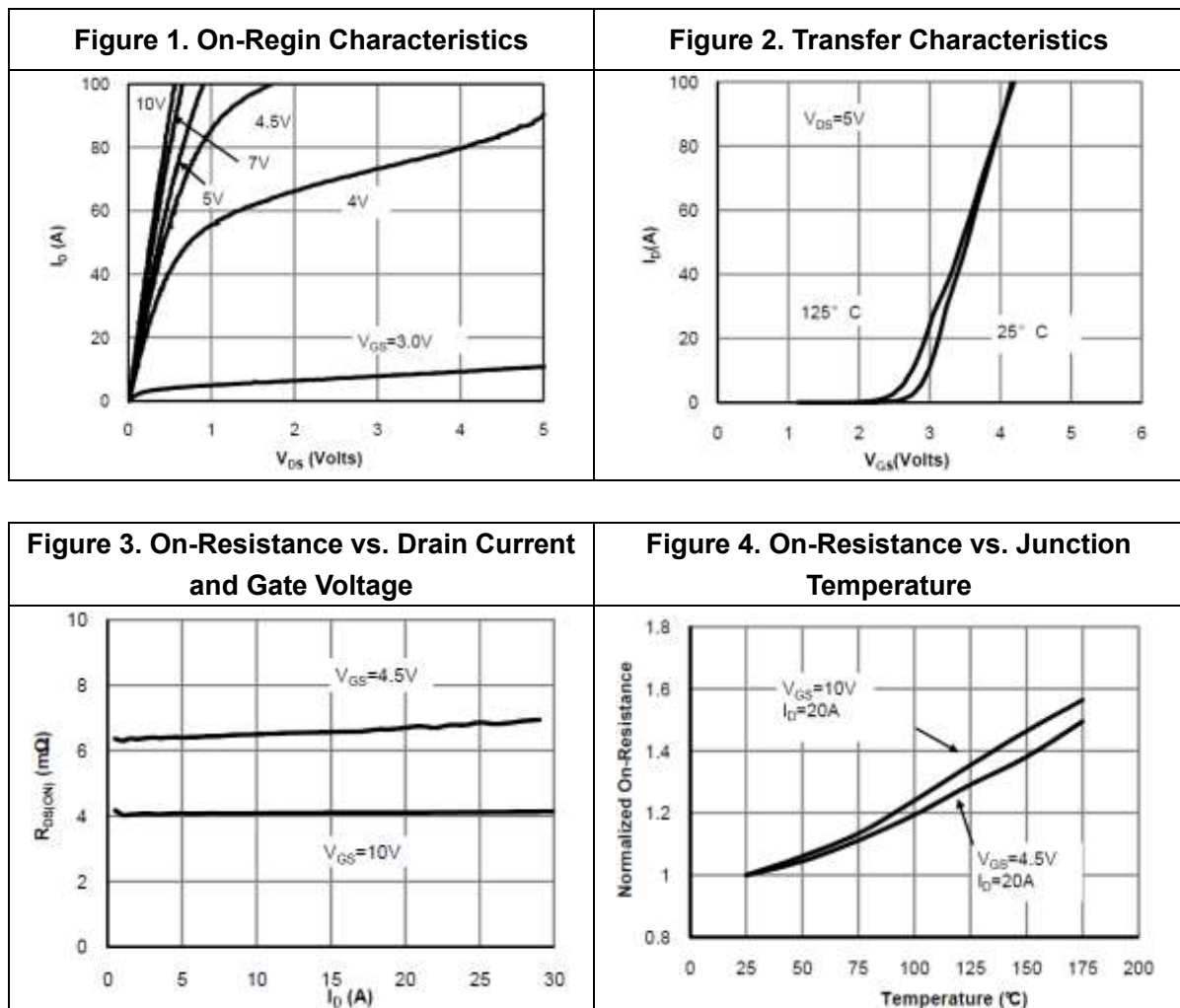


Figure 5. On-Resistance vs. Gate-Source Voltage

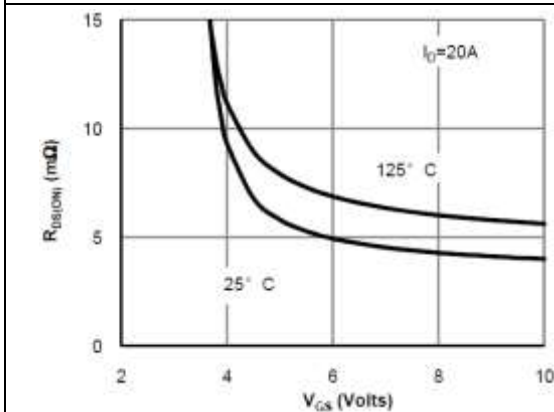


Figure 6. Body-Diode Characteristics

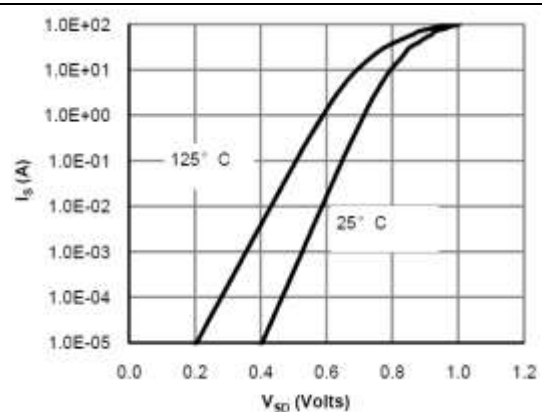


Figure 7. Gate-Charge Characteristics

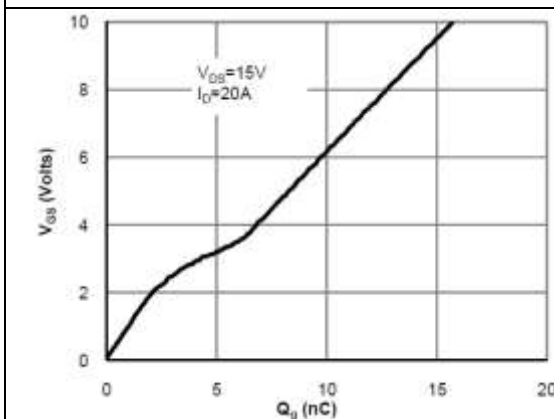


Figure 8. Capacitance Characteristics

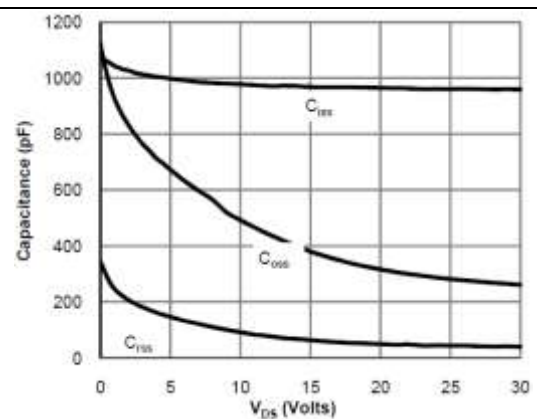


Figure 9. Maximum Forward Biased Safe Operating Area

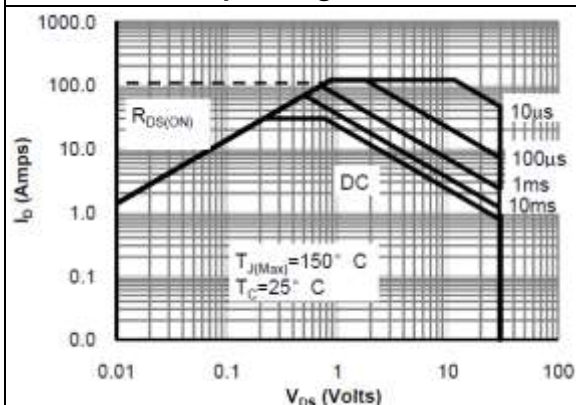
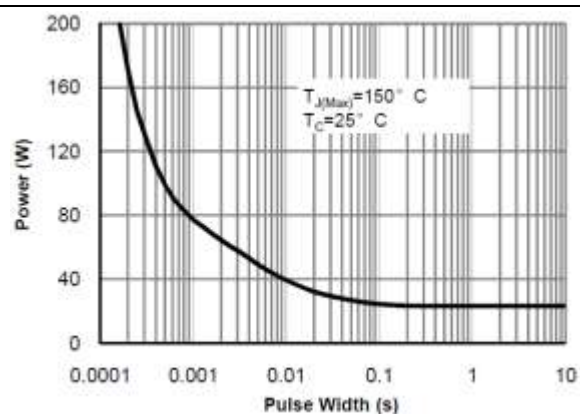


Figure 10. Single Pulse Power Rating Junction-to-Case



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