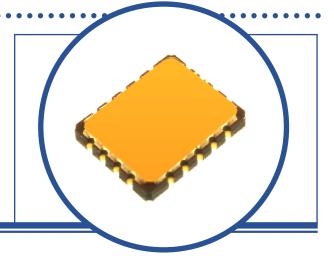
N-CHANNEL ENHANCEMENT MODE POWER MOSFET



2N6660C4

- $V_{DSS} = 60V$, $I_{D} = 1.0A$, $R_{DS(ON)} = 3.0\Omega$
- Fast Switching
- Low Threshold Voltage (Logic Level)
- Low C_{ISS}
- Integral Source-Drain Body Diode
- Hermetic Surface Mounted Package
- High Reliability Screening Options Available



ABSOLUTE MAXIMUM RATINGS (T_C = 25°C unless otherwise stated)

V_{DS}	Drain – Source Voltage		60V
V_{GS}	Gate – Source Voltage		±20V
I_{D}	Continuous Drain Current	$T_C = 25^{\circ}C$	1.0A
I_{DM}	Pulsed Drain Current ⁽¹⁾		3.0A
P_{D}	Total Power Dissipation at	T _C ≤ 25°C	5W
		De-rate $T_C > 25$ °C	40mW/°C
P_{D}	Total Power Dissipation at	$T_A \le 25^{\circ}C$	700mW
		De-rate $T_A > 25$ °C	5.6mW/°C
TJ	Operating Temperature Range		-65 to +150°C
T _{stg}	Storage Temperature Range		-65 to +150°C

THERMAL PROPERTIES

Symbols	Parameters	Min.	Тур.	Мах.	Units
R _{θJC}	Thermal Resistance, Junction To Case			25	°C/W
R _{0JA}	Thermal Resistance, Junction To Ambient			178.5	°C/W

- Repetitive Rating: Pulse width limited by maximum junction temperature
- Pulse Width ≤ 300us, δ ≤ 2%



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N-CHANNEL ENHANCEMENT MODE POWER MOSFET 2N6660C4



ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise stated)

Symbols	Parameters	Test Conditions		rs Test Conditions M	Min.	Тур.	Мах.	Units
BV _{DSS}	Drain-Source Breakdown Voltage	$V_{GS} = 0$	I _D = 1.0μA	60			V	
		$V_{DS} = V_{GS}$	$I_D = 1.0 \text{mA}$	0.8		2		
$V_{GS(th)}$	Gate Threshold Voltage		T _C = 125°C	0.3			V	
			T _C = -55°C			2.5		
I _{GSS}	Gate-Source Leakage Current	$V_{GS} = \pm 20V$	V _{DS} = 0V			±100	nA	
			T _C = 125°C			±500		
I _{DSS}	Zero Gate Voltage Drain Current	V _{GS} = 0	V _{DS} = 48V			1.0	- μΑ	
			T _C = 125°C			100		
I _{D(ON)⁽²⁾}	On-State Drain Current	V _{DS} = 10V	V _{GS} = 10V	1.5			А	
R _{DS(on)} ⁽²⁾	Static Drain-Source On-State Resistance	$V_{GS} = 5V$	I _D = 0.3A			5		
		VCc = 10V	V _{GS} = 10V	I _D = 1.0A			3	Ω
			T _C = 125°C			5		
9fs ⁽²⁾	Forward Transconductance	V _{DS} = 7.5V	I _D = 525mA	170			m℧	
V _{SD} ⁽²⁾	Body Diode Forward Voltage	V _{GS} = 0	I _S = 1.0A	0.7		1.6	V	
t _{rr} ⁽²⁾	Body Diode Reverse Recovery	V _{GS} = 0	I _S = 1.0A		350		ns	

DYNAMIC CHARACTERISTICS

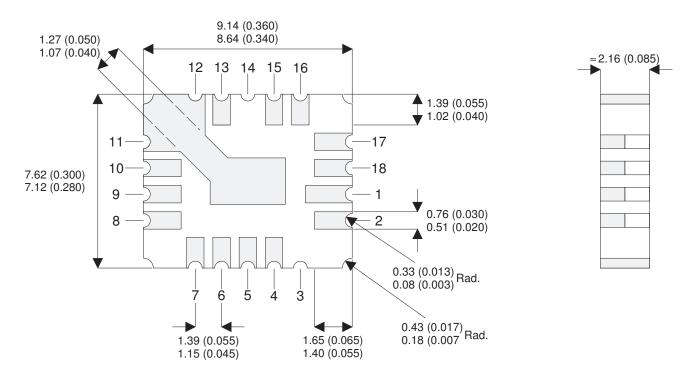
C _{iss}	Input Capacitance	$V_{GS} = 0$			50	
C _{oss}	Output Capacitance	V _{DS} = 25V			40	pF
C _{rss}	Reverse Transfer Capacitance	f = 1.0MHz			10	
^t d(on)	Turn-On Delay Time	V _{DD} = 25V			10	
^t d(off)	Turn-Off Delay Time	I _D = 1.0A	$R_G = 50\Omega$		10	ns

N-CHANNEL ENHANCEMENT MODE POWER MOSFET 2N6660C4



MECHANICAL DATA

Dimensions in mm (inches)



C4 Underside View

PACKAGE VARIANT TABLE

Variant	Pads	Connection
	Pads 6, 7, 8, 9, 10, 11, 12, 13	Source
^	Pads 4, 5	Gate
A	Pads 1, 2, 15, 16, 17, 18	Drain
	Pads 3, 14	Not Connected

N-CHANNEL ENHANCEMENT MODE POWER MOSFET 2N6660C4



SCREENING OPTIONS

Space Level (JQRS/ESA) and High Reliability options are available in accordance with the High Reliability and Screening Options Handbook available for download from the from the TT electronics Semelab web site.

ESA Quality Level Products are based on the testing procedures specified in the generic ESCC 5000 and in the corresponding part detail specifications.

Semelabs QR216 and QR217 processing specifications (JQRS), in conjunction with the companies ISO 9001:2000 approval present a viable alternative to the American MIL-PRF-19500 space level processing.

QR217 (Space Level Quality Conformance) is based on the quality conformance inspection requirements of MIL-PRF-19500 groups A (table V), B (table VIa), C (table VII) and also ESA / ESCC 5000 (chart F4) lot validation tests.

QR216 (Space Level Screening) is based on the screening requirements of MIL-PRF-19500 (table IV) and also ESA /ESCC 5000 (chart F3).

JQRS parts are processed to the device data sheet and screened to QR216 with conformance testing to Q217 groups A and B in accordance with MIL-STD-750 methods and procedures.

Additional conformance options are available, for example Pre-Cap Visual Inspection, Buy-Off Visit or Data Packs. These are chargeable and must be specified at the order stage (See Ordering Information). Minimum order quantities may apply.

Alternative or additional customer specific conformance or screening requirements would be considered. Contact Semelab sales with enquires.

MARKING DETAILS

Parts are typically marked with specification number, serial number (or week of seal) as shown in the example below. .

Customer specific marking requirements can be arranged at time of order but is approximately limited to three lines of 10 Characters. This is to ensure text remains readable.

Example Marking:

SML 2N6660 001

ORDERING INFORMATION

Part number is built from part, package variant and screening level. The part number can be extended to include the additional options as shown below.

Type – See Electrical Stability Characteristics Table Package Variant – See Mechanical Data Screening Level – See Screening Options (ESA / JQRS)

Additional Options:

Customer Pre-Cap Visual Inspection	.CVP
Customer Buy-Off visit	.CVB
Data Pack	.DA
Solderability Samples	.SS
Scanning Electron Microscopy	.SEM
Radiography (X-ray)	.XRAY
Total Dose Radiation Test	.RAD
MIL-PRF-19500 (QR217)	
Group B charge	.GRPB
Group B destructive mechanical samples	.GBDM (12 pieces)
Group C charge	.GRPC
Group C destructive electrical samples	.GCDE (12 pieces)
Group C destructive mechanical samples	.GCDM (6 pieces)
ESA/ESCC	
Lot Validation Testing (subgroup 1) charge	.LVT1
LVT1 destructive samples (environmental)	.L1DE (15 pieces)
LVT1 destructive samples (mechanical)	.L1DM (15 pieces)
Lot Validation Testing (subgroup 2) charge	.LVT2
LVT2 endurance samples (electrical)	.L2D (15 pieces)
Lot Validation Testing (subgroup 3) charge	.LVT3
LVT3 destructive samples (mechanical)	.L3D (5 pieces)

Additional Option Notes:

1) All 'Additional Options' are chargeable and must be specified at order stage.
2) When Group B,C or LVT is required, additional electrical and mechanical destructive

3) All destructive samples are marked the same as other production parts unless otherwise requested.

Example ordering information:

The following example is for the 2N6660C4 part, package variant A, JQRS screening, additional Group C conformance testing and a Data pack.

Part Numbers:

2N6660C4A-JQRS (Include quantity for flight parts) 2N6660C4A-JQRS.GRPC (chargeable conformance option) 2N6660C4A-JQRS.GCDE (charge for destructive parts) 2N6660C4A-JQRS.GCDM (charge for destructive parts) 2N6660C4A-JQRS.DA (charge for Data pack)

Customers with any specific requirements (e.g. marking, package or screening) may be supplied with a similar alternative part number (there is maximum 20 character limit to part numbers). Contact Semelab sales with all enquiries

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