

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

DESCRIPTION

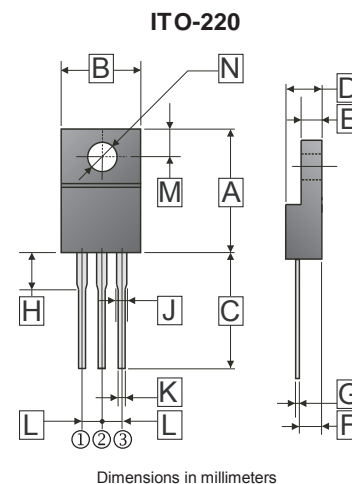
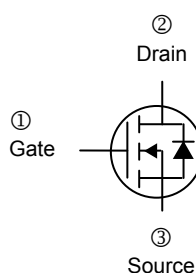
These miniature surface mount MOSFETs utilize a high cell density trench process to provide Low $R_{DS(on)}$ and to ensure minimal power loss and heat dissipation. Typical applications are DC-DC converters and power management in portable and battery-powered products such as computers, printers, PCMCIA cards, cellular and cordless telephones.

FEATURES

- Low $R_{DS(on)}$ provides higher efficiency and extends battery life.
- Low thermal impedance copper leadframe ITO-220 saves board space.
- Fast switching speed.
- High performance trench technology.

PRODUCT SUMMARY

PRODUCT SUMMARY		
$V_{DS}(V)$	$R_{DS(on)}$ m(Ω)	$I_D(A)$
60	26.5@ $V_{GS}=10V$	87 ^a
	32.5@ $V_{GS}=4.5V$	



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	15.00	15.60	H	3.00	3.80
B	9.50	10.50	J	0.90	1.50
C	13.00 Min		K	0.50	0.90
D	4.30	4.70	L	2.34	2.74
E	2.50	3.10	M	2.50	2.90
F	2.40	2.80	N	ϕ 3.1	ϕ 3.4
G	0.30	0.70			

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

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ^a	$I_D @ T_C=25^\circ C$	87	A
Pulsed Drain Current ^b	I_{DM}	240	A
Continuous Source Current (Diode Conduction) ^a	I_S	90	A
Total Power Dissipation ^a	$P_D @ T_C=25^\circ C$	300	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 ~ 175	$^\circ C$
THERMAL RESISTANCE RATINGS			
Maximum Thermal Resistance Junction-Ambient ^a	$R_{\theta JA}$	62.5	$^\circ C / W$
Maximum Thermal Resistance Junction-Case	$R_{\theta JC}$	3.2	$^\circ C / W$

Notes :

- Package Limited.
- Pulse width limited by maximum junction temperature.

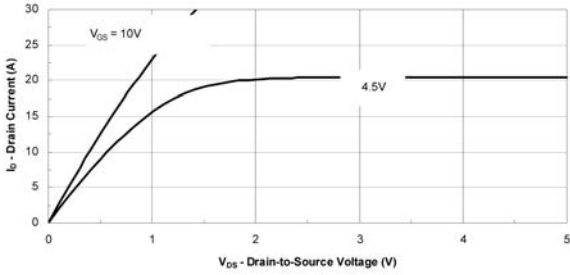
ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise specified)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Static						
Gate-Threshold Voltage	$V_{GS(th)}$	1	-	3	V	$V_{DS} = V_{GS}$, $I_D = 250 \mu\text{A}$
Gate-Body Leakage	I_{GSS}	-	-	± 100	nA	$V_{DS} = 0\text{V}$, $V_{GS} = 20\text{V}$
Zero Gate Voltage Drain Current	I_{DSS}	-	-	1	μA	$V_{DS} = 48\text{V}$, $V_{GS} = 0\text{V}$
		-	-	25		$V_{DS} = 48\text{V}$, $V_{GS} = 0\text{V}$, $T_J = 55^\circ\text{C}$
On-State Drain Current ^a	$I_{D(on)}$	120	-	-	A	$V_{DS} = 5\text{V}$, $V_{GS} = 10\text{V}$
Drain-Source On-Resistance ^a	$R_{DS(ON)}$	-	-	26.5	m Ω	$V_{GS} = 10\text{V}$, $I_D = 30\text{A}$
		-	-	32.5		$V_{GS} = 4.5\text{V}$, $I_D = 20\text{A}$
Forward Transconductance ^a	g_{fs}	-	30	-	S	$V_{DS} = 15\text{V}$, $I_D = 30\text{A}$
Diode Forward Voltage	V_{SD}	-	1.1	-	V	$I_S = 34\text{A}$, $V_{GS} = 0\text{V}$
Dynamic ^b						
Total Gate Charge	Q_g	-	8.5	-	nC	$V_{DS} = 15\text{V}$ $V_{GS} = 4.5\text{V}$ $I_D = 90\text{A}$
Gate-Source Charge	Q_{gs}	-	3.3	-		
Gate-Drain Charge	Q_{gd}	-	4.0	-		
Turn-on Delay Time	$T_{d(on)}$	-	18	-	nS	$V_{DD} = 25\text{V}$ $I_D = 34\text{A}$ $V_{GEN} = 10\text{V}$ $R_L = 25\Omega$
Rise Time	T_r	-	59	-		
Turn-off Delay Time	$T_{d(off)}$	-	37	-		
Fall Time	T_f	-	9	-		

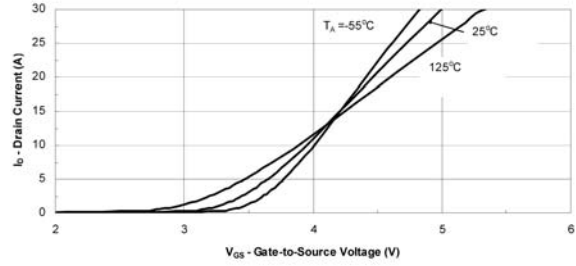
Notes

- a. Pulse test : Pulse width $\leq 300 \mu\text{s}$, duty cycle $\leq 2\%$.
b. Guaranteed by design, not subject to production testing.

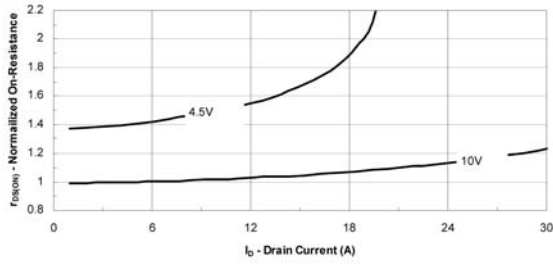
CHARACTERISTIC CURVE



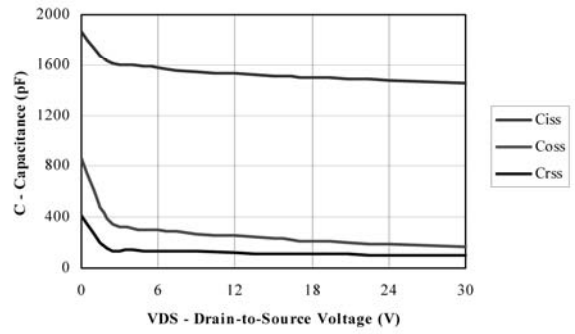
Output Characteristics



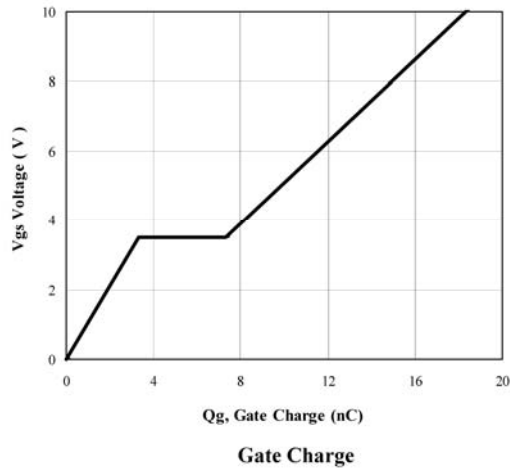
Transfer Characteristics



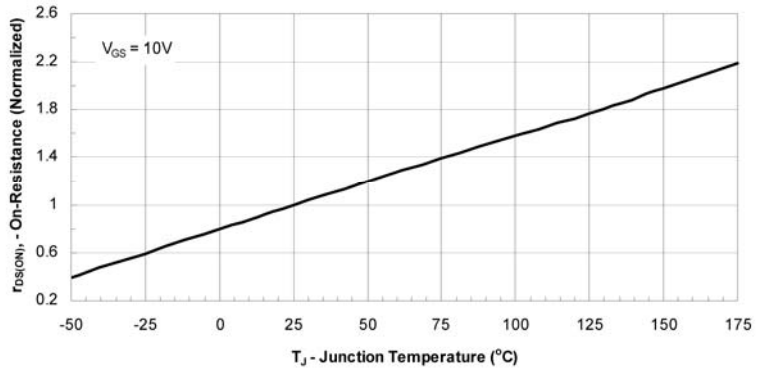
On-Resistance vs. Drain Current



Capacitance

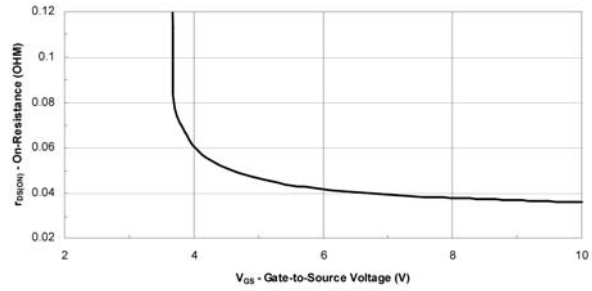
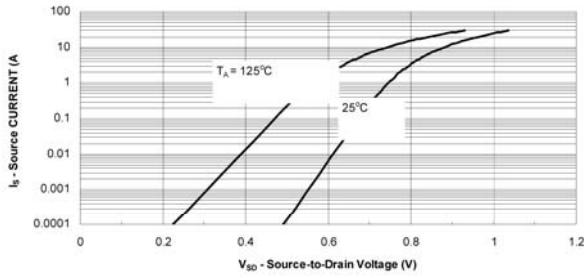


Gate Charge

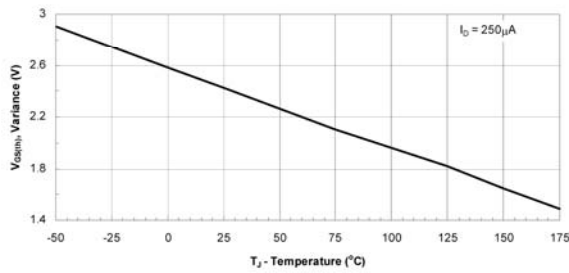


On-Resistance vs. Junction Temperature

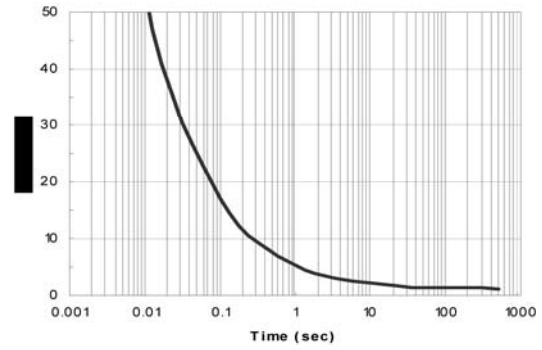
CHARACTERISTIC CURVE



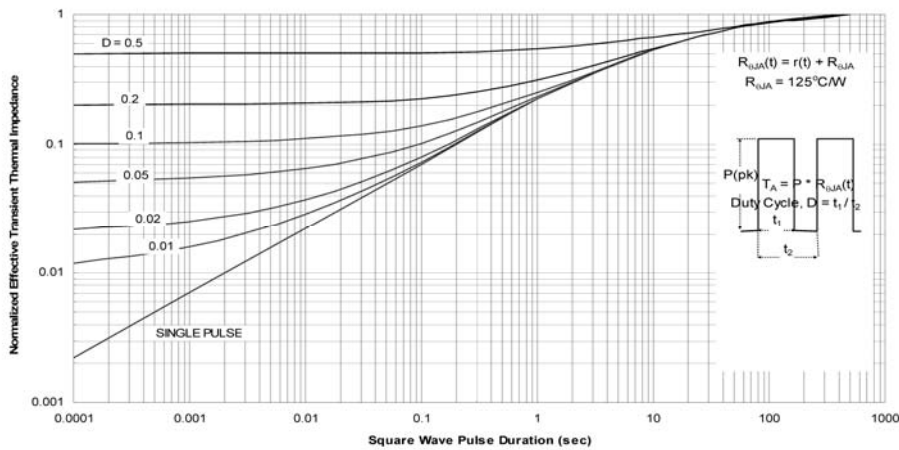
Source-Drain Diode Forward Voltage



On-Resistance vs. Gate-to Source Voltage



Threshold Voltage



Single Pulse Power

Normalized Thermal Transient Impedance, Junction-to-Ambient