

RoHS Compliant Product
A suffix of "-C" specifies halogen free

DESCRIPTION

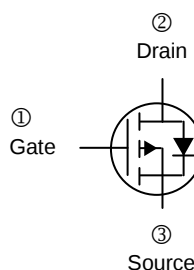
These miniature surface mount MOSFETs utilize high cell density process. Low $R_{DS(on)}$ assures minimal power loss and conserves energy, making this device ideal for use in power management circuitry. Typical applications are PWMDC-DC converters, power management in portable and battery-powered products such as computers, printers, battery charger, telecommunication power system, and telephones power system.

FEATURES

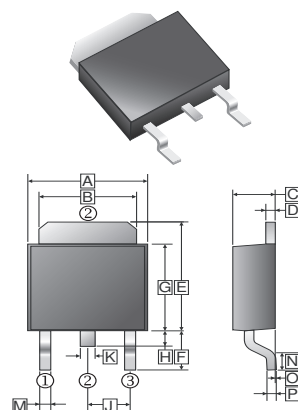
- Low $R_{DS(on)}$ provides higher efficiency and extends battery life.
- Miniature TO-252 surface mount package saves board space.
- High power and current handling capability.

PACKAGE INFORMATION

Package	MPQ	Leader Size
TO-252	2.5K	13' inch



TO-252(D-Pack)



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	6.4	6.8	J	2.30	REF.
B	5.20	5.50	K	0.70	0.90
C	2.20	2.40	M	0.50	1.1
D	0.45	0.58	N	0.9	1.6
E	6.8	7.3	O	0	0.15
F	2.40	3.0	P	0.43	0.58
G	5.40	6.2			
H	0.8	1.20			

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DS}	-150	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ¹	I_D	-10.7	A
Pulsed Drain Current ²	I_{DM}	-60	A
Continuous Source Current (Diode Conduction) ¹	I_S	-42.6	A
Total Power Dissipation ¹	P_D	50	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 ~ 175	$^\circ\text{C}$
Thermal Resistance Ratings			
Maximum Thermal Resistance Junction-Ambient ¹	$R_{\theta JA}$	40	$^\circ\text{C} / \text{W}$
Maximum Thermal Resistance Junction-Case	$R_{\theta JC}$	3	$^\circ\text{C} / \text{W}$

Notes :

1. Surface Mounted on 1" x 1" FR4 Board.
2. Pulse width limited by maximum junction temperature.

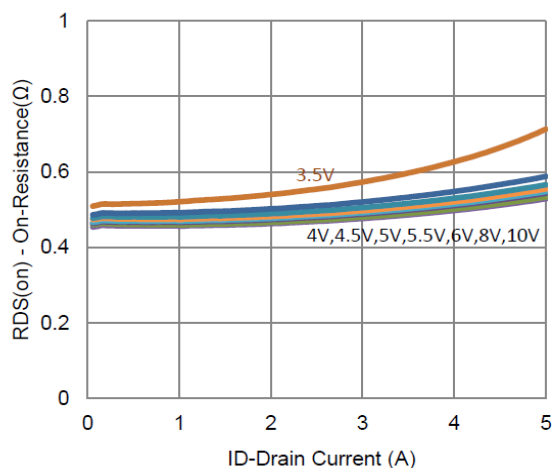
ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ C$ unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static						
Gate-Threshold Voltage	$V_{GS(th)}$	-1	-	-	V	$V_{DS} = V_{GS}, I_D = -250\mu A$
Gate-Body Leakage Current	I_{GSS}	-	-	± 100	nA	$V_{DS} = 0, V_{GS} = \pm 20V$
Zero Gate Voltage Drain Current	I_{DSS}	-	-	-1	μA	$V_{DS} = -120V, V_{GS} = 0$
		-	-	-25		$V_{DS} = -120V, V_{GS} = 0, T_J = 55^\circ C$
On-State Drain Current ¹	$I_{D(on)}$	-10	-	-	A	$V_{DS} = -5V, V_{GS} = -10V$
Drain-Source On-Resistance ¹	$R_{DS(ON)}$	-	-	295	m Ω	$V_{GS} = -10V, I_D = -5A$
		-	-	580		$V_{GS} = -5.5V, I_D = -4A$
Forward Transconductance ¹	g_{fs}	-	22	-	S	$V_{DS} = -15V, I_D = -5A$
Diode Forward Voltage	V_{SD}	-	-1.03	-	V	$I_S = -21.3A, V_{GS} = 0$
Dynamic ²						
Input Capacitance	C_{iss}	-	1080	-	pF	$V_{DS} = -15V$ $V_{GS} = 0$ $f = 1MHz$
Output Capacitance	C_{oss}	-	98	-		
Reverse Transfer Capacitance	C_{rss}	-	71	-		
Total Gate Charge	Q_g	-	6	-	nC	$I_D = -5A$ $V_{DS} = -75V$ $V_{GS} = -4.5V$
Gate-Source Charge	Q_{gs}	-	2.4	-		
Gate-Drain Charge	Q_{gd}	-	2.8	-		
Turn-On Delay Time	$T_{d(on)}$	-	8	-	nS	$V_{DS} = -75V$ $I_D = -5A$ $V_{GEN} = -10V$ $R_L = 15\Omega$ $R_G = 6\Omega$
Rise Time	T_r	-	18	-		
Turn-Off Delay Time	$T_{d(off)}$	-	54	-		
Fall Time	T_f	-	77	-		

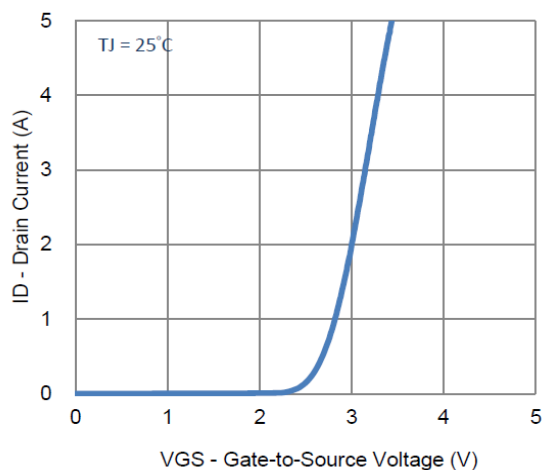
Notes:

1. Pulse test : $PW \leq 300\mu s$ duty cycle $\leq 2\%$.
2. Guaranteed by design, not subject to production testing.

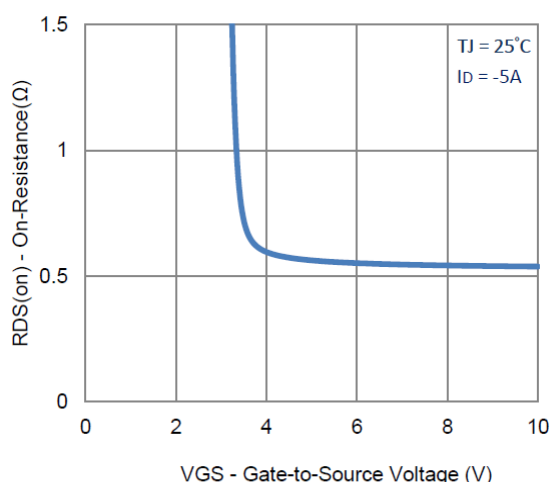
CHARACTERISTIC CURVES



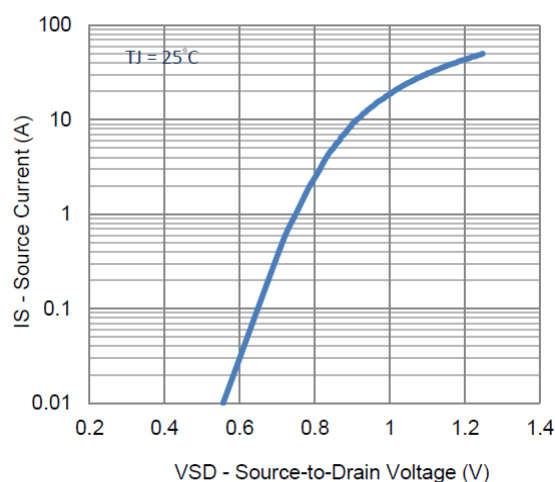
1. On-Resistance vs. Drain Current



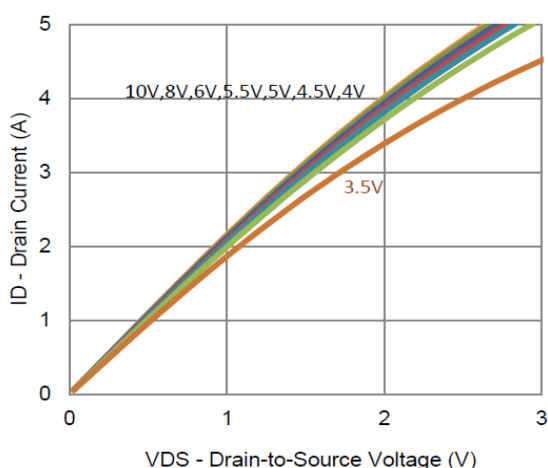
2. Transfer Characteristics



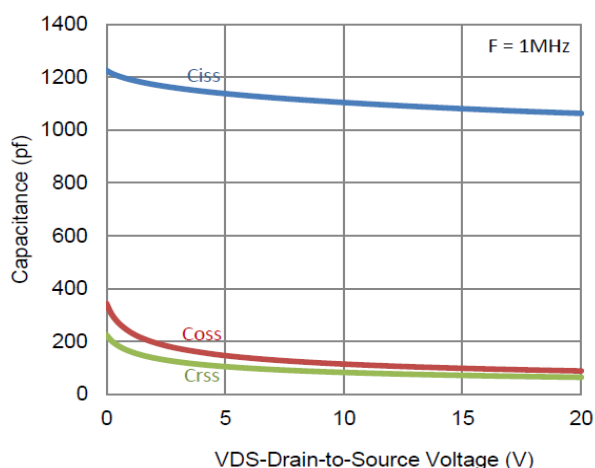
3. On-Resistance vs. Gate-to-Source Voltage



4. Drain-to-Source Forward Voltage

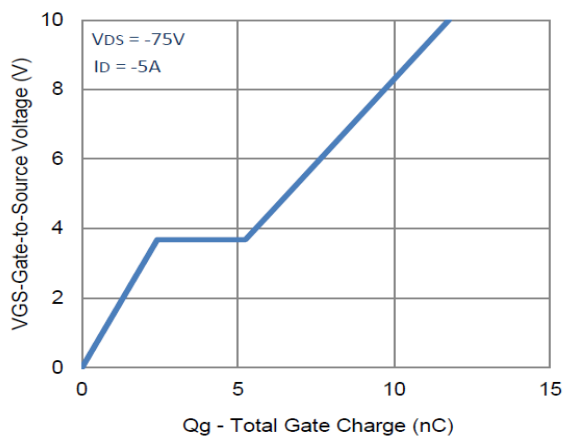


5. Output Characteristics

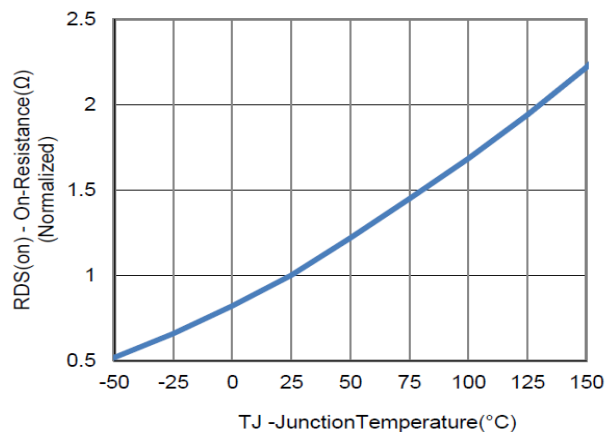


6. Capacitance

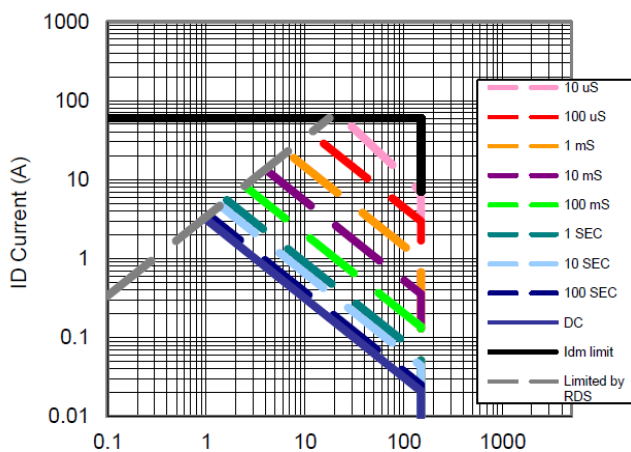
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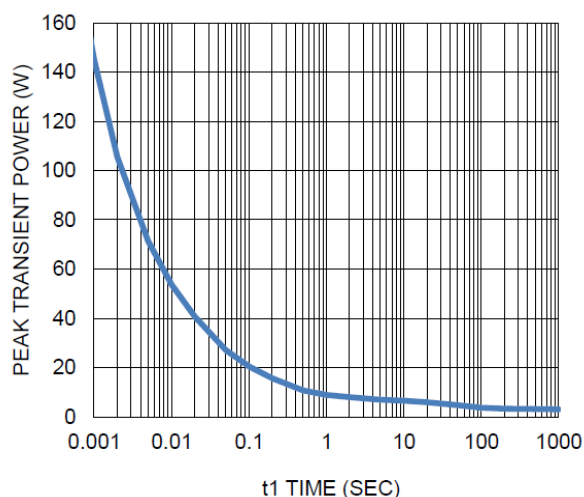
7. Gate Charge



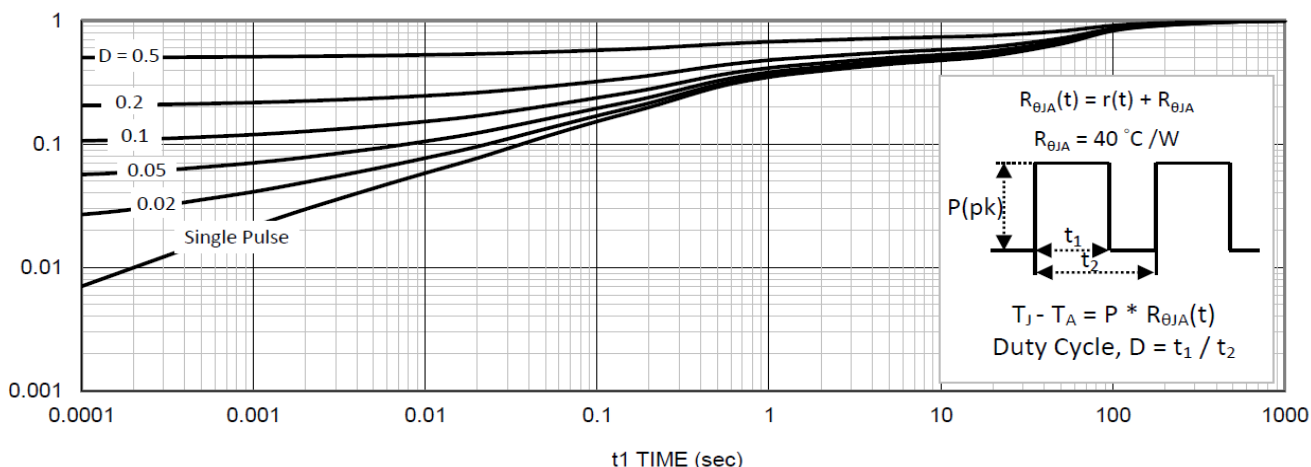
8. Normalized On-Resistance Vs Junction Temperature



9. Safe Operating Area



10. Single Pulse Maximum Power Dissipation



11. Normalized Thermal Transient Junction to Ambient