



- Low On-Resistance
- Excellent Gate Charge x $R_{DS(ON)}$ Product (FOM)
- Pb-Free Lead Plating
- RoHS and Halogen-Free Compliant
- 100% UIS Tested, 100% R_g Tested

Product Summary

	Value	Unit
$R_{DS(ON)_{Typ}}$	-100	V
	-2.0	V
	-30	A
	37	m
	50	m

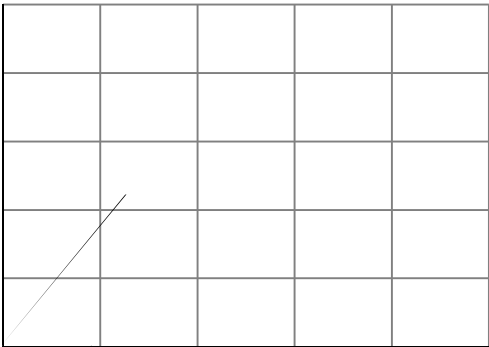
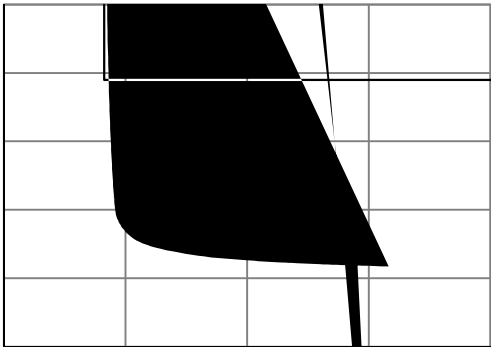
Ordering Information

Device	Package	# of Pins	Marking	M	M	oØ	M
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Drain-to-Source - $\varnothing$ Ω M =

(1)	T _C = 25°C	I _D	-30	A
	T _C = 100°C		-19	
Avalanche Current ⁽³⁾			-27	
Avalanche Energy ⁽³⁾			109	
Power Dissipation ⁽⁴⁾	T _C = 25°C	P _D	96	W
	T _C = 100°C		38	
Junction & Storage Temperature Range			-55 to 150	



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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
STATIC PARAMETERS						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = -250\text{ A}$, $V_{GS} = 0\text{V}$	-100			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -80\text{V}$, $V_{GS} = 0\text{V}$ $T_J = 55^\circ\text{C}$			-1.0 -5.0	A
Gate-Body Leakage Current	I_{GSS}	$V_{DS} = 0\text{V}$, $V_{GS} = \pm 20\text{V}$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = -250\text{ A}$	-1.0	-2.0	-3.0	V
Static Drain-Source ON-Resistance	$R_{DS(ON)}$	$V_{GS} = -10\text{V}$, $I_D = -15\text{A}$		37	50	m
		$V_{GS} = -4.5\text{V}$, $I_D = -10\text{A}$		50	66	m
Forward Transconductance	g_{FS}	$V_{DS} = -5\text{V}$, $I_D = -15\text{A}$		30		S
Diode Forward Voltage	V_{SD}	$I_S = -1\text{A}$, $V_{GS} = 0\text{V}$		-0.7	-1.0	V
Diode Continuous Current	I_S	$T_C = 25^\circ\text{C}$			-96	A

DYNAMIC PARAMETERS ⁽⁵⁾

Input Capacitance	C_{iss}	$V_{GS} = 0\text{V}$, $V_{DS} = -50\text{V}$, $f = 1\text{MHz}$		1412		pF
Output Capacitance	C_{oss}			222		pF
Reverse Transfer Capacitance	C_{rss}	$V_{GS} = 0\text{V}$, $V_{DS} = 0\text{V}$, $f = 1\text{MHz}$		2.6		pF
Gate Resistance	R_g			10.2		

SWITCHING PARAMETERS ⁽⁵⁾

Total Gate Charge (@ $V_{GS} = -10\text{V}$)	Q_g	$V_{GS} = 0\text{ to } -10\text{V}$ $V_{DS} = -50\text{V}$, $I_D = -15\text{A}$		20		nC
Total Gate Charge (@ $V_{GS} = -6.0\text{V}$)	Q_g			12.6		nC
Gate Source Charge	Q_{gs}			6.4		nC
Gate Drain Charge	Q_{gd}			3.3		nC
Turn-On DelayTime	$t_{D(on)}$	$V_{GS} = -10\text{V}$, $V_{DS} = -50\text{V}$ $R_L = 3.3\ \Omega$, $R_{GEN} = 6\ \Omega$		10.7		ns
Turn-On Rise Time	t_r			56		ns
Turn-Off DelayTime	$t_{D(off)}$			45		ns
Turn-Off Fall Time	t_f			81		ns
Body Diode Reverse Recovery Time	t_{rr}	$I_F = -15\text{A}$, $di_F/dt = -100\text{A/s}$		51		ns
Body Diode Reverse Recovery Charge	Q_{rr}	$I_F = -15\text{A}$, $di_F/dt = -100\text{A/s}$		130		nC

Thermal Performance

Parameter	Symbol	Typ.	Max.	Unit
Thermal Resistance, Junction-to-Ambient	R_{JA}	47	56	$^\circ\text{C/W}$
Thermal Resistance, Junction-to-Case	R_{JC}	1.0	1.3	$^\circ\text{C/W}$

Notes:

1. Computed continuous current assumes the condition of T_{J_Max} while the actual continuous current depends on the thermal & electro-mechanical application board design.
2. This single-pulse measurement was taken under $T_{J_Max} = 150^\circ\text{C}$.
3. This single-pulse measurement was taken under the following condition [$L = 300\text{ H}$, $V_{GS} = -10\text{V}$, $V_{DD} = -50\text{V}$] while its value is limited by $T_{J_Max} = 150^\circ\text{C}$.
4. The power dissipation P_D is based on $T_{J_Max} = 150^\circ\text{C}$.
5. This value is guaranteed by design hence it is not included in the production test.

Typical Electrical & Thermal Characteristics

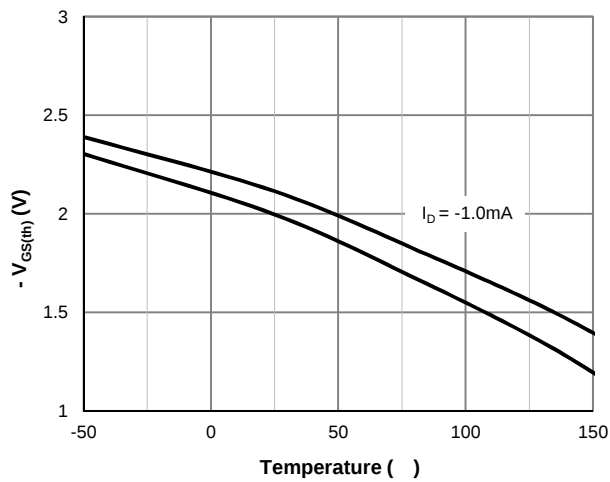
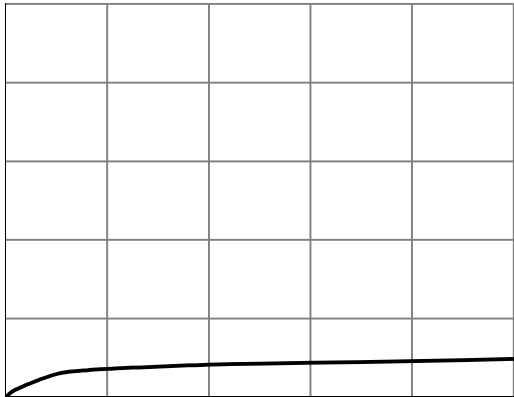
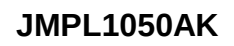


Figure 5: $V_{GS(th)}$ vs. Junction Temperature

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TO-252-3L Package Information

